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AN ANALYSIS OF KNOWLEDGE AND VALUATION

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AN ANALYSIS OF

KNOWLEDGE AND VALUATION

BY

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PREFACE

The first studies toward this book were addressed to topics in the field of ethics. But in the course of those earlier studies it became apparent that the conceptions which I wished to develop should not stand by themselves; they required the support of further considerations relating to values in general. In particular, they depended on the premise that valuation is a form of empirical knowledge. And the development of that thesis would, in turn, call for much which must be antecedent. In consequence, the studies in ethics were put aside for the time being, and the contents of this present volume may be viewed as prolegomena. If what is here set down has other bearings also and may serve other interests, at least it is the results with respect to valuation which indicate the direction in which the rest is oriented.

The two basic problems traditionally dealt with under the head of ethics—the question of the *summum bonum* and the question of justice—present themselves as distinct. And it is the second of these which marks the peculiar province of ethics; the former is a wider problem belonging to the theory of values. An ethics of the transcendentalist variety such as Kant's, may subordinate the good to the right, and regard finally correct valuations as dependent on and governed by the principles of morally justified action. But Kant is obliged, in candor, to admit that moral goodness would not be enough: virtue is the supreme good, but the highest and complete good requires also satisfaction of the human capacity for happiness, which is distinct from the moral and even—on his account—opposed to it. Kant's ethics has a quality of discernment and an elevation of mind which will always remain impressive; but this acknowledgment that the finally valuable is not determinable from the moral, witnesses to the breakdown of his transcendentalist point of view. And for any naturalistic ethics, determination of the good must be prior to determination of what is right, since the justification of action depends on the desirability of its contemplated results. Consonantly, general

questions about correctness in valuation come first, and questions about right conduct come afterward, so far as these two can be separated.

It is such a naturalistic conception of values which is here put forward in Book III. Its most general thesis is the one mentioned above, that valuations represent one type of empirical cognition; hence that their correctness answers to a kind of objective fact, but one which can be learned only from experience and is not determinable *a priori*. Only if we recognize the truth of that can we avoid the transcendentalist dictum of a moral obligation which is independent of the humanly desirable, without falling into the errors of Protagorean relativism or that moral skepticism which would destroy the normative by reducing it to merely emotive significance. To make it clear that empiricism in epistemology and naturalism in ethics do not imply such relativism and cynicism has been one main objective in the writing of this book.

Clarification and substantiation of that central thesis concerning values, requires of course that we acknowledge and examine those features of valuations which distinguish them as one species within the genus of empirical cognitions. But even more obviously it demands investigation of those fundamental and general characteristics of empirical knowledge with respect to which value-apprehensions and the apprehensions of other properties of things are essentially alike; similarly justified as empirical beliefs and similarly to be confirmed in experience. It is only by pointing out the extended parallel between valuation and the more commonly considered types of empirical knowing that there would be much hope of persuading those who are initially inclined to disagree—and what with the transcendentalists and the relativists and skeptics, that includes a considerable number nowadays. Thus the treatment of valuation in Book III calls for the antecedent analysis of empirical knowledge in general, undertaken in Book II.

The discussion of meaning and the analytic in Book I may appear to be less necessary: perhaps there is no equal necessity for it. I have there confined myself more narrowly to what is called for by the further argument, and the topics introduced have been less fully covered. Especially in view of the extensive and rapid development which the study of meaning exhibits since the fruitful method of ap-

proach was indicated by Charles S. Peirce and William James, any adequate treatment of that subject would have called for much more space. But there is one main reason why I could not be content to omit it altogether. For contemporary empiricism, the theory of meaning has that same intimate connection with epistemology which earlier rationalistic and idealistic conceptions assigned to metaphysics. This is the case because we now find that what is knowable *a priori* is certifiable by reference to meanings alone. That is one major result of present-century studies in exact logic. In consequence, it becomes unnecessary to suppose that *a priori* truth describes some metaphysically significant character of reality, or that universals have some peculiar mode of being, obscure to sense but directly disclosable to reason. What we know independently of sense-particulars, we can assure by understanding our own meanings and the connections of them with one another. Meanings may be considered without reference to any applications they may have to existent things; but to reify them as another kind of objects than the sense-presented, is uncalled for and may lead to the ancient fallacy of ascribing to essences some kind of cosmic efficacy.

However, in the repudiation of this kind of rationalistic realism, current empiricism sometimes goes to the opposite extreme of a nominalism which regards meanings as no more than the creatures of linguistic convention. The truths of logic may then be taken as relative to the language-system, and the analytic in general may be delimited as the syntactically derivable. But if analytic truth 'says nothing about' an independent reality, it likwise 'says nothing about' and has no dependence on language. However much linguistic symbols are subject to convention and arbitrary rules, this freedom to stipulate and manipulate does not extend to the meanings which are symbolized. An analytic statement says something; and something whose factuality is independent even though it is not existential in significance. Once the intensions of language are fixed, one can no more affect these meanings or alter their relations than one can alter the facts of existence by talking about them in a different dialect. On that point Platonic realism is nearer to the truth.

The conventionalist fallacy is particularly destructive in value-theory. Here, as in any branch of study, there must be initial statements explicative of those properties which are to be dealt with; and such statements can only be definitive and *a priori*. Thus in the field of values, such basic statements will not represent valuations of anything but rather are required to be analytic of the nature of value itself, or of some species of value, and indicate the criteria of the valuable. In mathematics and logic, where the properties studied are themselves formal, it may work no serious harm if such primitive propositions are interpreted as expressing stipulated relations of linguistic forms or merely procedural rules for manipulating symbolism. But in any empirical branch the base-concepts must find some direct application. And that to which *value*-terms apply is always characterized by something holding an imperative for action. Thus if one say, "The good is pleasure," then either his statement explicates correctly the nature of that which gives direction to rational conduct or else it is false and has consequences which may be devastating. And if another assert, "The good is activity befitting the nature of a man," then his divergence from the hedonist is not that he intends something else in using the term 'good' but that, addressing himself to the intrinsically desirable, he reads the nature of it differently. Otherwise, no debatable issue would lie between these points of view. The relations between the good, the pleasurable, and that quality of life which is found in appropriate functioning of the rational animal, are as they are and not otherwise, regardless of any convention of language in terms of which we speak of them.

Thus the degree of correlation which may be found between conventionalist conceptions of meaning and the repudiation of objective norms, may not be altogether accidental. The attempt to delineate that fundamental sense of 'meaning' in which meanings can be neither manipulated nor altered, while at the same time acknowledging the scope and importance of choice with respect to our ways of classifying and of convention in the modes of linguistic symbolism, represents a major motive for including here the contents of Book I.

If in final result it appears that I take the long way around to my projected goal, and have attempted to survey the whole field of knowledge on the way, then that is not because I would choose to make a new attempt at system-building: this manner of approach seems dictated by the inherent logic of cognition and valuation. We cannot finally escape the fact that ethics and epistemology and the theory of meaning are essentially connected. And while it is ethics which is the cap-stone, the foundations must be laid in the examination of meaning.

To bring so much territory within the purview of a single volume, dictates that discussion be restricted to what is elementary in the sense of being fundamental. Attention has been confined to basic theses and their major consequences, together with such difficulties as must obviously be met. Some degree of thoroughness with respect to those topics which are included, has been attempted; but there is no one of these which does not raise further questions here omitted. I have, however, eschewed the doubtful economy of symbolism, where symbols can be avoided, being less afraid of the minor inaccuracies of plain English than of failing to be intelligible. Also I have intended to follow the argument wherever it might lead, even though sometimes, as in the chapters on probability theory and on esthetic value, that amounts in my case to hazardous adventure. One who comes to the conclusion that empirical knowledge consists of probable beliefs, can hardly fail to examine what the statement "X is probable" intends. Nor could he accept any of those accounts of probability which are currently most favored in technical circles; because those conceptions are arrived at precisely by excluding at the outset any meaning of 'probable' which could extend to the generality of everyday empirical beliefs. Nor could one omit completely a major type of value such as the esthetic in a general discussion of valuation. With respect to these two topics, I draw some comfort from the thought that if the experts find my suggestions unacceptable, at least that is a compliment they also pay to one another.

Points of view alternative to the one presented here have been omitted from consideration, except so far as discussion of them would serve to clarify the issues in question, and in such cases the reference is to general tendencies rather than to particular authors. Discussion of other recent and contemporary conceptions which approximate in measure to those I have advanced, has likewise been omitted. One particularly important such reference, however, it gives me pleasure to make here. The manner of interpreting propositions, in Chapter III, is the same in essentials—though the terminology and some details are different—as that which my colleague Professor H. M. Sheffer has for some years presented to his classes. I should also like to say that my thinking on the topic of valuation has been deeply influenced by my association at Harvard with Professor Ralph Barton Perry and Professor David W. Prall as well as by what I have learned from Professor Stephen C. Pepper.

I am indebted to the editors of the journal for *Philosophy and Phenomenological Research* for opening their pages to an outline presentation of points included in Book I. The discussion by other contributors to the same symposium, particularly Professor C. J. Ducasse and Professor C. A. Baylis, has enabled me to improve the presentation; and a review of that article by Professor Alonzo B. Church, in the *Journal for Symbolic Logic,* has led to the correction of one mistake and the avoidance of one poorly-chosen piece of terminology. Professor Baylis has kindly read the whole book in typescript, eliminating numerous slips and making suggestions which have been helpful. He should not, however, be held responsible for shortcomings which remain, especially since I have sometimes been obdurate with respect to points which he would criticize.

The Harvard University Press has kindly given permission for the quotation from the *Collected Papers of Charles Sanders Peirce* which appears on page 308.

I have enjoyed the opportunity of presenting contents of this book as the seventh series of Carus Lectures, at the general meeting of the American Philosophical Association held at the University of California in Berkeley in December 1945. My best thanks are due

to the officers of the Association and of its Pacific Division, and to the Lecture Committee and the Open Court Publishing Company, for their unremitting helpfulness in completing the arrangements. Main theses of Book II and Chapter XII of Book III were there presented in outline and discussed by members of the Association. I much regret that advantage could not be taken of this profitable discussion in the last revisions of the book; but the typescript had already been delivered to the publishers. The further lectures were drawn principally from Chapters XIII, XIV, and XVI, of Book III.

In making the Index, I have had in mind the needs of any who may wish to read some one or more of the four divisions of the book, omitting others. Any phrase or passage which is obscure in its context may perhaps be clarified by the references listed or by means of the analytical table of contents.

C. I. LEWIS

Cambridge, Mass.

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INTRODUCTION

Chapter I

Knowledge, Action, and Evaluation

1. Knowledge, action, and evaluation are essentially connected. The primary and pervasive significance of knowledge lies in its guidance of action: knowing is for the sake of doing. And action, obviously, is rooted in evaluation. For a being which did not assign comparative values, deliberate action would be pointless; and for one which did not know, it would be impossible. Conversely, only an active being could have knowledge, and only such a being could assign values to anything beyond his own feelings. A creature which did not enter into the process of reality to alter in some part the future content of it, could apprehend a world only in the sense of intuitive or esthetic contemplation; and such contemplation would not possess the significance of knowledge but only that of enjoying and suffering.

The interest of action is not an interest in what is before us, on its own account, but an interest in what will be or may be. And the interest of that knowledge of the world which guides our action is the same. For the cognizing mind, something immediately presented —some item of direct experience—is a sign of something else, not so presented but likely to become realized or capable of being realized in further experience. Only so can what is said to be known be something capable of being verified; since obviously, to verify is to submit what is in question to the test of some experience, not given when the verification is called for but which may be given. Further; what an empirical cognition thus predicts as capable of being verified will, in the typical case if not in all cases, depend in some part on our action. If verification does not of itself and necessarily imply action, at least it is only where what is apprehended is conditional upon action that knowledge could be other than futile. A predicted future

which should follow fatally upon what is presently given, is a future it would be pointless to foresee, since *ex hypothesi* nothing could be done about it. Knowledge which serves for the guidance of action must anticipate the future, but a future to which the action itself will make a possible difference.

Whether the action is performed or not, will depend upon evaluations made; will be determined by reference to anticipated possible experience as something to be desired or something to be avoided. Action attempts to control future experience, so far as may be, in our own interest. It has its *terminus a quo* in the situation which is given; its *terminus ad quem* in some experience to which a positive value (or comparative value in relation to alternatives) is assigned. The principal function of empirical knowledge is that of an instrument enabling transition from the one to the other; from the actual present to a future which is desired and which the present is believed to signalize as possible. To know is to apprehend the future as qualified by values which action may realize; and empirical knowledge is essentially utilitarian and pragmatic.

If knowledge should seem to have a different significance, and one which is incompatible with these observations, then that appearance itself should challenge our attention; since plainly we shall not deny that the purport of knowledge is important for our choice of conduct. It may be said, for example, that what science predicts are future happenings which, just so far as they are predictable, are beyond our control; and that such categorical predictions are of the essence of knowledge at its best. But the difficulty which thus appears is apparent only. Let us grant that what science predicts—an explosion, perhaps—is unalterable future fact. Still no categorical prediction of any experience is necessarily contained in that. And the utility of this piece of information lies precisely in that fact. The point is that when the explosion occurs we may be elsewhere, or may make provision for confining the effects of it. The impact of the predicted event upon our experience, is one which still is conditional upon our possible action. And so in general: the utility of knowledge lies in the control it gives us, through appropriate action, over the quality of our future experience. And such control will be exercised in the interest of realizing that which we value, and of obviating or avoiding what is undesirable. Such considerations but serve to emphasize the

essential relations between the knowledge we seek of objective facts, the values we hope to realize in experience, and the actions which, guided by the one, move toward the other.

2. The connection here suggested between knowing, doing, and valuing is one which is plainly indicated by the general character of experience, and in its main outline is probably obvious. If it is capable of being overlooked, or could be doubted, that is perhaps because 'knowing', 'doing', and 'valuing' are all of them terms which are applied now in a wider, now in a narrower sense, and such ambiguities cloud the points in question.

Particularly this is true of 'acting'. In discussions of moral problems and questions of ethics, and in much of ordinary discourse, the term 'act' is applied primarily to such behavior as involves anticipation of consequences and acceptance of these results as desired or intended. The same is the fundamental meaning of 'act' in legal contexts and wherever what is called responsibility is in question. But also animals which presumably are incapable of definite previsions and explicit valuations are said to act; and even inanimate things are spoken of as doing this or that and as acting upon one another. Furthermore, much of our own behavior for which we are taken to be responsible is hardly such as is instigated by explicit foresight and assignment of values. Deliberate action shades off, in one direction, into that which represents instinctive tendencies and automatic responses, and in another, into that which has become habitual and is no longer attended by any definite prevision or assessment of consequences.

Somewhere here a line must be drawn—or more than one. Our own deliberately judged conduct belongs on one side, and those processes called actions or doings of inanimate objects and unconscious organisms plainly belong on the other. But between these two there remains an indeterminate middle ground—e.g., what we do habitually and without consideration—often covered by the broad term 'behavior'. The common-sense category of action is extended to cover a good deal of this middle ground; for example, much that men are held legally accountable for could not well be regarded as action taken with prevision and evaluation of consequences.

That such doings are behavior in the merely physical or biological sense, is nothing to the point. Though it may be well in passing to

observe how easily we allow such terms to become weazel words, and may lose our question amongst the ambiguities of them. 'Behavior', 'doing', 'act', as applied to the goings on in inanimate objects, are doubtless so used originally through animistic attribution to the unconscious of the kind of drives we discover in curselves. But such terms have now acquired this meaning as a second sense, which is literally applicable to the physical and no longer carries with it any superstitious connotation of initiative. It is this fact of initiative, however, observable in ourselves and not attributable to physical things in general, which here requires our attention. And the fact that purposive behavior is a physical happening, argues nothing as to the adequacy of exclusively physical categories for description of it, since that feature which is in point is one which it does not share with physical doings in general. No anathema pronounced by any psychologist against such words as 'purpose' will exorcise this initiative as a distinctive and observable character of certain modes of conscious doing. It still remains as something he must deal with, in his preferred terminology, as best he may. And if use of the term 'behavior' serves to fudge the distinction in question, then once again we have a double-meaning which obscures a fact; though now the fallacy is opposite in its direction to that which primitive man commits, and it is the original meaning of 'behavior' as self-determination in doing which now is reduced to the status of a metaphorical second sense.

Any question of psychological method would, however, take us beyond the field of our intended problems. We are concerned only to remind the reader that the usage of 'act' and 'action' which prevails in ethics and jurisprudence, and which remains the first meaning of such words in common parlance, is one which answers to observable characters of our own doing and characters which are not observable in any doing of physical things generally. It is this meaning of 'action' which is essential for analysis of knowledge and for observing the connection between knowing and that human doing which is directed toward realization of interests. Doubtless this common meaning would have been granted, without comment or criticism. But the point with which we are presently concerned is that while examples of such human action are likely to be chosen from cases of deliberate decision, with explicit prevision of consequences and evaluation of

these, the term is commonly extended beyond such cases, though still with distinction from physical doing in general and from unconscious behavior.

If in walking I turn right instead of left at a certain junction, you will attribute that motion of my body to me as my act; and so will I; though it may be that neither of us could find indication of deliberate decision or explicit prevision or any definite assessment of values in the initiation of it. If you ask me why I took this turn, I shall doubtless reply by indicating an objective which lies in this direction; "This street will take me home." I consider that the course taken was something which I did; and did for the reason assigned; even though from the time I took the turn until you made inquiry, I had not thought of the matter at all. There was no hesitation, no tension of opposed inclinations, no sense of effort, and no peculiar oomph of deciding for this and against that. I took no thought upon alternatives and made no judgment; the process might well be said to have done itself. But it is called my act; and if you and I should now find ourselves where we did not wish to be, we might both feel that I was responsible.

The reason this piece of behavior is so construed, and is marked off from beatings of the heart and knee-jerks, plainly is that, while I took no explicit thought of anything to be decided, nevertheless I was aware of what was going on and aware of it as alterable to my wish and will. I was aware of this as I was aware of being out of doors, though nothing happened to sharpen such awareness and bring the content of it to the focus of attention. That being so, I attribute the behavior to myself in a different sense than physiological happenings in my body which are uncontrollable. It would be possible to construe such responsibility in the general fashion suggested by the legal category of 'contributory negligence'. One could say that this particular piece of behavior did itself by habit, but that somewhere along the temporal track of the growth of this habit there was explicit judgment and deliberate decision without which it would not have developed. But this seems unnecessary, and hardly accurate to the ground on which the attribution is made. It is more in accord with the facts to recognize that any bodily doing is accounted a responsible act if we are aware of it as corrigible behavior in ourselves and as tending to an objective affected by desire or interest. That is not

accounted an act which one is not aware of, or not aware of in such wise that it is corrigible to our wish. And that which one is not aware of as affected by any sense of the desirable, if it be accounted an act at all, at least is not held to be a significant act.

The inquiry, "Why did the billiard ball do that?" asks no question of future possibility and raises no issue of the desirable. In fact such considerations are ruled out in the proper answer; which must be in terms of antecedent fact alone and without reference to values. But the inquiry, "Why did *you* do that?" asks a quite different kind of question; it does not call for a causal or historical or genetic account but for a justification. Or more precisely; it asks for a causal account only in case what is done is not corrigible, and is to be excused, on the ground of inadvertance or compulsion, as not a responsible act but only bodily behavior without our initiative. It is a distinctive character of human action that justification of it is significantly asked for. And justification can be assigned only in terms of possibilities future to the doing, and of these in terms of some putative desirability.

The question is not so much, however, whether the behavior *was* deliberately initiated through explicit appraisal and decision as whether it could have been and would have been if question of consequences and their desirability had been raised: whether the sense of a portended objective figured in the initiation of it, and in such wise as to render it amenable to felt desirability in that resultant. Where the behavior grows out of such felt interest and would not have taken place without it, we accept specification of that objective as answer to the question, "Why did you do this?" whether it became the object of explicit judgment and decision or not. Deliberations in the weighing and acceptance are not of the essence here; but corrigibility *is* of the essence, and relation to some sense of values is likewise of the essence.

That the characteristically chosen examples of action should be cases in which there is explicit prevision and deliberate decision is, however, both understandable and legitimate. To attribute these characters to all action, doubtless smacks of a fiction which should be avoided. Yet such cases constitute the justifiable paradigm of action in general because they merely exhibit in explicit form those features which implicitly are determining for all behavior which can

be accounted action as distinct from mere physical doing. If formulation of action in these terms would not be in all cases literally accurate, still it is this kind of account which the active attitude would give of itself if challenged; it is this kind of account which we give of ourselves when called upon to say what we did and why.

3. It is true of 'knowledge' also, as it is of 'action', that the term is used sometimes in a narrower, sometimes in a wider sense. Examples of knowing are typically chosen from those which answer to the narrower meaning, although limitation of the term to such as these would be incompatible with the practical importance assigned to knowledge, and with the common assumption that humans are engaged in knowing, of one sort or another, through most of their waking hours. To an extent not commonly remarked, the demands we make of what is to be called knowledge, when compared with the things we say unhesitatingly that we know, could easily lead to the conclusion that most attributions of knowledge are made by a kind of fiction.

First, it is requisite that knowing be an assertive state of mind; it must intend, point to, or mean something other than what is discoverable in the mental state itself. Further, this believing attitude lays claim to truth: it submits itself to appraisal as correct or incorrect by reference to this something which it intends. Its status as knowledge is, by such intent, not determinable through examining the state of mind itself but only by the relation of it to something else. And again, no believing state is to be classed as knowledge unless it has some ground or reason. It must be distinguished not only from false belief but also from that which is groundless and from the merely fortunate hazard of assertion. Knowledge is belief which not only is true but also is justified in its believing attitude.

Whoever knows or claims to know must admit the pertinence of the challenge, "*How* do you know; what warrants you in believing?" And he must also find answer to the even more fundamental challenge, "What do you mean; what fact or state of affairs do you point to; and how will what you indicate disclose itself?" Implicitly he agrees that he should recede from his assertive attitude if either of these two challenges cannot be met. Yet if only such mental states as clearly include the answer to these questions are to be accounted knowledge, then cognition, instead of being a pervasive phenomenon

of human life, would be one which is highly exceptional. Particularly so if such answers should be required to be explicit and complete: in that case knowledge would probably be non-existent.

Knowledge shades off, on the one side, into those active attitudes, induced by past experience, which are its counterpart in animal life and presumably represent the phenomenon from which genetically the human type of knowing has arisen. On the other, it merges into unconsidered response such as was originally accompanied by explicit consideration and judgment but has now become habitual and semi-automatic because it characteristically leads to satisfactory results. In such cases, the sense of what is meant is vague or indicated only by the active attitude itself; and any justifying ground is adumbrated rather than explicit. If a child ask us which is his right hand, we tell him without hesitation. But if he asks *why* is that his right hand —a demand to explicate the meaning of the statement—we are irritated, because we do not easily summon the correct answer. And if he should be distrustful enough to inquire what makes us think that this is his right hand, we should be outraged; injured in our *amour propre* of maturity, which is so comfortably assured of many things the ground of which escapes us at the moment. Almost one can say that the surer we are of what we know, the less clear we are precisely what we mean and just how we know it. Knowledge so characteristically consists of items we have comfortably filed away in their proper pigeonholes as finished business. Even in the best and clearest cases of knowledge, such as are likely to be put forward as examples, our sense of what is meant, and our sense of the basis of belief, will be incomplete. We can go a little way in explication of these, but to go further would become progressively more difficult. The utmost that can be demanded is that one who is said truly to know should be able to provide such explication when the need of it is genuine, and after reflection, and up to a certain point—the point where we reach what is already understood or what may be taken for granted.

Yet if in the analysis of knowledge we characteristically substitute for the relatively vague and inexplicit believing attitude an ideal explanation of it, this procedure has its warrant. Knowledge is not a descriptive but a normative category: it claims correctness; mental states are classified as genuine knowing only on assumption of such correctness. Epistemology is not psychological description of such

mental states, but is critique of their cognitive claim; the assessment of their veracity and validity, and the eliciting of those criteria by which such claim may be attested. And yet it would be unnecessary and unwarranted if we should admit that this purport of epistemological analysis, where it diverges from the psychological, is such as makes it *non*-descriptive, as if it were untrue to the nature of the actual cognitive state. The truth-claim and the claim to be justified are as truly characteristic of cognitive states as any other feature, and are immensely more significant of their vital function than are more narrowly 'descriptive' characters. Analysis of knowledge assesses the cognizing and assertive attitude in that manner which this attitude, by being one of belief, indicates that it would assess itself. Such examination but makes explicit that which, however vague and vestigial, is nevertheless truly implicated in the cognitive phenomenon, and belongs to the essential significance of it for human life.

It is a fact, however, that in the attempted analysis of knowledge, explicit formulation of what is no more than implicit is frequently required. In that sense epistemological procedure—as well as common-sense investigation of instances of knowledge—might be said often to replace the actual content of the knowing state by something more explicit which would be accepted as the implied intent of it. And failure to remark this characteristic 'explication' of the psychological state, in a manner essential to assessment of its cognitive significance and correctness, can lead to difficulties and to the posing of questions which have no answer. In the interest of examining those features of knowledge on which its truth and the justification of it as belief depend, we stand in some danger of painting an idealized picture of valid cognition which no psychological state could live up to, and then of reviling the actual human phenomenon because it can no more than approximate to our delineation, or can only imply what we demand should be explicit. This consideration is important at various points in the analysis of knowledge, and will later call for our attention.

4. It is a suggestive fact that those vaguer states which bound the phenomenon of human knowledge at its best—the animal reaction out of which it develops, and the habitual response into which it lapses—are both of them such that the cognitive significance which could be ascribed merges with and is hardly distinguishable from the

active attitude itself. Here 'ground' or 'reason' are represented by some precipitate of past experience which, as felt, is no more than a coloring of safe familiarity which marks the perception-inclination complex itself. And the sense of what is indicated or believed in, likewise merges with the active inclination and is, so to say, no more than the felt direction of it.

Examination of cognition as a vital function, continuous with animal behavior and with habit, both serves to enforce the essential connection of it with action and indicates the direction in which we must look, in epistemological analysis, in order to explicate the meaning-function of a cognitive state and to evaluate the truth-claim which it implicitly makes.

No attitude, feeling, or other conscious state of the organism could be assigned a significance of empirical cognition except such as are responses to some character or item of the environment or within the organism itself—to some feature of the situation which is permanent and pervasive or to some which is temporary and local. And any state or attitude which could be called 'response' exhibits that appropriateness or inappropriateness, utility or disutility, which evolutionally grows up to become the correctness or incorrectness of knowledge. It is too evident to require discussion that cognitively guided behavior is merely the farthest reach of adaptive response, and that without this function of the appropriate guidance of action, our complex modes of knowledge would not have come to be.

It was Herbert Spencer who suggested that the appearance of modes of consciousness higher than mere feeling was dependent on the development of distance-receptors—eyes, ears, the organs of smell. Through possession of such organs, the animal is enabled to respond adaptively to what is distant in space and, in its impact upon the organism, distant in time. It is in this consideration principally that Spencer finds the significance of the stimulus as a *sign*. That is, the creature so endowed comes to respond, on occasion, not to the immediate sense-quality of the stimulus itself, or to its character as pleasant or unpleasant feeling, but in a manner appropriate to the quality of something else—the distant object or the portended event—which has come to be associated with the given character of the stimulus. For the organism with contact-senses only, simple reflexes determined by the harmful or the beneficial nature of the stimulus-object

itself are, in general, the only kind of responses having adaptive value of which it will be capable. The animal with distance-receptors has a use for more complex modes of reaction, and for the capacity to respond to stimuli as signs rather than merely to their character as immediate; because what is perceived at a distance is not at the moment affecting the organism either beneficially or harmfully, and whether it will later work some benefit or harm may depend on the mode of action which is adopted. The enemy at a distance may do no injury to the creature that conceals itself or runs away; the food-object at a distance will provide no nourishment unless approached or surprised or pursued.

It is obvious that the significance of apprehending what is distant in space is that, in the experience of the organism, distance in space implies distance in time of the possible effects upon it of the object apprehended. This time-interval is the interval of possible effective action. The longer it is, the larger the possibility that what portends may be conditioned by an 'if' or 'if not' of action; the greater the range of possible alternatives of response, and the larger the possibility for modes of response which are complex and time-consuming. The connection which Spencer thinks to trace between distance-receptors and the higher types of nervous organization and of accompanying mentality, is thus seen to depend at bottom on the connection between complexity and range of alternatives in the modes of possibly useful behavior and the time-interval between apprehension of the stimulus and impact on the organism of that of which the stimulus functions as a sign. Spencer would bring human foresight in general under this formula: he suggests that capacity to react adaptively to what is distant in time is one criterion of intelligence, and that control of the direct presentative feelings by indirect and representative apprehensions is another and correlated one.

Spencer's biology may be good, bad or indifferent. On the point in question it would appear to be largely *a priori* and to reflect a discerning imagination rather than confirmation by any biological facts other than those generally known ones which serve to suggest the hypothesis. But whether the higher and more complex mental functions do in fact correlate with the development of distance-receptors or with other features of the evolving nervous system, at least the considerations which render this hypothesis plausible are matters less

open to doubt, because capable of corroboration by any examination of the general character of cognitive experience.

Sense-apprehension is the indispensable ground of other forms of empirical cognition and is basic. Perceptual cognition includes a sign-function which attaches to the given stimulus or presentation, taken merely in its qualitative character as immediate. It is by virtue of this sign-function that a meaning attaches to the content of awareness; and it is possession of meaning in this sense which marks the perceptual experience as cognitive and distinguishes it from mere enjoying or suffering. Such meaning signifies connection between the given content of awareness and something which portends, but portends in such wise that the eventuality in question is capable of being affected by some mode of action. This character of perceptual cognition as significant of future possible experience, contingent upon action, likewise reveals connection of it with adaptive modes of animal behavior in general, and indicates its evolutional descent. And it serves to corroborate an interpretation which can be otherwise justified by direct examination of the cognitive experience.

Apprehension of the distant object may serve as a simple paradigm. That feature of perceptual cognition which consists in the attachment to the given content of a meaning or a significance of something other than this content of awareness itself, is often called its character as 'mediate' or its function as 'representing'. And what is thus 'mediated' or 'represented' is the 'object of knowledge'—in our example, the thing perceived out there in space. A visual qualitative datum of a specific sort, here signifies to us that an object having certain properties is so many yards away from us in the line of vision. So thinking of the awareness-content and of the object which it signifies, theory of knowledge has puzzled itself for several centuries, and still continues to do so, as to the authenticity or non-authenticity of this mediating function. It has raised such questions as whether the given quality of the awareness-content is truly ascribable to the object; whether this immediately apprehended quality is "in the object as in our perception of it" or is, on the contrary, a merely subjective appearance; whether this given content is an 'essence' which may 'characterize' the object but not literally inhere in it. And so on: the multiple forms of this question about the veracity of cognitive mediation will not need to be enumerated.

It suggests itself that this feature of perceptual knowledge might be better interpreted by looking to the function which it exercises in the life of man as a creature who, like other animals, lives or dies, enjoys or suffers, satisfies his interests or fails to satisfy them, in some part according to the ways in which he behaves toward the confronting environment. And whose cognitive apprehensions reflect that fact, and are at least principally and basically significant for him as giving guidance to his action; significant of the desirable and undesirable eventualities of experience likely to ensue if certain modes of action are, on specific occasions, adopted. So considered, veracity in the sign-function, or mediating function, which attaches to the given content in perception and marks it as cognitive, depends simply on the question whether or not the empirical eventualities which are signalized actually ensue when the mode of action is adopted. Meaning in this sense is anticipation of further experience, associated with the presentational content; and the veracity of it concerns only the verifiability or non-verifiability of expected consequences of action.

This conception of meaning and the meant as restricted to what is empirically verifiable in the direct and literal sense, short-circuits epistemological questions of the sort mentioned above. It takes meaning to concern the literally empirical veracity of cognition; whereas these former questions concern what may be called—I hope without prejudice—the metaphysical veracity of cognition, and have no bearing upon any signification of what is empirically verifiable. As Locke observed, whether color and sound and other secondary qualities, as perceived, are truly in the object or only in our perception, they still are reliable signals for our expectations and our conduct, being rooted in some other and primary (metaphysically authentic) character of the thing observed. And as Berkeley conceived, we are not in fact concerned with *any* ground of perceptual content in an independent object of perception, provided only occurrence of specific content operates as reliable "sign of what is to come." And as Kant conceived, even if perception be limited to appearances which could have no being outside our own minds, and the independently existent ground of them should be unknowable, science and knowledge in general would still be secure provided there be assurance of "connection according to a rule" amongst specific appearances in our experience.

At this late date it would, I take it, be inappropriate to *argue* for the pragmatic interpretation of meaning thus suggested. Nor would it be appropriate, in these introductory remarks, to attempt resolution of the various nice questions which must be met in clarifying this conception of meaning. Whether this pragmatic significance which attaches to perception—and by implication to other forms of knowledge derivative from perception—is *the* meaning of 'meaning', and whether other senses of 'meaning' are legitimate or not, are in the end questions which cannot be settled by debate. Because one may attach to 'meaning', as to other words, any self-consistent signification that one may choose. This is, let us say, at least one appropriate sense of the word 'meaning'; meaning of a sort which is genuinely to be found in cognitive experience, and one the importance of which will hardly be denied. It is sufficient to say that consideration of what is involved in meaning in this sense can be peculiarly illuminating of various problems in the analysis of knowledge.

Whatever metaphysical significance of an ultimate and independent reality our perceptual apprehensions may have or may lack, this significance which they have for the guidance of our actions and anticipation of their consequences, identifies a function of cognition in the absence of which we could not live. The only seriously debatable question is whether the metaphysical predication of reality can have any *other* significance, not derivative from this pragmatic one. The general formula of perceptual knowledge, so taken, is: Such and such being given, if I act so and so, then the sequent experience will include this or that (specified) eventuality. When in the given circumstances the mode of action in question is adopted, and the expected eventuality actually follows, the pragmatic signification of the perceptual apprehension is verified, and the object, or character of the object, which it mediates is found to exist or to be real. Or more precisely—since the single test is seldom if ever final—such existence or reality is in some measure thereby assured.

5. We have said that only an active being could possess knowledge of an objective reality as anything distinguishable from the content of its own enjoyment and suffering. This is a consideration which should be patent if only we will pause to observe it; and one which, if appreciated, cannot fail to emphasize the practical or pragmatic significance of knowledge. Let us put this same thought in other ways.

Only a creature that acts is capable of knowing; because only an active being could assign to a content of his experience any meaning; could take it to be significant of anything other than what it presentationally *is*. And such signification of the other-than-itself is the essential mark of cognitive experience. Only an active being could draw any line of demarcation between what is self and what is not-self; could mark any distinction of the sort connoted by the opposition of 'subjective' and 'objective' as applied to the content of experience. Without activity, everything given would be equally willy-nilly and just there, and all on one plane of fact. The day-dream, the remembered, or the anticipated; the mirror image, or illusion, or the poignantly felt contact, would all alike be unmanipulated data and differ only qualitatively; they would all equally be items now found and simply what they are found to be. Or again; only for an active being could anything be *possible* except what is actual and actually given; anything verifi*able* which is not actually verifi*ed*; anything acknowledged as real which is not felt or is more than the content of feeling itself. That for us there exist *things* which are now given in experience and now not, and which when given are still thicker than our experience of them—having, for example, another side—is correlative with our sense of something verifiable though unverified. And it is only so that there can exist for us a world wider than the content of consciousness and never more than fragmentarily presented. This sense of the experientially possible but not experientially now actual, can have its roots only in that sense of realizable alternatives which constitutes our apprehension of ourselves as active. For the non-active being, there would be no sense of an objective reality, because the actual would merely coincide with the presented content of the stream of consciousness; and this given content would not even be realized as a temporal *stream*, since the remembered, the anticipated, and the sensed would all be there at once and alike, or else not there at all. Nothing presented could be rejected as 'appearance only', 'subjective', 'less than it seems', because no sense of anything further and realizable but unrealized would attach to any presentation. There would be no expectation to be disappointed, and through such disappointment labelled 'erroneous' or 'illusory'. And for the same reason nothing given would be appearance *of* something else which is *more* than this mere appearance of it. The sense of the

possible-to-experience but not actually experienced is, at one and the same time, our sense of ourselves as active and our sense of an objective reality which presentation signalizes.

Epistemologically the possible is, thus, antecedent to the real; the verifiable or possible-to-experience standing as *ratio cognoscendi* of the objective fact. The epistemological significance of any statement "*A* is real" is correlative with some statement of the form, "Experiences a_1, a_2, a_3, . . . (e.g., the unseen sides of the object presented to vision, and the inside of it) are possible experiences not now given, though signalized by what is given." Only a creature which could, on occasion, bring about or not bring about experiences a_1 or a_2 or a_3 by his chosen way of acting, could entertain such a cognitive idea, and know an object as real.

Or let us suppose for the moment that a creature which did not act could still be presented with a temporal continuum of experience which in content should be like our own; and could realize it as thus temporal, instead of merely finding presented, at each given moment, a congeries of items, some vivid and some vague, some affected with the felt quality of mnemic at-homeness and some with novelty and shock, and some with the character of protensity. For such a creature, the same moving-picture of sights, sounds, odors, visceral sensations and what not, might swim into his ken and out again as does with us. We may suppose further that certain qualitatively identical items of content (Santayana's 'essences'?) would be subject to recognition upon recurrence, as with us. We may even concede that certain repeated sequences could be *learned* by passive contemplation of the moving picture; and that if *a b c* recur in that order sufficiently often, *a* might become the anticipatory sign of *b* and *c* as about to be given. In that sense, a cognitive meaning without action may appear to be conceivable. But still, for such a mind, nothing would be possible except what was inevitable; and where that should be the case, any anticipatory signification which might come to attach to presented items would serve no vital function and do no good. At most, it could be no more than an esthetically intriguing or a boresome or a terrifying feature of the stream of consciousness itself. And one questions if and why in a merely passive being capable of recognizing the repeated, this capacity would actually be elicited by its experience. In any case, it remains evident that for such a mind for which nothing

should be possible except what was inevitable, there could be no confronting world of objects, because nothing apprehended could be wider or deeper in its significance than the stream of consciousness itself. It would hardly be a reality which was presented but only a stale cliché which could not be avoided or affected.

Furthermore, as already suggested, we have conceded too much in supposing that experiences of an inactive being could acquire anticipatory significance. The envisagement of actual experience as a temporal continuum, is itself a construction wrought by attaching to the given a significance of what is not given. The signification of pastness is a meaning attaching to what is given *now* but with the qualities of vagueness and rubbed-out-ness. The signification of futurity is a meaning attaching to what is given now with the quality of anticipation or portent. And the passage of time as actual, is a significance attaching to what is given now with the jerky or whooshy quality of transience. These attaching significances of real temporality are related to the sense of our own potential action: the past is that which action can in no wise touch; the future that which engages the élan of action because it is not fixed beyond qualification. The conscious content of an inactive mind could hardly be colored by such real temporality but rather would be sensed as timelessly now, even if this now should be affected with fringy ends and suffused with the quality of becomingness. Such a mind might be in time—unbeknownst to itself—but there could be no time *in it,* and no genuine temporal predicates of its content.

But it is the other consideration alluded to which is here the more important one; even if the non-active mind could thus tag its given content of memory and of anticipation with dates, still what was inactively apprehended could not constitute a world because it would be all on the surface, and there could be no more to it than is contained in the flux of experience itself. For us, this surface of the presented is set against that immensely deep and wide and pervasive background of 'the rest of reality', which is not now experienced and mostly will not be. It is so set because, being active, our experience could proceed from here and now in various ways which are equally genuine alternatives. The world contains not only what *is* felt and what in fact *will* be given in experience but also all that *could be.*

For our active attitude, all such possibilities of experience are posited as simultaneously there.

We may borrow the much-quoted Kantian illustration as a kind of paradigm. The four sides of the house are simultaneously existent for us, though incapable of being simultaneously observed, because any one of the visual presentations, *N, E, S, W,* can be recovered at will. For the non-active being, if *N* be now observed and *E S W* be correctly anticipated in that order, this apprehension would still be of an unalterable series of experiential events only, in which the earlier lapses as the later supervenes. It would have the character of esthetic surface only; of a moving picture run off before the observer. And even if this succession be repeated, nothing in that would convey the thickness of a house. For us, *N* objectively remains while *E, S,* and *W* succeed in our experience, because if we should be so silly as to doubt that *N* is still there, we can go back and rediscover it. That, the experience of which is recoverable at will, continuously exists, though the experience of it be interrupted.

Those philosophic skeptics who suggest that perhaps the objects we observe lapse from existence when we cease to observe them and come back when observed again, talk nonsense. That which can be realized in experience whenever we choose to take appropriate action, verifiably exists though unobserved. The challenge is correctly met in the manner in which common sense would meet it: tell us *when* the north side of the house no longer exists, and we will then show you that it is still there. Whether this character of objective factuality be expressed in common-sense cosmological terms, by saying that the experience can be recovered because the thing is there to be observed, or is formulated epistemologically, by saying that existence of an object through a time empirically *means* the continued possibility of verifying it if appropriate routines of action be followed, it is in either case the same character of objective reality in the thing observed which is expressed. But a creature who could not choose his time of observation and determine his own routines of verifying activity, could not meet this kind of challenge made by the skeptic. For him, the existence of the unobserved could have no meaning, and the distinction between objective reality and the flux of his own experience could not arise.

Our sense of the objective as the possible-to-verify is, of course, immensely complex; there are, so to say, layers of it, one possibility of experience being erected upon the assumption of another. But at the foundation of it is the sense of action: at the root, the objectively actual is the verifiable; and the verifiable is that the predictable experience of which can be realized if the appropriate routine of verifying activity be adopted. Without this sense of action, no sense of a world of things beyond experience could arise.

6. The myriad complex ways in which the now surrounding world is thicker and deeper and richer than the thin stream of my sense impressions, reflects the myriad complex *then*'s I believe in as capable of being empirically realized by some *if* of action. And though perforce I choose only one such course of action at a time, yet I sense myself in a world in which all these potentialities of experience are simultaneously incorporated, by virtue of my capacity to determine this chosen course of action as I will. But a being which could not act, would live out its life within the bounds of immediacy. It could find no difference between its own content of feeling and reality. There could be no self, because there could be no other-than-self: the distinction could not arise. Nothing could be real for such a passive mind except the given; and the given would be only what it is given as being. No datum of consciousness could have a meaning or signification of anything beyond itself; and there could be no apprehension of anything to be so meant or signified.

If one should wish to follow out the logical upbuilding of our meanings, or the phenomenological constitution of reality, it would be such a road which must be traced. The starting point would be in data given. From such a datum, we proceed to something meant as the *then* conceived to follow upon some *if* of action—or the multiplicity of such *then*'s following upon the conceived alternatives of action. Upon one such *then,* we may build further by another *if;* and so proceed. That which is meant or believed in as something verifiable, is believed in by believing certain *if-then* statements to be true, even when the antecedent *if*-clause remains false. Not only what we *do* verify is real for us, but all that *could be* verified. Categorical statements of matters of fact—of reality—are constituted out of hypothetical statements expressing our possible ways of acting and their believed-in consequences.

Our task in this book is not that of such phenomenological construction or construing of the real. Rather it is the epistemological attempt, taking reality as we find it already disclosed and conveyed in our common-sense meanings, to discover by analysis the criteria of validity in knowledge. But these two different tasks have a common meeting point, in the required examination of the character of cognitive experience as signifying or representing that which it is not, and that which is not literally given within it.

In this *if-then* character of empirical meaning, as a connection, signified by the given, between a way of acting and a predictable sequent in experience, we may find solution of the puzzle that, though reality is fixed, and the future facts of it—we may suppose—are already predetermined, there yet remains a value in knowing. If the foreknowledge of such inevitable future fact of reality were the prediction of an inevitable future *experience,* then there would be no value and no good to be attained in knowing it. The experience which could in no wise be altered, it would be useless to foresee—unless, perchance, for some bearing of it upon another experience, not thus predetermined and unalterable. The obvious use of knowledge is for the amelioration of our human lot; for the realization in experience of what is good and the avoidance of what is bad. But how can there be a use in predicting unalterable future facts of reality; when the only use of prediction is that we may realize what otherwise would never be, or may avoid what otherwise would come upon us? As was indicated earlier, the answer is found in the fact that the prediction of future objective characters of reality is *not* prediction of any future experience which is unalterable, but is only the foresight of various possibilities of future experience and of limits within which such alternatives must lie. The prediction of future reality is prediction of future experience *if*—; but that *if* is an *if* of action which it is in our power to make true or to make false. The *if-then* statement which expresses the objective reality in question, remains true whether the antecedent *if* of action be true or false; the statement of reality is categorically asserted. But this categorical assertion of objective fact is only the hypothetical assertion of a verifying experience dependent on the hypothesis that a certain mode of verifying activity be adopted. The future experience still depends upon our choosing to actualize this *if*

of action. For example; this wall is hard: if I should bump my head against it, it would hurt. That would verify its hardness; which I categorically assert. But this categorical assertion that the wall is hard, and will continue so, does not in the least predict an inevitable hurting of my head, but discloses it only as a contingent possibility of future experience. It predicts this only as sequent upon a mode of action which would indeed be confirmation of this hardness, but a confirmation which I do not choose to make. I prefer that it remain possible only. The point of knowing this fixed and unalterable hardness of the wall is in order that I may avoid this manner of verifying it in my future experience; an experience which is *not* similarly fixed but may be qualified by action. The hypothetical truth that if I should bump my head against the wall, it would hurt, is, like the objective fact it serves to convey, unalterable. But the consequent-clause about my future experience is not unalterably true, being contingent on the hypothetical action. The point of knowing the unchanging and categorical truth about the wall is that, through thus knowing it, I may determine my future experience, within limits, in accordance with my sense of values, and realize what is good instead of what is bad. What *is* realized, is experience; what *could be* realized is objective fact of reality. And what *is to be* realized, amongst the alternatives which *could be,* is determined—for any sensible action at least—by evaluation.

Chapter II

Knowledge, Experience, and Meaning

1. We have so far spoken as if what is true of *empirical* knowledge—for example that in all cases it is verifiable and that always it requires such confirmation by experience—would likewise be true of knowledge in general. Empirical knowledge is indeed knowledge *par excellence*: it is that type of knowledge which most readily comes to mind when the word is used; and it is such knowledge which, in the form of natural science, is most often put forward nowadays as the ideal and exemplar of human cognition. And such restriction of the term 'knowledge' is a usage which has been suggested by some, and one for which plausible defense can be offered. It would, however, be an inconvenient way of using that term: logic, for example, would then be excluded from knowledge; and pure mathematics would also, if prevailing conceptions of the mathematical should be accepted. In any case, it must be recognized that there are two types of assertion which would not be included if knowledge be confined to what has predictive significance and requires to be confirmed by experience. And each of these two further types of statement—whether what they express is to be called knowledge or not—must at least be recognized as representing something which requires to be taken into account in any adequate analysis of the phenomena of cognition.

On the one hand, there is awareness of the directly presented as such, and formulation of such immediately given content. And on the other, there are apprehensions of our own meanings, and statements intended to explicate these.

Correct understanding of what is intended by the use of a term—of its defined or definable meaning—is something which is undetermined by any empirical matter of fact. A definition is a kind of statement, but one which neither requires nor can have any verification by re-

course to sense experience. It represents a particular mode of classification: and such a principle of classifying cannot be determined by what presents itself, or does not present itself, to be classified; even though what does and what does not present itself for classification, will be one consideration affecting the *utility* of a particular mode of classifying, and hence of entertaining a particular meaning, signalized by use of a certain term.

Also, such a fact as the logical deducibility of one proposition from another, is a matter which is independent of any content of sense, and neither has nor needs any verification by reference to the empirical. The same is true of anything which can be certified on logical grounds alone. Between such facts about the logically certifiable and the logically deducible, and statements explicative of meanings, there is, as we shall find, an essential connection.

Furthermore, the explication or the understanding of what is implicit in an intended meaning, is a matter concerning which it is possible to make mistakes. That such meanings are our own when entertained—whether they are set up arbitrarily by ourselves or only adopted from current usage—does not preclude possible errors of this kind. We are capable of failing to observe what is involved in our own intentions and of mistaking our own meanings through inconsistency. The avoidance of such oversights and such inconsistencies, is a cognitive desideratum. This same possibility of error through inadvertance or inconsistency, is even more patent with respect to what is logically certifiable. Anyone who has ever accepted an invalid argument or advanced one, or has repudiated one which is valid, or who has been at pains to discover whether a certain conclusion follows from given premises, will be aware of this kind of possible mistake. Thus the criteria of correctness in the apprehension of, and in the statement of, such intended meanings and such logical implications, will require attention in any attempted analysis of knowledge; whether the scope of the term 'knowledge' be extended to include such understanding of meanings and of logical relationships or not.

Similarly, for the other type of statement and of apprehension which has been mentioned: the content of immediate awareness must be recognized as pertinent to knowledge, whether it be regarded as included in knowledge or not. Our direct experiences of sense—and

of dream and illusion as well—have a character of absolute specificity and of sheer datum. And without such data there could be no empirical knowledge. But the presentation of what is thus immediately given cannot be called knowledge if that term be restricted to what is verifiable and stands in need of confirmation. We are prone to overlook this fact, because such a direct apprehension is unlikely to stand alone in our minds, without supplementation by some inference or interpretation; some belief based upon the given presentation but which that presentation, taken by itself, neither demonstrates nor disproves. And we may fail to separate the apprehension of this immediate content of experience, or the report of it, from this supplementation which accrues by customary interpretation, induced by other and previous passages of experience.

This is the more clear in cases where such induced belief has to be classed as non-veridical. There is, for example, some specific and given content of the experience afterward called 'an illusion' or 'a dream', or one labelled 'hallucinatory' by other observers than the subject himself; and formulations of such data have truth or falsity. That just this content presents itself, and no other, remains the case, even though the belief it induces should be erroneous. Whether or not I am deceived when I see double by looking over the edge of my glasses, what is directly presented has its own specific character, and the givenness of it is a kind of fact. Whether interpretations or beliefs induced are true or false, there is the apprehension of the immediate content of experience in any case; and without such apprehensions there could be no empirical knowledge at all.

When this direct awareness of the given is separated from any interpretation put upon it, it becomes evident that such apprehension neither has nor calls for any verification. The specific character of the presentation-content, and the givenness of it is, so to say, its own verification. Any formulation of it (if statements of the given, merely as such, are to be recognized) will be independent, for its truth, of anything further and not contained in just this given experience itself. Such direct awarenesses, and such statements of the content of them, may, if one choose, be excluded from the scope of knowledge by the manner in which that term is used. But if so, they will still require to be taken into account; because it is in the highest

degree implausible—or is even a contradiction—that there could be any such thing as empirical cognition, or any verification of an empirical belief, without reference to immediate apprehensions of sense.

2. Precisely what is to be included under the term 'knowledge' is, indeed, more of a problem than might at first appear. As has been suggested in the previous chapter, common usage—as well as good or desirable usage—may well be thought to impose upon what is to be so called the following requirements:

(1) Knowledge must be apprehension of or belief in what is true or is fact, as against what is false or is not fact. An apprehension which is in error is properly called a cognition; but only cognitions which are true or correct should be classed as knowledge.

(2) Cognition generally, or the content of it, must have meaning in the sense that something is signified, believed in, or asserted which lies beyond or outside of the cognitive experience itself. When such cognition is veridical or is knowledge, it must correspond to, accord with, or be true of what is thus meant or affirmed.

(3) Knowledge must have a ground or reason. An ignorant person may assert what happens to be the case by hazarding a guess or irrationally committing himself. Or a fanatic may believe something which is true but believe it solely from emotional compulsion and in the absence of supporting evidence. Or a mentally flabby person may assert what, as it happens, is so, merely because he wishes it to be so. But such holding of belief in the absence of any warrant or justifying consideration is not to be classed as knowledge even when it happens to accord with the facts.

It is questionable whether we should not add another requirement also:

(4) Knowledge, or at least knowledge in the best and quite strict sense, must be certain. If what is believed is no better than probable, then the belief may be justified, or justified in some degree; but in that case our knowledge is not—it may be said—of the fact believed, but of the different fact that this believed-in state of affairs has genuine probability.

However, the attempt to impose all these requirements at once, in the delimitation of what is properly to be called knowledge, would be certain to result in difficulties of the first order. Each by itself is

plausible; but the combination of them would threaten to eliminate every kind of apprehension of which humans are capable. To mention only difficulties which lie close at hand; it is doubtful if (2), which calls for something believed in but not contained within the cognitive experience itself, can be combined with (4), which calls for certainty, and still find any cognitive phenomenon meeting the requirements. The doubt increases when (3) is added, which demands that such certainty of something beyond the cognitive experience itself should have a sufficient ground.

Immediate apprehensions of sense possess certainty—if we are careful to restrict ourselves to just the directly given content and as it is given. But in that case, do they mean or point to anything not contained within the cognitive experience? And it is at least doubtful whether such apprehensions have a ground or reason. Perhaps we should say that they do not need one, being self-justifying or self-evident.

Ordinary empirical cognitions on the other hand—apprehensions of some physical state of affairs—satisfy the requirements of designating something beyond the experience itself and are characterized by correctness (or by error). They have also, in case they are valid, some justifying ground. But here we come in sight of a further question. Is it requisite to knowledge that the warrant of it be complete and sufficient to justify what is believed? In part, our empirical cognitions are based upon sense data, at least in typical cases. But that these data by themselves do not constitute justification of the belief, is suggested by the fact of illusion. Typically there must also be some reliance upon other and like empirical beliefs, taken as antecedently assured. Must this kind of ground of our belief also lie within our apprehension if the belief is to be justified as knowledge? And must this ground itself be likewise grounded? And must this ground of the ground be warranted, and the warrant of it lie within our apprehension—and so on; unless or until we come to something, in such regress, which is given and self-warranting and is sufficient for all which it must support? And if so, can any empirical cognition possible to us stand up under this requirement?

From such considerations, as well as for other reasons, it is doubtful whether our empirical cognitions of objective fact can ever pos-

sess a warrant which is sufficient for theoretical certainty. And in case they are probable only, the apparently innocent substitution of "So and so is genuinely probable" for "So and so is fact" would threaten to eliminate empirical knowledge altogether. Because it would appear to substitute for assertion of the empirical fact believed in, the assertion of a logical connection (according to rules of probability) between the proposition stating this fact and certain other propositions taken for granted as premises. Such statement of a logical connection of probability may have good ground; but it is not statement of any empirical fact at all, and apprehension of it is not empirical knowledge.

Apprehension of the logical and the mathematical would appear to have the best chance of satisfying all these requirements. Such logical and mathematical cognitions may be certain (though this has sometimes been challenged); they can have a sufficient ground or reason; and the distinction of correct from incorrect or mistaken applies to them. The doubt here would concern the sense in which they can be said to mean or point to anything beyond and independent of the cognitive experience itself. As we shall find reason to think, the final warrant of such cognitions is to be found in the fact that truth of them does not require any existence or any non-existence the opposite of which would be even thinkable; that they make no demands either upon the existential or upon the content of any experience.

3. These difficulties of determining the requirements of knowledge, and hence of defining the term and delimiting that to which it applies, are not such as can be obviated altogether by more careful adherence to the actual character of cognitive phenomena. They spring from more than one source; and the problem of avoiding them or removing them turns now upon one kind of consideration, now upon another. The attempt to locate such difficulties and meet them, must for the most part be postponed. But in part they result from a kind of mistake which can be observed at once; from the natural but inadmissable tendency to impose requirements appropriate only to one type of knowledge upon all.

There is in fact no single and useful meaning of 'knowledge' which wholly accords with usual applications of that term. Distinctions not commonly noted must be made. And if a single meaning is to be ad-

hered to, what is so designated must be limited in some fashion not indicated by unreflective use of the term—even if such a narrower meaning, taken in the interests of consistency and clarity, should seem conventional or arbitrary. It is *not* necessary, however, and not permissible, by any such decision of terminology to exclude from consideration any fact of cognition signalized by the more common usage. All must be taken into account, however they are to be classified and dealt with. Nor is it necessary to insist upon one's own procedure on such a point as if the facts to be reported could be expressed in one way only, and other analyses, phrased in some different manner, were thereby rendered false or unacceptable. Such attempts to copyright the dictionary in one's own favor are distasteful and obstructive. If an account which is accurate and adequate can be achieved in one terminology, then it will be translatable into terms of any other account which should be similarly accurate and adequate but based on a different classification of cognitive phenomena or different decisions about the words to be used or the sense in which these words are to be understood.

We shall not, however, extend the term 'knowledge' to cover awareness of the sensuously given, or any statement of the content of direct experience merely as such.

There are, as we shall recognize, three types of apprehension: (1) of directly given data of sense (not excluding the illusory); (2) of what is not thus given but is empirically verifiable or confirmable; (3) of what is, implicitly or explicitly, contained in or entailed by meanings. The second and third of these will be called 'knowledge', but the first will not. In these conventions, the ruling consideration, in each case, is the contrast of knowledge with some corresponding kind of possible error. Only that with respect to which some misapprehension could occur, is here classed as knowledge. And whatever *is* subject to such possible mistake, will here be classified as cognitive, and as knowledge if it is correct or veridical.

Apprehension of the immediate—of the sensuously given—is something which is essential to empirical knowledge; but it is not itself knowledge in the sense that there could be mistake about it. The contrary supposition could only arise through failure to mark off sharply what is genuinely thus given from interpretation which normally ac-

companies it or inference which would usually (and in most cases validly) be drawn from it; or through some confusion between the directly given content of awareness itself and expression of this content which might be regarded as subject to *linguistic* correctness or incorrectness.

With regard to what is implicit in meanings, it has already been pointed out that, even in the sense in which such meanings are our own, there can be failure to adhere to them and to recognize what they dictate; failure to observe what they entail. There can be misapprehension of their relations to one another, even though such relations should be determined by the meanings themselves. Failures of this sort are inadvertance or inconsistency; but avoidance of such errors is not automatic, and on occasion it is a matter of some difficulty. The determination of what we are, in consistency, committed to by what we mean, is thus a kind of apprehension which contrasts with a corresponding kind of possible mistake; and hence is classifiable as a type of knowledge.

It is such knowledge, representing the explication of our own intended meanings, which is found in logic and the mathematical, and includes the analytically true in general.

BOOK I

Meaning and Analytic Truth

Chapter III

The Modes of Meaning

1. Every statement we know to be true is so known either by reason of experience or by reason of what the statement itself means. There are no other sources of knowledge than on the one hand data of sense and on the other hand our own intended meanings. Empirical knowledge constitutes the one class; all that is knowable independently of sense experience—the *a priori* and the analytic—constitutes the other, and is determinable as true by reference to our meanings.

Traditionally a statement which can be certified by reference exclusively to defined or definable meanings is called *analytic;* what is non-analytic being called *synthetic*. And traditionally that knowledge whose correctness can be assured without reference to any particular experience of sense is called *a priori;* that which requires to be determined by sense experience being called *a posteriori.*

All analytic statements are, obviously, true *a priori;* whatever is determinable as true by reference exclusively to the meaning of expressions used, is independent of any empirical fact. That the converse relation also holds; that whatever is knowable *a priori,* including the principles of logic and all that logic can certify, is also analytic, is not so obvious. It has, of course, frequently been denied; most notably in the Kantian doctrine which makes *synthetic a priori* truth fundamental for mathematics and for principles of the knowledge of nature.

The thesis here put forward, that the *a priori* and the analytic coincide, has come to be a matter of fairly wide agreement amongst logicians in the last half-century. It is, however, by no means universal; and so far as it obtains, it is in part verbal only, since it has not been accompanied by any corresponding agreement concerning the nature of analytic truth, the nature of logic, and the ground on which, and sense in which, what logic assures is certifiable. The original and

traditional conception of the analytic as that which may be known by reference to meanings (definable or connotational or intensional meanings) has in some part been lost sight of and displaced by conceptions more complex. In particular, there has appeared a tendency to regard the distinction between analytic and non-analytic as one which is relative—e.g., relative to vocabulary or to 'language system'—and as linguistic or logico-procedural rather than epistemological in significance. If the implications of conceptions of this sort should be well worked out, it must appear that they are fatal to the thesis that what is *a priori* coincides with what is analytic; since the notion that what may be known true without recourse to sense experience, is relative to vocabulary or dependent on conventions of procedure, is not credible.[1]

2. In order to approach such questions of the *a priori* and the analytic, it will be necessary to examine this traditional conception of analytic truth as that which is determinable by reference to meanings alone; and to isolate and clarify, if possible, the meaning of 'meaning' which is here in question.

[1] In spite of what is said above, I believe that there is more agreement on essentials, which is implicit in current conceptions, than appears on the surface. Logical theory is today in a chaotic condition, rendered almost inevitable by the rapid and extensive advances of recent and current investigations. The results of this research have not as yet undergone that sorting and sifting process by which, eventually, the durable elements will be elicited, and the clearer and more adequate conceptions in which these may be grasped will be separated from the partly incorrect, the inadequate, and those which by being unnecessarily complicated are ill-chosen instruments for consolidating and formulating what has been learned. At the moment, not only are there almost innumerable issues, large and small, which have come to light and have not yet been decided, but also there is much diversity in the modes of approach which are chosen, as well as in the classifications made use of and the terminology which is favored. In consequence, what now appear as rival theories represent only in part divergences with respect to material and important points of logic: and although present controversies undoubtedly include basic issues which will eventually become sharply delimited, if not decided, these are, at the moment, quite thoroughly entangled with others which are less important and may even be recognized later on as having been mainly verbal. Real agreement in fundamentals, while by no means complete, is somewhat more extensive than it might seem.

In any case, it may be salutary, in confronting present-day complications, to remember that general logic formulates what everybody knows upon reflection. *Information* in logic can be only verbal or concern the logician's conventions of classification and formulation. What runs into intricacies too far beyond the ordinary grasp may, with some assurance, be set aside as perhaps not logic but logomachy. Occasionally we should go wrong by following this precept. But even so, the eventual effect of it might still be salutary, by inducing logicians with something to say to strive for clarity in exposition.

For this, it will be required first to make some excursion into logical theory. In a book devoted primarily to other topics, such excursion should be brief; and we shall endeavor to keep it so. Consideration will be restricted to main points, and discussion of these will be limited to what is required in order that the analysis presented may be understood. Further issues, many of which are matters of present controversy, will be omitted, as well as consideration of points of view alternative to the one here outlined. Certain general topics, discussion of which could not be omitted—particularly questions concerning language and meaning—will nevertheless be postponed to the chapter following, in order to allow this summary of the purely logical points to be as succinct as possible.

Even with these attempted abbreviations, the presentation to be given may run beyond the interest of those whose concern is more narrowly epistemological. Such readers may wish to omit the remainder of the present chapter or to proceed directly to the consideration of empirical knowledge in Book II. The main conclusions concerning meaning and the analytic which will be reached in this first Book, may be set down summarily as follows. (They will not, however, appear in just the order here indicated):

(1) In general, the traditional conception of analytic truth as truth which is determined, explicitly or implicitly, by meanings alone, is justified and can be made adequate, and does not need to be displaced by any which is more complex.

(2) The requisite meaning of 'meaning' can be arrived at by more precise specification of what is traditionally intended by 'connotation' or 'intension' and by developing the conception—traditionally omitted or inadequately treated—of the intension of propositions.

(3) Such intensional meaning can still be specified in alternative ways: as *linguistic meaning,* constituted by the pattern of definitive and other analytic relationships holding between linguistic expressions; or as *sense meaning,* constituted by the criterion in mind by which what is meant is to be recognized. It is sense meaning which is epistemologically the more important signification of 'intension'. Linguistic *expression* of what is meant and what is apprehended, is the dependent and derivative phenomenon: it is meaning and apprehension themselves which are the fundamental cognitive phenomena, and these are independent of any formulation in language.

(4) The principles of logic are analytic in this sense: their truth is certifiable by reference to intensional meanings involved in the statement of them.

(5) There is, however, no way of distinguishing fundamentally between principles of logic and other analytic truths. Such distinction is conventional, in the sense that it turns upon relative importance for the critique of inference, and upon comparative generality. There are, thus, alternative ways in which what is taken as belonging to logic may be marked off.

(6) There are no synthetic statements which can be known true *a priori*: what may appear to be such, must be regarded as representing some failure to elicit by analysis the criteria operative in the actual, or the ideally consistent, application of terms in question, or some failure to recognize implications which validly obtain.

3. The task of eliciting that sense of 'intensional meaning' for which it can be said that whatever is analytic is certifiable by reference to such meaning, is most easily approached through consideration of the various modes of meaning. And though it is propositions and propositional functions whose intensional meanings it will be most important to consider, it will be best to begin with terms, since the meaning of terms is more frequently discussed and will be, in consequence, initially clearer.

A *term* is a linguistic expression which names or applies to a thing or things, of some kind, actual or thought of.

It is sometimes said that what is not actual cannot be named. But such assertion is either an arbitrary and question-begging restriction upon use of the verb 'to name'—since plainly whatever is thought of can be spoken of—or it is merely silly. One does not easily imagine what those who make this assertion would say to persons who have given a name to a hoped-for child, or named a projected building which in fact is never erected. Apparently those who commit this absurdity have in mind some such analogical consideration as that you cannot name what does not exist just as you cannot kick what does not exist. But kicking is a physical operation while naming is an operation of thought. And if we could not think of what did not exist, or at least of things whose existence is undetermined, it is doubtful if thinking would be possible at all, and whether, if it should be possible, it would be of any use. However, there are difficulties

connected with this point which are genuine—in particular that if the non-existent can be named, then naming is not denoting; and it will be the intention so to write here as to minimize dependence upon it. In line with that intention, the above definition of a term may be rephrased: A *term* is an expression capable of naming or applying to a thing or things, of some kind.

All terms have meaning in the sense or mode of denotation or extension; and all have meaning in the mode of connotation or intension. These two modes of the meaning of terms are traditional and familiar (though not always specified in the same way). For reasons of clarity it is desirable to recognize two further modes also, which will here be called, respectively, comprehension and signification. Briefly put, these four modes of meaning are as follows:

(1) The *denotation* of a term is the class of all actual things to which the term applies.

(2) The *comprehension* of a term is the classification of all possible or consistently thinkable things to which the term would be correctly applicable.

(3) The *signification* of a term is that property in things the presence of which indicates that the term correctly applies, and the absence of which indicates that it does not apply.

(4) Formally considered, the *intension* of a term is to be identified with the conjunction of all other terms each of which must be applicable to anything to which the given term would be correctly applicable.

The *denotation* or *extension* of a term is, as above, the class of all actual or existent things which the term correctly applies to or names. The qualification 'actual or existent' here is limiting and not merely explicative: things which are, or would be, nameable by a term but which do not in fact exist, are not included in the denotation.

In common speech, a term is said to denote the existent or existents to which it is applied on any given occasion of its use. For example, in the statement, "Those three objects are books," 'book' is said to denote the three objects indicated, or any one of them. This usage has the slightly awkward consequence that what a term is said to denote, though always *included in* the denotation of it, does not coincide with this denotation. (Even if a term correctly applies to one existent only, as is the case for all singular terms, it is still doubtful

to identify this one object denoted with the class of which it is the only member; and it is the class which is the denotation of the term.) But in spite of this awkwardness, we shall continue to use both 'denote' and 'denotation' with their commonplace significances.[2]

A class may have no members, in which case it is said to be empty or null. A term whose denotation is such an empty class (e.g., 'unicorn') denotes no object; but it is unprecise to say that it has no denotation; especially since that manner of speaking would suggest that it has no meaning in the correlative mode of meaning. We shall say that a term which applies to no existent has *zero denotation;* indicating that its denotation is a zero or null class. Such terms still possess the potentiality or function of denoting; and are in this respect different from nonsense-locutions like 'zukor', which denote nothing because they do not denote.

Membership in any class and denotation of any term are, thus, restricted to what exists. When it is desirable to refer to whatever a term would correctly apply to, whether existent or not, we shall speak of a *classification* instead of a class, and of the comprehension of the term. The *comprehension* of a term is, thus, the classification of all consistently thinkable things to which the term would correctly apply —where anything is consistently thinkable if the assertion of its existence would not, explicitly or implicitly, involve a contradiction. For example, the comprehension of 'square' includes all imaginable as well as all actual squares, but does not include round squares.

The confusion of denotation with comprehension has in the past been frequent, and it continues to be a source of errors in logic. For instance, the failure to make this distinction allows confusion between the relation asserted by "All existents to which the term *'A'* correctly applies are existents to which the term *'B'* also applies" or "The class of *A*'s is contained in the class of *B*'s" and the different relation asserted by "The applicability of the term *'A'* to a thing entails or strictly implies the applicability of the term *'B'* to that thing." The former statement asserts that the denotation of *'A'* is contained in the denotation of *'B'*. The latter statement requires that all consistently thinkable things to which *'A'* would correctly apply should be

[2] Some avoid the awkward consequence mentioned by saying that a term *designates* a thing that it names. This terminology is apt, but is not adopted here.

things to which *'B'* would apply; that the comprehension of *'A'* be contained in the comprehension of *'B'*. It will be important here to mark clearly this distinction between denotation and comprehension.

The denotation of a term is, obviously, included in its comprehension; but the converse relation does not hold.

The connotation or intension of a term is delimited by any correct definition of it. In traditional language, one says that if nothing would be correctly nameable by a term *'T'* unless it possess the attribute *A*, then *'T'* connotes *A;* and the totality or conjunction of attributes so connoted constitutes the connotation of *'T'*. But on account of ambiguity in the notion of attribute—and for other reasons as well—this is not entirely clear. And even traditionally, connotation is in fact more characteristically taken as a relation of the term in question to other *terms*. We shall wish to reserve 'connotation' for such usage, and shall call this relation of the term to essential properties of what is denoted, by another name. Let us therefore postpone discussion of connotation for the moment, and take up first these related matters which may help to clarify it.

Traditionally any attribute required for application of a term is said to be *of the essence* of the thing named. It is, of course, meaningless to speak of the essence of a thing except relative to its being named by a particular term. But it is desirable or even necessary to have some manner of marking this distinction between characters or properties of a thing which are essential to its being named by a term in question and other characters of the thing which are not thus essential. For example, in order to be correctly named by 'square', a thing must be a plane figure, must have equal sides, and must have all its angles right angles; but it is not required that it be of a particular size or of a particular color. We shall say that a term *signifies* the comprehensive character such that anything which should have this character would be correctly nameable by the term, and whatever should lack this character, or anything included in it, would not be so nameable. And we shall call this comprehensive essential character the *signification* of the term.

Abstract terms are those which name what some other term signifies; e.g., 'roundness' names that character or property which is essential in order that the term 'round thing' should apply. Non-abstract terms are *concrete*.

For every concrete term, *'C'*, there is a cognate abstract term—let us call it *'C*-ness'—which denotes the signification of *'C'*. "The character which a thing must have in order to be nameable by *'C'*," would in any case be such an abstract term, cognate with *'C'*, even if there be no linguistically simpler expression which would be synonymous with this phrase. Also for every abstract term, *'C*-ness', there is a cognate term, *'C'*, whose signification is named by *'C*-ness'—if no other, then the term 'thing having the property *C*-ness'.

Things which incorporate or are characterized by what an abstract term, *'C*-ness', names, are *instances* of *C*-ness. Anything named by the cognate term, *'C'*, will be such an instance, but will not be named by *'C*-ness': any round object, for example, is an instance of roundness but is not nameable or denoted by 'roundness'.

Question arises whether abstract terms signify as well as denote; and if so, what the signification of an abstract term will be. Is there some property whose presence is essential in order that 'roundness' or 'redness' should apply? Plainly, there is; and this property is simply roundness or redness itself. When roundness is presented, both 'round' and 'roundness' apply correctly: the difference is that 'round' applies to the individual object characterized by roundness, whereas 'roundness' names this property itself and has no other application. Otherwise put; what 'round' applies to is something to which also either 'red' or 'not-red' must apply, and either 'hot' or 'not-hot', and so on. But in calling anything by the name 'roundness', we do *not* imply that it is either red or not-red; in fact, we imply the opposite, that it is neither red nor not-red, as well as that it is neither redness nor (not-red)-ness.

Thus we might have defined abstract terms, alternatively, as the class of those which name their significations.[3]

By the idiom of language, there are certain words and phrases—e.g., predicate-adjectives like 'red'—which when they occur as grammatical subject are abstract in sense, but which may occur as concrete terms in the predicate. Thus "This rose is red" is equivalent to "This rose is a red thing"; and 'red' is here a concrete term, naming the

[3] It should be noted that although 'round' and 'roundness' have the same signification, they do not have the same comprehension or same denotation. And as the examples used above will indicate, they also have different intension: if we assert *"A* is round," we imply *"A* is red-or-not-red"; but the assertion *"A* is roundness" does not have this implication.

object to which it applies as a whole. But "Red is a color" is equivalent to "Redness is a specific color-property"; and 'red' is here the name of the specific color-property in question. Such words and phrases are sometimes called attributive terms. We shall refer to them simply as *attributives,* because they are not strictly terms but only ambiguous symbolizations or locutions having now one, now another meaning.[4] This classification 'attributive' is worth remarking mainly in order that we may avoid certain confusions about abstract and concrete terms which might otherwise be possible.

We may now return to the consideration of connotation or intension. Though these designations are in common use, they have frequently been left ambiguous. In particular, a term is often said to connote a property or properties in objects, but also to connote other *terms.* Obviously we cannot say both these things at once, but must decide, e.g., whether the term 'man' is to be taken as connoting the property animality, necessarily present in all men, or as connoting the term 'animal' which applies to all men. It is in order to dispel this particular ambiguity that we have distinguished signification as a separate mode of meaning. We should say that the term 'man' *signifies* animality; that animality is included in the *signification* of 'man'. And we shall wish to say that 'man' connotes the *term* 'animal'; that this term 'animal' is included in the connotation or intension of the term 'man'.

As suggested by the derivation of the word, the intension of a term represents our intention in the use of it; the meaning it expresses in that simplest and most frequent sense which is the original meaning of 'meaning'; that sense in which what we mean by *'A'* is what we have in mind in using *'A'*, and what is oftentimes spoken of as the *concept of A.* We shall wish to preserve this original sense of 'intension' and, specifically, to identify it with the *criterion in mind* by which it is determined whether the term in question applies or fails to apply in any particular instance. At a later point, the epistemological question, what precisely is the nature of such a criterion in mind, will be discussed; and we shall there speak of 'linguistic meaning' and 'sense

[4] Sometimes the designation 'attributive term' is used more narrowly, being confined to the concrete sense; and in that case the definition may be given, "An attributive term is one which denotes a thing and connotes an attribute of it." But such a definition fails to define: *every* concrete term denotes things and connotes (or in our usage, *signifies*) an attribute of them.

meaning'. But for purposes of logic a criterion in mind must be identified with something which exhibits it. What is here called for is such delimitation of the intension of a term as will accord with and indicate the decision, in any particular instance, as to what is contained in the intension of the term and what is not. For the purpose of such formal delimitation, we may say that if, by reference to our criterion in mind, '*A*' will apply to a thing only if some other term '*B*' also applies, then '*A*' connotes '*B*' and '*B*' is contained in the connotation or intension of '*A*'.

If '*A*' connotes '*B*' and also '*A*' connotes another term '*C*', then it follows that '*A*' will connote the term '*BC*' or '*B* and *C*', since '*B* and *C*' will apply to anything to which '*B*' and '*C*' separately apply. Hence the connotation or intension of '*A*'—all that it connotes—can be identified with the conjunction or logical product ('and'-relation) of all the terms connoted by '*A*'.

There is one consequence of this manner of defining 'connotation' or 'intension' which we should observe. One could not *recite* all the other terms connoted by a given term '*A*': it follows from what has just been said that the number of them would be infinite—though all but a few of them would be obviously redundant. Hence we cannot say that the connotation of a term, thus identified with all the other terms it connotes, is an *expression*—unless, by convention, we should allow expressions of infinite length, as we allow series of an infinite number of terms. We can, however, say that *anything connoted* by a term is an expression; and that is all that is essential, since the point of such formal definition of 'connotation' is precisely in order that we may be able to determine what is and what is not contained in the connotation of a given term. It is not essential that a connotation should be recited, any more than it is essential that the class denoted by a given term should be enumerated or enumerable. And the connotation of a term can always be otherwise expressed; any definition, for example, provides brief expression of the connotation of the defined term. In fact, as we shall see hereafter, the sole function of a real definition is to explicate the intensional meaning of the expression which is defined.

The point of specifying the intension of a term as the *conjunction* of all the other terms it connotes, is to make it clear that a connotation is not properly thought of as an aggregate or *class* of terms. In-

stead, the relation which the terms connoted have to one another, in constituting this connotation, is that of mutually modifying or limiting one another (in the usual sense of 'modify' or 'limit' in grammar). The particular importance of observing this fact, is that if a connotation should be thought of as a class, then it might be suggested that a term having zero connotation is one which connotes no other term. That would be incorrect: a term has zero connotation if and only if its connotation imposes no limit on the application of it but allows it to apply to anything and everything thinkable.

As will be obvious, one connotation may contain or include another; as the connotation of 'man' includes the connotation of 'animal'. And any two terms such that each connotes the other will have the same connotation or intension.

Confining ourselves to terms which would apply to at least one consistently thinkable thing—that is, to terms whose comprehension is not zero—a term is *singular* if and only if its connotation precludes application of it to more than one *actual* thing. A non-singular term is *general*.[5]

It is to be noted that the question whether a concrete term is singular or general is a question of its connotation, not of its denotation, even though a singular term can denote no more than one thing. 'The red object on my desk' is a singular term, and 'red object on my desk' is a general term, regardless of the facts about red objects on my desk. If there is no red object on my desk, then 'the red object on my desk' has zero denotation. Also it has zero denotation if there is more than one red object on my desk—unless the designation is elliptical and some further qualification is understood which is sufficient to determine *which* red object on my desk is intended.

The dichotomy 'singular or general' is not significant in the case of abstract terms; if it be applied to them, all abstract terms must be classified as singular.

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[5] The dichotomy, singular or general, can be applied to terms having zero comprehension—e.g., 'round square' and 'the round square on the board'—by reference to what will later be called their analytic meaning. Such a term is singular if and only if it is a complex expression having some constituent such that, replacing this constituent by some other which does not alter the syntax, it becomes an expression which satisfies the definition of 'singular term' given above. For example, 'the round square on the board' is a singular term because 'the round circle on the board' is a singular term. Similarly, 'the round x on the board' becomes a singular term for every value, '*a*', of '*x*', which, like 'square', is a noun and singular, and is such that 'the round a on the board' has a comprehension which is not zero.

It is possible that the same object should be named by singular terms having different connotations; e.g., 'commander in chief of the Continental Army' and 'first president of the United States'. In such a case, since the two terms in question have different connotation, they must also have different signification and different comprehension. And this leads us to observe that the comprehension of a singular term is not confined to the single existent thing it denotes (if it denotes any). Although the term connotes singularity of the existent denoted, within the classification of thinkable things comprehended, still the connotation is never sufficient—without recourse to other and logically adventitious facts—to select this individual from amongst all thinkable things which otherwise satisfy the connotation of the term. Thus the denotation of a singular term is a class which is either a class of one or is empty. But its comprehension is the classification of *all* the things consistently thinkable as being the one and only member of that class. For example, 'the red object on my desk' comprehends all the red objects which imaginably might be the only one on my desk; and differs from the comprehension of the general term 'red object on my desk' only by excluding any actual or imaginable red objects which are members of inseparable pairs or triads, etc.

It will be noted that, for any term, its connotation determines its comprehension; and conversely, any determination of its comprehension would determine its connotation; by determining what characters alone are common to all the things comprehended. In point of fact, however, there is no way in which the comprehension can be precisely specified except by reference to the connotation, since exhaustive enumeration of all the thinkable things comprehended is never possible.

The connotation of a term and its denotation do not, however, mutually determine one another. The connotation being given, the denotation is thereby limited but not fixed. Things which lack any essential attribute, specified or implied in the connotation, are *excluded from* the denotation; but what is *included in* the denotation, and what not, depends also on what happens to exist; since the class of things denoted—as distinguished from what the term comprehends—is confined to existents.

Also; the denotation of a term being determined, the connotation is thereby limited but not fixed. The connotation cannot include any attribute absent from one or more of the things named; but it may or

may not include an attribute which is common to all existents named by the term; since such an attribute may or may not be essential to their being so named. 'Featherless biped', for example, does not connote 'rational being', even if the class denoted contains only rational beings.

As has been remarked, a term may have zero comprehension. For example, 'round square' has zero comprehension; the classification of consistently-thinkable things so named is empty. But many terms —e. g., 'unicorn' and 'non-rational animal that laughs'—have zero denotation without having zero comprehension: things which would be correctly so named are consistently thinkable.

The classic dictum that denotation varies inversely as connotation, is false; e.g., 'rational featherless biped' has the same denotation as 'featherless biped'. But this relation does hold between connotation and comprehension. Any qualification added to a connotation (and not already implied) further restricts the comprehension: and with any omission of a qualification from a connotation, the classification comprehended is enlarged to include thinkable things which retention of that qualification would exclude.

This relation of connotation and comprehension is worth remarking for the sake of one consequence of it: a term of zero comprehension has *universal* connotation. This may at first strike the reader as a paradox. But the correctness of it may be observed from two considerations. Only terms naming nothing which is consistently thinkable have zero comprehension. And "*A* is both round and square," for example, entails "*A* is *y*," for any value of '*y*'. That is, the attribution of 'both round and square' entails *every* attribute; and the connotation of 'round square', since it includes every mentionable attribution, is universal.[6]

This fact clarifies one matter which might otherwise be puzzling.

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[6] "*A* is both *x* and not-*x*" entails "*A* is *x*."
And "*A* is *x*" entails "Either *A* is both *x* and *y* or *A* is *x* but not *y*."
Hence "*A* is both *x* and not-*x*" entails "Either *A* is both *x* and *y* or *A* is *x* but not *y*."
But also "*A* is both *x* and not-*x*" entails "*A* is not *x*."
And "*A* is not *x*" entails "It is false that *A* is *x* but not *y*."
Hence "*A* is both *x* and not-*x*" entails "It is false that *A* is *x* but not *y*."
But "Either *A* is both *x* and *y* or *A* is *x* but not *y*" and "It is false that *A* is *x* but not *y*" together entail "*A* is both *x* and *y*."
And "*A* is both *x* and *y*" entails "*A* is *y*."
Hence "*A* is both *x* and not-*x*" entails "*A* is *y*."

Plainly, it is incorrect to say that terms like 'round square' have no connotation, or that they are meaningless. This term is distinguished from a nonsense-locution by definitely implying the properties of roundness and squareness. And it is only by reason of this meaning —this connotation—which it has, that one determines its inapplicability to anything consistently thinkable.

Thus what is (presumably) intended by the inaccurate statement that such terms are meaningless, can be stated precisely by saying that they have zero comprehension, or that their connotation is universal.

The diametrically opposite kind of term—those having universal comprehension and zero connotation—are also often said to be meaningless. 'Being' and 'entity'—supposing everything one could mention is a being or entity—are such terms. Also any which is of the form 'either A or not A'. The accurate manner of indicating the lack of significance which characterizes these terms, is to observe that attribution of them implies no attribute that could be absent from anything; that their connotation is zero and their comprehension unlimited. But if they genuinely lacked any meaning—any connotation—this character of them could not be determined.

4. So far we have been concerned with conceptions which are at least provisionally clear by their connection with familiar matters of traditional logic. The properties of propositions and propositional functions which are parallel to the modes of meaning remarked in the case of terms, are not thus familiar: discussion of the intension and extension of propositions has usually been meager or lacking; and no distinction of propositional functions from propositions is traditionally recognized. But it is by reference to these properties of propositions and functions that the connections between meaning and analytic truth can most easily be made clear. We can establish the parallel in question if we think of propositions as a certain kind of terms, and of propositional functions as another kind of terms; and such interpretation not only is entirely valid but is almost compelled by logical facts which are of first importance.

A proposition is a term capable of signifying a state of affairs. To define a proposition as an expression which is true or false, is correct enough but inauspicious, because it easily leads to identification of the proposition with the statement or assertion of it; whereas the

element of assertion in a statement is extraneous to the proposition asserted. The proposition is something assert*able;* the *content* of the assertion; and this same content, signifying the same state of affairs, can also be questioned, denied, or merely supposed, and can be entertained in other moods as well.[7]

For example the statement, "Mary is making pies," asserts the state of affairs, Mary making pies now, as actual. "Is Mary making pies?" questions it; "Oh that Mary may be making pies," expresses it in the optative mood; and "Suppose that Mary is making pies," puts it forward as a postulate. When we say "If Mary is making pies, then pies are being made by Mary," we consider it and affirm that it has a certain logical consequence. And if we state, "Either Mary is making pies or we shall have no dessert," we likewise entertain it without assertion but affirm its being one of two alternatives.

If we wish to disengage this common content from any particular mood of its entertainment, we might do so—in a manner more precise than ordinary language commonly affords—if we should have symbolic devices indicating these various moods of entertainment; e.g., "$\vdash p$" for assertion of '*p*', "*H p*" for the postulation of it, "! *p*" for the mere greeting of it as a presentation of sense or imagination, "? *p*" for putting it in question, "*M p*" for entertainment of it as consistently thinkable or possible, and so on.[8] And the common content, here represented by '*p*', would be something expressible in the manner of indirect discourse, e.g., '*that* Mary is making pies now', or by a participial phrase, 'Mary making pies (now)', which can be asserted, questioned, and entertained in all these different ways, and which signifies the state of affairs which they all concern.

Giving the name 'proposition' to such a clause or participial phrase, instead of to the corresponding statement, is of course, a conventional decision. What justifies it is the fact that it provides a basis for explanation of important facts which logicians have been compelled to

[7] This conception is first due to Professor H. M. Sheffer, as noted in the Preface. Professor C. W. Morris has also advanced a similar conception.

[8] Exact logic has not as yet much concerned itself with these various moods of entertaining propositions. Assertion is recognized, and postulation—though postulation is usually dealt with inconsistently and confused with assertion. Also it begins to be understood that the imperative or hortatory mood has its own logical principles, and that the so-called modal statements, of possibility and necessity, demand separate consideration. If these matters were to be adequately treated, we should, of course, expect some attempt at economy; the reduction of some moods to expression in terms of others.

recognize. In particular, it has come to be a matter of general agreement that the extension of any true proposition is universal, and the extension of any false proposition is zero or null; hence that all true propositions have the same extension, and that all false propositions have the same extension, and the important extensional property of a proposition is thus its truth-value (truth or falsity). But logicians have arrived at these conclusions by following analogies which are impressive, somewhat as mathematicians before Dedekind learned to deal correctly with $\sqrt{2}$, and just what it is which is responsible for the facts observed, has remained obscure.

Also, it begins to be understood that propositions have important *intensional* properties, quite distinct and different from those extensional ones which can be expressed in terms of truth and falsity. For example, it is such intensional properties which are in question when we ask what is deducible from a proposition, or what is consistent with it, and whether a proposition is logically necessary or logically contingent. This last point especially concerns us since, as will appear, the logically necessary coincides with that the statement of which is analytic.

However, if this adopted procedure is to succeed in its explanatory purpose, there are several small difficulties, mainly due to language, which must be cleared away. First, it may not readily appear that expressions of the type 'that Mary is making pies' are terms, and that they are replaceable by participial phrases like 'Mary making pies (now)'. Second, we shall have to note the participial phrases which correspond precisely to statements of certain forms. Third, we must remark two senses of such participial phrases, and the important relation of these to the state of affairs or matter of fact which is concerned. And fourth, we must clarify somewhat the notion of the state of affairs itself.

The first point need not detain us long. It will be sufficient to assure the fact that expressions such as 'that Mary is making pies' are really terms if we observe that they can stand as subject in sentences or as predicate. E.g., "That Mary is making pies is what I doubt"; "That Mary is making pies calls for three cheers"; "The gratifying fact is that Mary is making pies"; "We believe that Mary is making pies." Also, with some violence to customary idiom, the participial phrase, 'Mary making pies (now)' is always substitutable for this

other manner of indicating a state of affairs: e.g., "The gratifying fact is Mary making pies now"; "Mary now making pies is what I doubt"; and so on.

Second, if a participial phrase is to convey accurately the content of an assertion, a little verbal ingenuity may on occasion be called for in the interest of precision. For one thing, verbs have tense, and this temporal reference of a statement must be preserved; as 'Mary making pies (now)' or '(in past)' or '(in future)'. Some states of affairs, however, are essentially timeless, like the international date-line being the 180th meridian; or that signified by any law of nature. Indeed *all* actual states of affairs are timelessly ingredient in the factual—once a fact, always a fact: it is the content of them which may be temporal.

Again; if the statement in question is compound or complex, the corresponding participial term may be similarly compound or complex: to "*A* is *B* and *C* is *D*" would correspond '*A* being *B* and *C* being *D*'; and to "*A* is *B* or *C* is *D*," '*A* being *B* or *C* being *D*'. However, for any statement, '*p*', regardless of its form, there is always the corresponding participial term 'It being the case that *p*'.

Negative statements call for caution, because oftentimes '*A* not being *B*' would fail to correspond precisely to the asserted content of "It is false that *A* is *B*." The safe general procedure is indicated by the awkward phrase, 'It being not the case that *A* is *B*'.

(In confining our paradigms to simple statements having the form "*A* is *B*," no implication that all simply indicative statements are reducible to this form is intended.)

Hypothetical statements also require circumspection, because expressions of the form "If *A* is *B* then *C* is *D*" are ambiguous. For one meaning, '*C* being *D* or it being not the case that *A* is *B*' would correspond; for the other, a corresponding term would be "'*C* is *D*' being deducible from '*A* is *B*'."

The third point is somewhat more difficult but also more important. It will be noted that the state of affairs referred to is the *signification* of the proposition: not its denotation. "Mary is making pies" asserts that the state of affairs, Mary making pies now, has a certain status; namely, that it is actual; that it is incorporated in the real world. And if this statement is true, then the denotation or extension of the propositional term, 'Mary making pies now', is not the limited state of

affairs which it indicates but is the actual world which incorporates that state of affairs and is characterized by it.

For a combination of reasons, this may not at first be clear. But we can disentangle the matters which are likely to cause confusion. First, let us observe that when a term denotes a thing that thing must likewise be denoted by one or other of every pair of mutually negative terms which could meaningfully be applied to it. That is what is required by the Law of the Excluded Middle. If, then, what 'Mary making pies now' denotes should be the limited state of affairs, Mary making pies now, this same state of affairs should likewise be denoted by 'It being hot' or by 'It being not hot'; and by 'Nero fiddling while Rome burned' or by 'No fiddling by Nero in burning Rome'; and so on, for every pair of contradictory propositions. But that fails to be the case. Mary making pies now, neither includes its being hot nor its being not hot. Either of these alternatives is simply outside the state of affairs in question and irrelevant to it. What could be so denoted by 'Mary making pies now', and likewise denoted by one or other of every pair of contradictory propositions, is the kind of entity we call a world. Nothing short of the whole of reality could determine simultaneously, for *every* proposition, the truth or falsity of it. Thus the denotation or extension of a proposition, in case it is true, is the actual world. The statement asserting the proposition *attributes* it to the actual world; affirms that this actual world incorporates it and is characterized by it. The limited state of affairs, like Mary making pies now, is merely the essential attribute which any world must possess in order that the proposition in question should hold of, apply to, or denote it.

Thus the extension of any proposition is the actual world, in case it is true. And since denotation or extension is in all cases confined to the existent or actual, the extension of any false proposition is null or zero; it applies to nothing actual.

A final point to be remarked here, is the fact that any participial phrase like 'Mary making pies now' can have either of two senses. In one of these it is a predicable expression, like the adjective 'hot' or 'sweet': in the other it is abstract and pronomial, like 'hotness' or 'sweetness'. It is the former of these in which it is equivalent to 'that Mary is making pies' and is to be identified with the proposition. It is in this sense that it is predicable of a world. In the other

—the abstract sense—it *names* the attribute predicated; that is, *names* the state of affairs attributed to the actual world by asserting "Mary is making pies."

If this is puzzling, let us observe the parallel for such a predicable term as 'sweet'. If we say something is sweet, the predicate which is applied to and denotes the thing in question, is the term 'sweet', but the *name* of the property or attribute thus asserted to characterize this thing is the cognate abstract term 'sweetness'. And we should note that 'sweetness' cannot apply to or denote any sweet *thing,* but only the property itself. The assertion "Mary is making pies" attributes the state of affairs, Mary making pies now, to the actual world. But it is the predicable sense of the expression, 'Mary making pies now' which may apply to and denote the actual world; and it is the abstract sense of it (in which it is the cognate abstract term) in which it *names* the state of affairs attributed.

To sum up: Every statement asserts a proposition and attributes a state of affairs to the actual world. The proposition so asserted is a predicable term, which can apply to and denote what one or other of every pair of contradictory propositions can also apply to and denote. Every *true* proposition denotes, or has as its extension, the actual world. And every false proposition has, likewise, the same extension as every other which is false; namely, zero extension. Thus all true propositions are equivalent in extension, and all false propositions are equivalent in extension; and the important extensional property of any proposition is simply its truth-value.

The fact that the *name* of any state of affairs is an abstract term, may serve to sharpen and clarify the meaning of this slightly vague expression 'state of affairs' (or the even vaguer and less appropriate expression, 'matter of fact', which we have sometimes used as a synonym). Such a state of affairs is *not* a concrete entity; a space-time slab of reality with all that it contains, but is a property or attribute. It includes nothing beyond what the *abstract* participial expression naming it entails or requires. It is confined to precisely what must be the case in order that the correlative predicable term, which is the proposition, should be applicable to reality.

For example, while Mary is making pies in the kitchen, either she burns her fingers or she does not. The space-time slab, or Whiteheadian event, which comprises Mary making pies now, either includes Mary burning her fingers or it definitely excludes this and is

characterized throughout by Mary's fingers being unburned. But the state of affairs, Mary making pies now, which is asserted as actual by the statement "Mary is making pies," neither includes what is asserted by "Mary burns her fingers," nor what is asserted by "Mary does not burn her fingers." It includes only what Mary now making pies requires in order to be the fact.

One state of affairs or matter of fact may include another; as Mary now making pies includes pies being made, and includes Mary working. And one state of affairs may definitely exclude another; as Mary now making pies excludes Mary remaining motionless. But in the sense which is here requisite, what the state of affairs, Mary now making pies, includes is only what is deducible from "Mary is making pies." And what this state of affairs definitely excludes is only that whose non-factuality is deducible from "Mary is making pies."

Thus a state of affairs is not the kind of entity for which the doctrine of internal relations would hold. That doctrine arises from confusing states of affairs with space-time slabs of reality.

The flower growing in the crannied wall, as absolute idealism conceives it, is not what is signified by "There is a flower growing in the crannied wall," but is such a space-time slab, including every cell of this flower and every atom, and every last fact of the relationships of these. If one maintain that any two such space-time slabs of reality, S_1 and S_2, are so related that the whole truth about S_1 involves the truth about S_2, this would be difficult to disprove. As the doctrine of internal relations asserts, S_1 must have some relation to S_2 in order to be just what it is and just as it is: it would not be precisely this space-time slab unless it had exactly that relation to every other, and to the content of every other, which in fact it has. The whole truth about the flower in the crannied wall requires the whole truth about the universe. But all that anyone can *know* about the flower in the crannied wall—and could express in a statement or a set of statements connected by 'and'—is a state of affairs. And what one could thus know does *not* entail or implicitly require the truth about everything else and about the universe. It requires nothing beyond what old-fashioned logic recognizes as validly deducible from the statement of what is thus known. The epistemological and metaphysical consequences which absolute idealism draws from the doc-

trine of internal relations rest on nothing more impressive than (1) the infinite specificity, logically, of any individual object—which is required by the Law of the Excluded Middle—and (2) the ambiguity of the verb 'to know'; which may refer to, as its object, an individual thing or may refer to an apprehended fact. An individual object is a space-time slab; and is something which we can no more know, in all its infinite specificity, than we can similarly know the whole of reality: on that point, the doctrine is on firm ground. But what we know in the sense of apprehending as fact or believing with assurance, is merely some limited state of affairs, which exhausts neither reality nor the object to which cognition is addressed, but comprises only those factualities about the object which our knowledge of it would enable us to state. It will be important, therefore, to observe the abstract and adjectival character of what is appropriately called a state of affairs, as something knowable and statable: it includes all that the assertion of this state of affairs as actual implies, but it includes nothing which is not thus deducible from such statement. It is the signification of some formulated or formulatable proposition; not a 'chunk' of reality.

5. We have spoken of a proposition (propositional term) as true when statement or assertion of it is true, and as false when the corresponding statement is false. So also, two propositions are contradictory if the statements of them are contradictory; and are consistent if the statements of them are consistent. And if one statement implies or entails another, then the one proposition implies or entails the other.[9]

The *intension* of a proposition comprises whatever the proposition entails: and it includes nothing else.

This would in fact follow from our explanation of the intension of terms. If application of the given term, *'A'*, to anything requires that another term, *'B'*, should also be applicable to that thing, then *'A'* connotes *'B'*, and *'B'* is contained in the intension of *'A'*. The only thing to which any propositional term would meaningfully apply would be the kind of entity called a world. And if any world to which

[9] It would be more logical to regard truth and falsity, and the relations of consistency, implication, etc., as pertaining in the original sense to propositions, and as attributable to statements because the logical properties of statements are derivative from those of the corresponding propositions. But we are accustomed to think of these properties and relations in connection with statements.

the proposition '*p*' would apply is required to be one to which also '*q*' would apply, then '*p*' entails '*q*'.

All the deducible consequences of a proposition, taken together, exhibit the intension of it discursively. It would not, of course, be possible to recite all these consequences, for any proposition. But it is entirely correct to say that whatever is deducible from a proposition is contained in the intension of it, and that anything so contained can be exhibited by some consequence deducible from it. In that sense at least, the intension of a proposition may be said to coincide with its deductive significance. Also it will be the case that any two propositions have the same intension if and only if each is deducible from the other. Intension is that mode of meaning which is the same for two propositions if and only if whatever is deducible from one is deducible from the other also.

Alternatively, we might say that the intension of a proposition comprises whatever must be true of any possible world in order that this proposition should be true of or apply to it.

The conception of a possible or conceivable or consistently thinkable world, thus introduced, is not jejune. Anything which could appropriately be called a world, must be such that one or other of every pair of contradictory propositions would apply to or be true of it; and such that all the propositions thus holding of it will be mutually consistent. And any set of consistent propositions which includes one or other of every contradictory pair, may be said to determine a possible world. Such a possible world is thinkable, in whatever sense the actual world or whole of reality is thinkable. The actual world, so far as anyone knows it or could know it, is merely one of many such which are thus possible. For example, I do not know at the moment how much money I have in my pocket, but let us say it is thirty cents. The world which is just like this one except that I should have thirty-five cents in my pocket now, is a consistently thinkable world—consistent even with all the facts I know. When I reflect upon the number of facts of which I am presently uncertain, the plethora of possible worlds any one of which might, so far as my knowledge goes, be the one which is actual, becomes a little appalling.

The propositions deducible from a given proposition, '*p*', together constitute the intension of '*p*'. And any proposition '*q*' contained in the intension of '*p*' is such that '*q*' must apply to any possible world to which '*p*' would apply.

A proposition *comprehends* any consistently thinkable world which would incorporate the state of affairs it signifies; and the classification of such possible worlds to which the proposition would apply, constitutes the comprehension of that proposition.

The extension of a proposition is, as we have seen, a class of one —the actual world—in case it is true, and is an empty class in case it is false. But the comprehension of a proposition is always a classification of many, if the proposition is self-consistent, and is zero or null only if the proposition is self-contradictory. And while all propositions which are true have the same extension, they do not in general have the same comprehension: they will coincide in comprehension only in case they have the same intension. False propositions also, though they all have the same zero extension, will be different in what they comprehend unless their intension is the same.

An *analytic* proposition is one which would apply to or hold of every possible world; one, therefore, whose comprehension is universal, and correlatively, one which has zero intension. At this point, the distinction previously remarked between terms of zero intension and nonsense-locutions which literally have no meaning, becomes important. An analytic proposition does not fail to have implications—though all entailments of it are likewise analytic or logically necessary propositions which would hold of any possible world. That an analytic proposition has zero intension is correlative with the fact that in being true of reality it does not distinguish this actual world from any other which is consistently thinkable; that it does not impose any restriction or limitation on the actual which could conceivably be absent.

As has been said, a *self-contradictory* or self-inconsistent proposition is one which has zero comprehension, and could apply to or hold of no world which is consistently thinkable. Correlatively, such a proposition has universal intension; it entails all propositions, both true and false.[10] If the self-contradictory should be true, then anything and everything would follow, including all the absurdities one could think of. It would, however, be a mistake to say that self-contradictory propositions are meaningless. A locution which genu-

[10] Every self-contradictory statement is equivalent, for some choice of p and q, to a statement of the form, "p is true and p is false and q is true." This last entails "r is true," for any choice of r. The manner of the deduction would be analogous to that of the paradigm given in the footnote, p. 47, for expressions of the form "A is both x and not-x."

inely had no meaning, like "Didmash etmas gint," could not possibly contradict itself, because it says nothing. By contrast, that today is Monday but tomorrow is not Tuesday, is known *a priori* not to be the case *because of the meaning which the statement has.* The sense in which what is self-contradictory lacks significance, is in fact most precisely expressed by saying that the intension of it is unlimited, or that it has zero comprehension.

All synthetic propositions, excepting the self-contradictory, have an intension which is neither zero nor universal, and a comprehension which is neither universal nor zero. They entail some other propositions but not all other propositions. And they are deducible from some other propositions but not from all. Consonantly, what they assert is compatible with some consistently thinkable states of affairs and not with other consistently thinkable states of affairs. The state of affairs signified by any synthetic proposition would characterize some possible worlds but would fail to characterize other possible worlds.

6. The subject of propositional functions is one which is of first importance for logic; but also one of great complexity. We shall not attempt any full discussion of it, but shall confine attention to what is required for clarity, and to those topics which bear directly upon questions about analytic truth.

A *statement function* is an expression containing one or more blank or variable constituents which becomes a statement when each such variable is replaced by certain constant (non-variable) expressions. Thus "x is a man," "$x < \sqrt{2}$," "x precedes y," "All A is B," "If p then q," "y is between x and z," are statement functions. We shall symbolize expression of this general kind in the usual manner, by 'φx', '$\psi(x, y)$', '$f(p, q)$', '$\theta(x, y, z)$', *etc.*

In the statement function "x precedes y," substitution of the constant term 'Sunday' for the variable constituent 'x', and of 'Monday' for 'y', turns it into a statement—as it happens, one which is true. And substitution of '9' for 'x' and '7' for 'y' also turns it into a statement—one which is false. 'Sunday' and '9' are called *values* of 'x' in "x precedes y," and 'Monday' and '7', values of 'y'. In any statement function, '$\theta(x, y, z, \ldots)$', if substitution of the constant expression 'a' for 'x', 'b' for 'y', 'c' for 'z', and so on, transforms '$\theta(x, y, z, \ldots)$' into a statement '$\theta(a, b, c, \ldots)$', then 'a', 'b', 'c', etc. are called values, respectively, of 'x', 'y', 'z', etc. in this function.

In "x precedes y," it happens that any constant which is a value of 'x' is likewise a value of 'y', and *vice versa*. But in "x is a property of y," for example, 'yellowness' is a value of 'x', and 'gold' is a value of 'y', whereas "Gold is a property of yellowness" is neither true nor false but is nonsense: that is, no value of 'x' in this function is a value of 'y', or *vice versa*.[11]

It should be noticed that what is here called a value of, for example, 'x' in "x is a man" is the *term* or *expression* 'Socrates' or 'Apollo' or 'the speaker for tonight', and not the *thing named* by such a term. This is merely a conventional decision as to what will be meant by speaking of values of a variable. But it seems an appropriate one: it is the name 'Socrates', not Socrates the man, which can be a constituent in discourse. Also this decision is important, for reasons which will appear when we come, later, to discuss what will be called formal statements.

Oftener than not what we here call statement functions are called also propositional functions. But we shall have to distinguish between propositional functions and statement functions, just as we have distinguished between propositions and the statements or assertions of them. "Socrates is a man" is a statement, and 'that Socrates is a man' or 'Socrates being a man' is the corresponding proposition. So also "x is a man" is a statement function; and it is the corresponding predication or participial expression, 'x being a man' or 'x characterized by humanity' which is to be identified with the propositional function. However, a statement function is *not* the assertion of the corresponding propositional function: what are sometimes called asserted propositional functions are not as a fact functions of any kind but are propositions of a particular type which will be considered later.

When we speak of functions without qualification, what is said may be applied to statement functions or to propositional functions, either one.

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[11] By some logicians it is held that entities in general are divisible into 'types'; individuals, classes of individuals, classes of such classes, etc.; and also held that if a be a value of 'x' in any function 'φx', or in '$\psi(x, y)$', etc., then anything which is of the same type as a is also a value of 'x' in that same function. It would appear that this division into types is not exhaustive of entities which can be spoken of; and at least doubtful that restriction to some one type is in all cases essential, as well as that it is the only restriction ever required upon constants meaningfully substitutable for variables in a given function. We shall, however, omit these questions.

We can avoid several kinds of difficulties, at one and the same time, if we recognize that, speaking most judiciously, there is only *one* variable in any function. In what are called functions of two variables, 'x' and 'y', this one variable is the ordered couple '(x, y)'; in what are called functions of three variables, it is an ordered triad, '$(x, y, z,)$', and so on.[12] But it is necessary to insist here on the consideration of *order*—order of occurrence in the function. This is the case both because what is a value of one variable constituent in a function may not be a value of another variable constituent in the same function, and because order or position of variable constituents is of the essence of what any function expresses: '$\psi(a, b)$' is always a different statement from '$\psi(b, a)$', and one of these might be true when the other is false.

To put this same matter in another way: a variable constituent in discourse is one which has no meaning except one which is conferred by and relative to its context. But it would be a serious oversight if we should overlook the fact that *in* its context a variable constituent has a kind of meaning determined by its place (or places) in the expression and by the syntax of that expression. Thus in "x precedes y," 'x' is grammatical subject of the verb 'precedes' and 'y' is grammatical object. And in "x is a property of y" it is the syntax of the expression, together with the meaning of the noun 'property', which determines that what is a value of 'x' cannot be a value of 'y'. Also, in such an expression as "If x precedes y, then y is preceded by x," it is, of course, required that any constant substituted for 'x', or for 'y', in one place, should be substituted for that same variable constituent in its other occurrence also. Variable constituents may also have what might be called *notational* meaning, which is a species of syntactic meaning arising from conventions of notation. Thus if we write "When xRy, it may or may not hold also that yRx," it will be understood that 'R' takes only relation-words as its values; and hence the component expressions 'xRy' and 'yRx', though as written they contain no constant constituent, nevertheless do have an element of constant meaning. They have such meaning both by rea-

[12] We may still, by convention, speak of a value of 'x' in "x precedes y" or in any function of more than one variable constituent. If for some substitution of a constant, 'b', for 'y' in '$\psi(x, y)$,' substitution of the constant 'a' for 'x' transforms '$\psi(x, y)$' into a statement '$\psi(a, b)$,' then 'a' may be called a value of 'x' in '$\psi(x, y)$'.

In "x precedes y," it happens that any constant which is a value of 'x' is likewise a value of 'y', and *vice versa*. But in "x is a property of y," for example, 'yellowness' is a value of 'x', and 'gold' is a value of 'y', whereas "Gold is a property of yellowness" is neither true nor false but is nonsense: that is, no value of 'x' in this function is a value of 'y', or *vice versa*.[11]

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Oftener than not what we here call statement functions are called also propositional functions. But we shall have to distinguish between propositional functions and statement functions, just as we have distinguished between propositions and the statements or assertions of them. "Socrates is a man" is a statement, and 'that Socrates is a man' or 'Socrates being a man' is the corresponding proposition. So also "x is a man" is a statement function; and it is the corresponding predication or participial expression, 'x being a man' or 'x characterized by humanity' which is to be identified with the propositional function. However, a statement function is *not* the assertion of the corresponding propositional function: what are sometimes called asserted propositional functions are not as a fact functions of any kind but are propositions of a particular type which will be considered later.

When we speak of functions without qualification, what is said may be applied to statement functions or to propositional functions, either one.

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represented by 'φ'; e.g., the character of being a man or the character of being either not red or else colored. And the statement function involving two variable constituents, 'x' and 'y', is used not for the purpose of saying anything about what the symbolism '(x, y)' stands for—because it stands for any ordered couple—but in order to speak of something, or of anything, characterized by standing in a certain relation, such as the relation of predecessor to preceded, or that of an included class to one which includes it.

As has been observed, the variable constituents in a function have no meaning save the syntactic meaning which is conferred by their context. They are in fact merely a notational device by which the syntax of the predication may be preserved—and in some cases, syntactically related in the intended way to other such predications in the same context—without the necessity of saying what in particular this predication is predicated of, or whether in fact it is predicated of anything.

For reasons thus suggested, the *propositional function,* corresponding to any statement function 'φx', is to be identified with 'x characterized by φ'; and it is the characterization 'φ' which is here important; 'x' is superfluous except for some convenience of syntactic reference. Thus the propositional function corresponding to "$x < \sqrt{2}$" is 'x characterized by being less than $\sqrt{2}$'; and 'x' is here redundant, except for some purpose of syntactic reference to further context: the participial phrase 'characterized by being less than $\sqrt{2}$' has the same meaning and applies to exactly the same things. And the propositional function corresponding to "x precedes y" is '(x, y) characterized by being in the relation of predecessor to preceded', or merely 'characterized by the former preceding the latter', which could apply to nothing except some ordered pair.

This characterization or predication which is the propositional function, is always a participial term (or may be given that form); but it is not, like a proposition, the kind of participial phrase which could be predicated of reality or a world. Instead it is predicable of the kind of entities (or pairs or triads, etc.) names of which are values of the one variable in the corresponding statement function.

Such a participial phrase as 'being a man', 'being less than $\sqrt{2}$', 'being in the relation of predecessor to preceded', is an attributive phrase; and ambiguous in the general manner of attributives. But

the prefixed phrase 'characterized by' in 'characterized by being a man', 'characterized by being so and so', restricts the expression to its concrete sense; or more accurately—since the values of the variable may in some cases be names of properties and not of concrete entities—this prefix restricts 'being so and so' to its *predicable* sense. And the abstract sense of such a phrase—the cognate abstract term—is the name of the *characteristic* which predication of this phrase to anything attributes. Thus in the case of 'x characterized by being a man' this attribute is the property of being human; and in the case of '(x, y) characterized by being in the relation of predecessor to preceded', this attribute is the property common to all ordered pairs which stand in that relationship.

The logical properties of a statement function are those which it has by virtue of the predication it expresses—since the variable in it has no meaning except one conferred by this context. Thus the extension, intension, etc., of any statement function is the extension or intension of the predicable term which is the corresponding propositional function. The various modes of the meaning of any propositional function are determinable from what has been said above about the modes of meaning of terms in general; and these modes of meaning are ascribable also to the corresponding statement function.

The denotation or *extension* of a function is the class of existents (individuals or ordered couples or triads, etc.) of which this predication is truly predicable; the class of existents to which the term which is the propositional function truly applies. Thus the extension of 'x characterized by being a man' or of "x is a man" is the class of existent men; the extension of 'characterized by being in the relation of predecessor to preceded' or of "x precedes y" is the class of existent couples such that the former member of this pair precedes the latter. More briefly—though less clearly—we may say that the extension of any function 'φx' or 'x characterized by φ' is the class of existent x's for which 'φx' is true.

The *comprehension* of a function, 'φx', or 'x characterized by φ', is the classification of things consistently thinkable as being characterized by this predicate. Otherwise put: if for a constant expression 'a', "a exists" is not self-contradictory, and 'φa' is not self-contradictory, then 'φx' or 'x characterized by φ' comprehends a. And the totality of what is thus comprehended constitutes the comprehension of the function.

The connotation or *intension* of a function comprises all that attribution of this predicate to anything entails as also predicable to that thing. It will be appropriate to restrict the intension of any statement function, 'φx' to expressions in the form of statement functions; and to restrict the intension of any propositional function, 'x characterized by φ', to other expressions having this same form.

Thus we shall say that the intension of 'φx' contains or includes 'ψx' if and only if, for all values of 'x', 'φx' entails 'ψx'. And that the intension of 'x characterized by φ' contains or includes 'x characterized by ψ' if and only if every consistently thinkable thing characterized by φ must also be characterized by ψ. And the totality of what a function connotes or thus entails constitutes the intension of it.

The *signification* of a function 'φx', or 'x characterized by φ', is the essential property which anything must have in order that the predicate 'φ' should apply to it. Thus the signification of "x is a man" or 'x characterized by being a man', is the property of being human; and the signification of "x precedes y," or '(x, y) characterized by being in the relation of predecessor to preceded' is the property of standing in this relationship. As has been noted, the term which is the propositional function does not *name* this property; it is the cognate abstract term which is this name of the property signified by the function.

As is the case for terms of other kinds, a function may have zero comprehension. For example, "x is a cube with seventeen edges," and, for any constant 'A', "x is both A and not-A," are functions of zero comprehension.

Also a function may have zero extension but not zero comprehension: "x is the fiftieth state admitted to the Union" and "x is a sea-serpent which climbs aboard vessels in the Red Sea" are such functions.

There are also functions of universal comprehension; e.g., "x is not human or x is an animal," and, for any constant 'A', "x is A or x is not-A."

Also, there are functions having universal extension but not universal comprehension, such as "Either x pays no Massachusetts poll tax or x is over twenty-one."

Unlike propositions, functions may have an extension which is neither universal nor zero: "x is a man" and "x precedes y" are such functions.

7. The logical properties of statements are correlative with and derivative from those of the corresponding propositions, since statements merely assert propositions and attribute the states of affairs they signify to the actual. Likewise the logical properties of statement functions follow from those of the corresponding propositional functions. Since propositions are a kind of terms, and propositional functions also are a kind of terms, all expressions whose logical properties need come in question have the same four modes of meaning, extension, intension, signification and comprehension.

Of these four, the last three belong together in a certain sense in which they stand in contrast to extension. Any two expressions which have the same intension or the same comprehension, are the same in all three of these modes of meaning. (We cannot say that two expressions having the same signification will in all cases have the same intension and the same comprehension, because of abstract terms. 'Round' and 'roundness' have the same signification but not the same intension or same comprehension.) Whoever understands the intensional meaning of an expression, or the comprehension of it, can always determine for himself the other two of these three modes of meaning, merely by thinking about it consistently and without any recourse to experiences he has not yet had or to facts of existence as yet unknown to him. (Also one who understands the signification of an expression may so determine its intension and comprehension, provided only he observes whether the given expression is abstract or not). We might thus call all three of these, intensional modes of meaning. They all of them have to do with meaning as something which we have in mind when so and so is meant, or with something which should be in mind and may be brought to mind by thinking, or is logically determined by what we have in mind when we entertain a meaning.

It is also true that if two expressions have the same intension or the same comprehension, then—since the facts of existence are always fixed, even when we do not know just what these facts of existence are—these two expressions will also have the same extension. But two expressions having the same extension may not, and in many

cases do not, have the same intension or signification or comprehension. Thus 'man' and 'animal that laughs' have the same extension, since they truly apply to the same class of existents; but these terms do not have the same intensional meaning. Application of one of them to a thing does not logically require applicability of the other. Also "*x* is a large mammal which habitually walks erect" and "*x* is a man" have the same extension: the characterizations 'being a large mammal which habitually walks erect' and 'being a man' are predicable of the same class of existents. But they do not comprehend the same classification of consistently thinkable things. Again, the statements "January 1, 1944, is a Saturday" and "Potatoes are edible" have the same extension, being both true; but they do not signify the same states of affairs as characteristic of reality. Nor do they have the same logical consequences or follow logically from the same premises.

One main point here is that no one can *know* the extension of any expression he uses except through knowing facts of existence. In exceptional cases, we may know such facts of existence by knowing that they have no consistently thinkable alternatives, i.e., through knowing that they are logically necessary facts; as for example, we know that every man which exists is an animal without making any empirical investigation. But apart from what is thus logically necessary, we know facts of existence only by experience and through induction. One may well say, in a particular instance, "I do not know whether so and so exists or not, or is the fact or not, but still I know what I *mean*." We should understand this statement; and whoever would make it could *not* be meaning whatever he meant in the sense of extension. Whoever means anything in this sense in which meaning may be completely determined within the mind itself and by taking thought, must be entertaining whatever he means in some one of the intensional modes.

One bearing of this simple and obvious point is that it should indicate to us that all logical truth and all truths that logic can warrant must turn upon meaning in the sense of intension. Because logic and the logically certifiable comprise only such facts as are independent of all particular experience and are capable of being known with certainty merely through clear and cogent thinking. The same must hold of any analytic truth: if it is capable of being known by taking thought about it, then it must be independent of meaning in the sense

of extension and turn upon meanings only in the sense of intension. And we have already discovered that this is indeed the case; an analytic proposition is one having universal comprehension and hence zero intension, and an analytic statement asserts what such a proposition signifies as characteristic of reality. However, we have yet to develop the full significance of this fact.

Many logicians have supposed that logic should be, or at least could be, developed in terms of extensional meaning exclusively. Especially in the last fifty years, many extended and complex developments have been built up on the basis of that assumption. But that supposition is about as wrong as anything could be: nothing that logic asserts depends upon experience or requires anything not determinable by taking thought upon it. No statement is a statement belonging to logic unless it is analytic and hence certifiable from facts of intensional meaning.

This assumption that extensional meaning is fundamental for logic has usually been connected with and supported by one or both of two further suppositions. First, that the basic sense of meaning, in which an expression stands for or represents something, is the sense of denoting. Second, that all other facts which can be known and all other statements which can be assured are finally derivative, logically or epistemologically, from facts about individuals and singular statements which express these; and that no statement which, when properly construed, is a statement about an individual, can be true if the individual meant does not exist.

The first of these suppositions concerns a matter which troubled us at the outset of this discussion. We observed that there are those who would deny that a non-existent thing can be named or any term correctly applied to it. Although this contention seems *prima facie* absurd, we could not at that point clarify the matter; but in terms which the discussion has made available, this difficulty can now be simply resolved. A term names or correctly applies to anything which that term *comprehends;* any consistently thinkable thing which, as thought of, has the characteristics essential to application of that term. (On a particular occasion of its use, this comprehension of a term—what it names—may be limited by context; either a linguistic context of qualifying adjectives or a context provided by the use of the term, such as is indicated by a limiting word like 'this' or 'my'.)

What a term names is always something thought of; but to name is not *ipso facto* to denote: a term denotes what it names or applies to just in case the thing or things referred to happen to exist.

As regards the second supposition mentioned: it is indeed a fact that we could hardly say anything precise if we are not privileged to say "*A* is so and so" in a sense in which our statement will be false if there *isn't* any *A* (if *A* does not exist) to be so and so. This sense of singular predication may well be felt to be fundamental; and the difficulty which thus arises concerning a truth about merely thought-of individuals is one which becomes more impressive, and not less so, the further we probe the logic of it. But omitting all intervening considerations, the solution is in the end simple. The most frequently intended meaning of a singular statement, "*A* is so and so" is "*A* characteried by so and so *exists*," or even "One and only one *A* characterized by so and so exists." In either of these senses, "*A* is so and so" is obviously false when '*A*' has zero extension. Truth of such a statement about an individual thus depends upon the extension of the term '*A*' as well as upon the relation of this extension to that of 'so and so'. But by no means all statements in which singular terms occur are so intended; and if (*per impossibile*) they were to be so restricted by linguistic convention, there would still be something true of, and important to say about, things which are merely thought of without existing, or thought of without knowing whether they exist or not. For such a thought-of individual named by '*A*', "*A* is so and so" may mean "What '*A*' denotes is contained in what 'so and so' denotes." As when one says, "The book you will study in this course is one of the philosophical classics." With that meaning, "*A* is so and so" will be *true* without regard to any further question, if what '*A*' names does not exist. Any class which is empty is contained in every class: if the student addressed studies no book in the course, then any he so studies will be anything you please.[14] Or a statement of this form, "A is so and so," may mean, "The comprehension of '*A*' is contained in the comprehension of 'so and so'," as when one says, "The area of the triangle with vertices at these three points can be expressed in terms of their distances from one

[14] Strictly speaking there is only one empty class: every term which names no existent has the same denotation, namely zero denotation.

another." This will be true, provided nothing properly called *'A'* could lack the character signified by 'so and so', whether *'A'* names an actual individual or only—as is the case with us in the present example—something imaginary.

Thus both the assumptions mentioned above are in error. Things merely thought of can be named; and concerning anything thought of, and required by our manner of thinking of it to have certain essential characters, there is a truth which can be told—as well as any number of statements about it which would be false. If this were not so, then nobody could make a plan concerning the execution of which there could be doubt, or entertain any expectation in which he could conceivably be disappointed. And if that should be the case, then thinking would be a pointless and perhaps impossible procedure. Since many things can be correctly thought of though they do not exist, and many more the existence of which is uncertain, it is meaning and naming in the sense of comprehending and not in the sense of denoting which is fundamental.

As has been mentioned, any expression whose intension is determined has a meaning which is thereby fixed in all the modes of meaning—though as regards the extension of it, one may still not *know* just *how* it is fixed. That being so, intensional meaning meets a basic requirement, laid down long ago by Leibnitz; the requirement, namely, that if the expressions *'A'* and *'B'* have the same meaning, then the substitution of *'A'* for *'B'* or *'B'* for *'A'* in any statement will not alter the truth of that statement.[15]

Meaning in the sense of extension does not meet this test. For example, the statement, "That the creature described is a large mammal which habitually walks erect, is consistent with its being something other than human," is a true statement. But if we substitute for 'large mammal which habitually walks erect' the term 'human' which has the same extension, this statement becomes false. Or again, "That some fish are edible follows logically from the fact that some fish are food," is a true statement. But "That some fish are edible follows logically from the fact that many leaves are green" is false; though "Some fish are food" and "Many leaves are green"

[15] Leibnitz lays down this requirement for terms only, and calls those which meet it *'eadem'* or *'coincidentia'*. See Gerhardt, *Die Philosophischen Schriften von G. W. Leibniz,* vol. VII, p. 232.

are expressions having the same extension, both being true.

Nevertheless it would be a mistake to conclude that expressions having the same intension will in all cases have the same meaning in every called-for sense of the word 'meaning'. In particular, this conclusion would lead to the anomolous result that all expressions having universal intension have the same meaning, and all which have zero intension have the same meaning. Thus we should have to recognize that 'round square' means the same as 'triangular circle' and 'Tuesday that falls on Monday'; and that 'man or not man' means the same as 'cat or not cat'. These results would not accord with common sense, and would impose serious difficulties for our understanding of analytic truth. The questions thus raised constitute one topic of the next chapter.

Chapter IV

Meaning and Language

1. We have so far discovered that the sense of meaning in which analytic statements are different from others is that of intensional meaning: analytic statements are those having zero intension. But since expressions which have the same intension have also the same comprehension, the same signification, and the same extension, we may seem to be committed to the conclusion that no analytic statement means anything different from any other. That would be disconcerting. We regard some analytic statements as being equivalent to one another; e.g., "All cats are vertebrates" and "All felines are creatures having a spinal cord." But others we regard as not equivalent: "Monday follows Sunday" seems to say something quite different than and unrelated to "All triangles have three sides."

In order to understand this matter, we shall have to consider meaning as a function of language, and the meaning of any expression which is complex as a resultant of the meanings of its constituents. This will require attention to certain subsidiary topics also; in particular, to the relation of symbols, expressions, and meanings, and to the manner in which, and sense in which, a linguistic expression can be analyzed into constituents each having its own meaning. After investigation of these, we shall be able to indicate the further sense of meaning, with respect to which expressions which have the same intension may still be significantly different. In this further sense, which will be called *analytic meaning,* two terms having universal intension, or two of zero intension, will be equivalent or comparable only if they are such as would ordinarily be called synonymous. And two statements which are analytic, or two which are each self-contradictory, will be comparable in analytic meaning if and only if they are such as would ordinarily be called equipollent.

Meanings are commonly conveyed by language; by series of ink-marks or of sounds. But it would at best be doubtful that meaning arises through communication or that verbal formulation is essential. Presumably the meanings to be expressed must come before the linguistic expression of them, however much the development of language may operate retroactively to modify the meanings entertained. Also other things than language have meaning: in fact one might well think that words are only surrogates for presentational items of other sorts, such as those mentioned in Chapter I, which are the originals in exercise of the meaning function. It is the social situation principally which language reflects, and our dependence, for survival and for satisfactions achieved, upon cooperation with others. But however fundamental this need to communicate, the need to entertain fixed meanings goes deeper still and must characterize the mentality of any creature capable of consciously affecting its own relation to environment, even if that creature should live without fellows and find no use for language.

As Charles Peirce pointed out, the essentials of the meaning-situation are found wherever there is anything which, for some mind, stands as sign of something else. Words could hardly be the first such signs; rather they are signs for other signs more immediately grasped and more directly pertinent to the operations of intelligence. To identify meaning exclusively with the phenomena of verbal symbolization, would be to put the cart before the horse and run the risk of trivializing the subject. The genuine significance of meaning is that in which *A* means *B* if *A* operates as representing or standing for *B* or as calling *B* to mind.

The intensional modes of meaning and denotational or extensional meaning are merely two specific aspects of cognitive apprehension in general. The intensional is that aspect of apprehension in which it is significant of a classification made and of a criterion in mind which is the cue to this classification and the determinant of cognitively guided reaction. And denotation is that aspect which is significant of the reality purported, to which we are able to make adjustment by our classifications, but whose potentialities are never exhausted by characters recognized, but run beyond our cognitive grasp and must remain the object of our further and undetermined expectancy. The

Law of the Excluded Middle formulates this need to be continually wary and respectful in dealing with the real.

Recognizing such broader background and deeper sources of meaning, however, we shall still do no violence to any interest if we identify meanings as the *kind* of thing which language expresses. It is doubtful that there are, or could be, meanings which it is intrinsically impossible for words to express: in confining attention to meanings as verbalized we do not necessarily omit any species of meaning, but merely limit our consideration to meanings as conveyed by a particular type of sign-vehicle.

We should not, however, commit the mistake of confusing words themselves with the meanings which they convey. Strictly, clarity requires a tripartite distinction: we must distinguish the ink-marks or sounds from the symbol, the symbol from the word or expression, and the expression from the meaning which is expressed.

It would perhaps be convenient if we could define a word as an elementary expression of a meaning by a symbol. But unfortunately, the customary division of discourse into words is determined at least as much by non-logical considerations as by criteria which are logically significant. We shall do better if, first, we consider expressions in general, leaving the division into those which are elementary and those which are complex until we have considered certain other matters pertinent to that distinction.

2. In general, the connection between a linguistic sign and its meaning is determined by convention: linguistic signs are verbal symbols. A *verbal symbol* is a recognizable pattern of marks or of sounds used for purposes of expression and communication. (What is regarded as the same pattern, in different instances, is partly a matter of physical similarity and partly a matter of conventional understanding.) Two marks, or two sounds, having the same recognizable pattern, are two *instances* of the same symbol, not two different symbols.

A *linguistic expression* is formed or determined by the association of a symbol with a fixed meaning. But the linguistic expression cannot be identified with the symbol alone. If we should identify the expression with the symbol, then 'cat' meaning 'feline animal' would be the same expression as 'cat' meaning 'an obsolete kind of whip'.

And if we should identify the expression with the meaning, then it would be impossible to say—as surely it is desirable to be able to say —that synonymous terms are still different expressions, and that equipollent statements, phrased in different language, are not the *same* statement.

If in two cases, the symbol is the same but the meanings are different, then there are two expressions; not one. Also, if in two cases the meaning is the same but the symbols are different, then there are two expressions; not one. But if in two cases—as at different times or in different places—the symbol is the same and the meaning is the same, then there are two *instances* of the expression, but only one expression.

An instance of a symbol is often called a symbol; and an instance of an expression is often spoken of as an expression. That is, in common parlance 'symbol' or 'expression' is used, now as an abstract, now as a concrete noun. But it is the abstract sense of these designations which is the better judged, and will be adopted here: the secondary use of them as concrete terms also, is at least regrettable if not unprecise. An ink-spot or a noise is a concrete entity, but a symbol is an abstract entity or universal. And an expression is a correlative abstraction.

When a symbol and a meaning are associated to form an expression, it is customary to speak of the symbol both as the symbol of the expression and as the symbol of the meaning. Also the meaning is spoken of both as the meaning of the symbol and as the meaning of the expression. But these relationships, all spoken of as *of* in the generic sense of 'pertaining to', are of course distinct: the relation of a symbol to an expression cannot be precisely the same as its relation to the meaning expressed, or the same as the relation of the expression to the meaning. We shall try always to say that the symbol *symbolizes* the expression, and that the expression *expresses* the meaning. And when relation of the symbol to the meaning is in question, we shall use the word 'represent': a symbol *represents* what the symbolized expression means (in any mode of its meaning). Particularly it is appropriate to say that the symbol represents what the expression names.

Naming is, perhaps, the most frequent and an especially important

sense of meaning. As has been pointed out, any thing named by an expression belongs to the comprehension of it. It is also true that an expression names or applies to anything it denotes; since any denoted existent is contained in the comprehension. Nevertheless the conception—somewhat frequent nowadays—that meaning is exclusively naming, and that naming is exclusively denoting, is wrong on both counts. In every occurrence of it, an expression has meaning in all four modes of meaning, and it has always the *same* meaning in every occurrence of it.

Two facts which may contribute to confusion on this point—a confusion which those who would restrict meaning to naming or denoting are trying to avoid—are, first, that it is sometimes one mode of the meaning of an expression, and sometimes another, which is important in a given context, and may be determinative of truth. And second, that the meaning of an expression may be, as we say, modified or limited by the context in which it occurs. But to regard this kind of difference in significance, which may characterize an expression in different contexts, as being a genuine ambiguity, is a misunderstanding. And to try to resolve it by attributing it to loose use of language, and attempting always some reformulation which confines its meaning to denoting, is both unnecessary and doomed to failure.

As regards the so-called modification of meaning by contextual words, the accurate conception is the fairly obvious one: the whole phrase or other context in which the expression in question is constituent has a meaning which is different from the meaning of this constituent alone. The meaning of 'red rose' is not the meaning of 'rose', or the meaning of 'red', but is determined by the meaning of 'rose' together with the meaning of 'red' and the syntax of the phrase. But 'red' does not here modify 'rose' in the sense of changing the meaning of it. If the constituent whose meaning is said to be modified did not in fact retain the same fixed meaning *in* this context that it has out of it, or in some different context, then the meaning of the whole expression in which it is constituent would be indeterminate or other than in fact it is.

And this fact about the modification of meaning by context affords solution of the other puzzle also. When it is one mode of the meaning of an expression, rather than another, which is the significant or

important one in a given context, that fact depends upon the particular context in which the expression occurs, and does not in the least require supposition that it has now a different meaning than on another occasion of its use, in another context.

Particularly it is important that the truth of one statement in which an expression is constituent, may depend upon one mode of its meaning, and the truth of another statement in which it occurs may depend upon another. For example, if we say "The class of cats is contained in the class of animals," the truth of the statement depends upon the denotation of 'cat'. And the intension or signification or comprehension of 'cat' is here irrelevant in the sense that any other expression having the same denotation, though different intension, etc., could be substituted for 'cat' without affecting truth of what is said. The reason is not, however, that in this statement 'cat' has meaning solely in the sense of denotation; instead it is that the expression 'class of cats' has a different meaning from 'cat'; one which depends upon the meaning of 'cat' but also upon the meaning of 'class' and 'of' and on the syntax of the phrase. 'Class of cats' denotes the denotation of 'cat', and it is what is true of the class of cats which is here in question.

If instead we should make the different statement, "All cats are by definition animals," it would then be the intension rather than the extension of 'cat' upon which truth would depend. It is here required, for truth, that what is denoted by 'cat' be contained in what is denoted by 'animal', but that relation of the denotations is not sufficient; it is further required that all *thinkable* cats should be correctly nameable by 'animal'. But the term 'cat' and 'animal' have their same meaning as usual in this context; the explanation is to be found in the occurrence of the phrase 'by definition', which modifies the meaning of the whole statement and determines peculiar dependence of its truth upon the intensional meanings of 'cat' and 'animal'.

It doubtless contributes to the possible misunderstanding of these points that in many cases the modification of meaning of a constituent by its context includes subtle and easily overlooked syntactic relationships, and other such 'modifiers' which are relatively inexplicit or conveyed only through some understanding of idiomatic modes of expression. The examples we have chosen are clearer in this respect

than many others would be. Also many phrases and statements are literally ambiguous, and call for even wider reference to context and even less obvious understandings, in order that the specific intent of them be grasped. For example, the statement "All cats are animals" might mean either "The class of cats is contained in the class of animals" or "All cats are by definition animals"; and one who wished to arrive at some hard and fast significance for any such expression, or some fixed paradigmatic meaning of "All *X* is *Y*," might easily be tempted to a little logical axe-work instead of patient justice to intended meaning on each occasion. But this particular ambiguity, be it noted, is not an ambiguity in the term 'cat' or the term 'animal'. It is an ambiguity of 'all' and of the verb 'to be' which is responsible. The terms 'cat' and 'animal' have the *same* meaning—in all four modes—in an assertion whose truth depends upon the denotation of them and in one whose truth depends on their comprehension and intension.[1]

To sum up this matter: It will be entirely correct to say that an expression always means what it names, or always means what it denotes, in the sense that every expression has a comprehension and a denotation, and always names what it names and denotes what it denotes. It has the same meaning, in these and other modes, in each and every occurrence of it. But it will be incorrect if it should be intended to assert that an expression does not also and equally mean what the intension of it entails and what it signifies. One statement in which an expression occurs may depend, for its truth or falsity, upon one mode of the meaning of that expression, and another statement may depend on another mode of its meaning. But such difference is due to the different context in which the expression stands, in two such cases, and does not argue any different meaning of the expression itself. That an expression is thus modified or limited by its context does not signify an alteration of its meaning, but only that the complex expression in which the expression in question is constituent has a different meaning than this constituent of it; one determined by the meaning of this and other constituents and the

[1] The related question of the status of quoted expressions, like "'cat'" and "'animal'," as in the statement "The denotation of 'cat' is included in the denotation of 'animal'," will be discussed in the next chapter.

syntactic relation of these to one another. Thus it would be more accurate to say that the constituents of any complex expression each modify the whole expression than to say, as we customarily do, that one of them modifies another. (We shall not, however, attempt to adhere to this more logical mode of speech.)

3. An expression in question is *elementary* in case it has no symbolized constituent, the intension of which is a constituent of the intension of the expression in question itself. Otherwise the expression in question is *complex*.

Thus the term 'cat' is an elementary expression. If we should say that 'cat' means 'feline animal' and that the meaning of it has thus the constituents 'feline' and 'animal', that would be correct but beside the point: these distinguishable constituents of the *meaning* of 'cat' are not constituents of the *expression* 'cat' since they are not symbolized in writing or saying 'cat'. Also, we might perhaps suppose that 'cat' does have constituents which are symbolized; namely the letters 'c' and 'a' and 't'. These three letters, however, are not expressions; they have no fixed intension of their own. Thus even if we should grant that the three letters are constituents of the expression 'cat', still 'cat' is elementary and not complex because there is no *meaning* of 'c' or 'a' or 't' which is a constituent of the meaning of 'cat'. As we wish to use the term, only expressions can be constituents in any expression.

We cannot, however, identify elementary expressions with words. It would at least be doubtful that such words as 'unkind', 'tactless', 'darkness', 'equality', and 'impenetrable' cannot be analyzed into symbolized constituents the meanings of which are constituents of their meaning. Even 'quickly', 'working', 'painted', and the like, as well as 'durable' and 'benefaction', would raise some question whether they do not have the sense of compound words and are written without hyphenation merely by convention. If one should claim that prefixes like 'un' and 'ex' and suffixes like 'ly' and 'ity' have no fixed meanings of their own, constituent in the meaning of expressions like 'unkind', 'expose', 'quickly', and 'equality', the etymological argument to the contrary would be obvious. And even granting this claim, one could not well avoid the fact that the remainder of such words—'kind' and 'pose' and 'quick' and 'equal'—are genuine con-

stituents of the longer words mentioned. It might plausibly be claimed that all elementary expressions are words—with a little extension of the customary usage of the word 'word': but the contention that all words are elementary expressions, would have no plausibility.

4. It is, however, a question which we have to meet whether there are not words which occur in discourse in ways which modify the context of them but which have no meaning—no intension—of their own, and hence cannot be accounted constituents of the longer expressions including them, if the stipulation that constituents must be expressions in their own right is to be adhered to. In any actual language, there will be what are traditionally classed as *syncategorematic* words, like prepositions and articles; and the basis of this traditional classification is the supposition that while such words modify their context, they have no meaning in isolation.

We shall make suggestions only on this topic, attempting to indicate the conclusions which seem justified but not to substantiate them. In the first place, because there is little to be drawn from discussion of it which would advance solution of those problems with which we are more nearly concerned. Rather, as has been indicated, the importance which it has for us, is that of a difficulty standing in our way; and a long digression devoted to it would be regrettable. And second, though logicians have alluded to this topic time out of mind, it only now begins to receive the kind of attention necessary for the clarification of questions involved. Under these circumstances, we shall not try to live up to even so much as logicians have determined about such matters. For present purposes, quarter-way precision would merely waste the reader's time.

First, it is to be observed that the usual basis of the denial of meaning to syncategorematics, so called, is the prepossession that meaning is denoting or is comprehending; that to have meaning is to be a name of something. One may suspect also that the traditionalists failed to consider sufficiently the variety of entities capable of being named, which includes properties and relations as well as individual objects.

Second, it must occur to us to inquire how a meaning or a context can be 'modified' or 'limited' except by a meaning; how if '*S*' be some syncategorematic word, and '*A*' be categorematic, the specific mean-

ing of the phrase *'SA'* arises, if *'S'* has no understandable and specific intension or signification. There must be, it would seem, some fixed and intelligible sense attaching to *'S'* if *'SA'* has a fixed meaning different from that of *'A'*.

All words in fact have meaning, and name or apply to. All words are fundamentally classifiable as substantives or adjectives or verbs; and verbs are a kind of adjectives. More simply, all words are either substantives or predicables; and it is even questionable whether this distinction is basic rather than one which is relative, or of degree, or dependent on the more typical usage of the word in question. Substantives are words which mention what they comprehend, and thus are plainly names. Predicables are words which *apply* to what they comprehend, and mention or more plainly indicate the character they signify. Thus 'red' or 'hot' or 'sweet'—in its concrete sense—is a predicable which comprehends and applies to any red or hot or sweet thing and indicates the character signified. Predicable words are likely to be, linguistically, attributives; having a primary meaning in which they are concrete and adjectival—"This is a *red* rose" or "This rose is *red*"—and a secondary abstract and pronomial meaning—"*Red* is a warm color." It is only in their concrete sense that such attributives are predicables. In their abstract sense they name what they signify and are substantives. Any predicable word, *'M'*, is definable; if not directly in the manner in which adjectives are defined, then by defining some expression, *'Mx'* or *'xMy'*, etc., in which *'M'* is constituent and in which all other constituents except the element of syntactic meaning are variables.

Verbs are predicables which characterize and apply to states of affairs, so that contexts in which they occur may be assertable. Thus 'John' does not signify any state of affairs and is not assertable, but 'John walking' or 'John spending money' or 'John being so and so' signifies a state of affairs characterized by walking or spending or being so and so. The verb in any statement also conveys, by its form, the sign of assertion. When this sign-of-assertion significance is absent or is abstracted, the verb appears in the participial form indicative of its predicable sense. Or it may, in some instances, appear in the secondary and abstract sense attaching to participles and infinitives, in which case it is not a predicable but an abstract sub-

stantive; e.g., "Walking is good exercise," or "To be is better than to seem."

Adverbs are predicables which modify other predicables, or a context containing other predicables, verb-predicables being amongst those which may be so modified adverbially. 'Quickly', for example, may modify any '*x*' such that 'quickly *x*' or '*x* quickly' has meaning. If we know what 'walking quickly' means, and 'boiling quickly' and 'quickly seen'; and in general what 'so and so quickly' means for any so and so for which this phrase has meaning; then we know the meaning of the adverb 'quickly'. Thus 'quickly' applies to instances of walking, boiling, being seen, etc., and signifies that property of them which might be called quickliness—the property common to all things that take place quickly—just as 'red' applies to all things which are red. In this characteristic adverbial sense, any word classed as an adverb will be a constituent in some more complex predicable which is adjectival. But such adverb-words may on occasion modify adjective-words used as abstract substantives. In such cases—e.g., "To walk quickly is good exercise," the adverb-word is used as a simple adjective. In any case, an adverb is an adjective, differing from other adjectives principally by restriction of the contexts in which it can occur meaningfully and, correlatively, of the field of its meaningful application.

Prepositions are relation-words, definable by defining phrases such as 'in *x*', 'of *y*', or '*z* in *x*', '*z* of *y*', etc. 'In' applies to any case of being in something, or of something being in something else; and signifies the relational property being in, or the property of a pair so related.

Articles are adjectives which modify substantives or pronomials. 'An *x*' is equivalent to "instance comprehended by '*x*'"; and 'a' or 'an' signifies that property which is common to all instances of anything; the property of being a thing nameable by a general name or common noun. 'The *x*' means 'designated *x*' (or *x*'s): most frequently it signifies the property of being singular, and is applicable to entities which are sole instances of some classification indicated by the term which 'the' modifies and an understood or explicit context.

In short, all words have meaning in the same general sense as those which are recognized as being terms. They comprehend either in the sense of naming which is characteristic of substantives, or in the sense of applying which is characteristic of adjectives and other predicables. What perhaps indicates most clearly that all words have meaning in the sense of comprehending, is the fact that all signify some property or character which must be instanced by any thing or situation of which they can correctly be used. And all expressions which are not abstract comprehend any instance or case of what they signify, while abstract terms name what they signify. Thus in any case an expression possessing signification has also a correlative comprehension and intension. Likewise all words denote any existent entities amongst those they comprehend; and have an intension determined by what the applicability of them entails.

Whatever the probable errors, and the quite certain inadequacies, of this hasty survey, perhaps it is sufficiently evident that all words have significance in the sense of signifying something essential for the use of them in a truthful statement. And that their having meaning in all four modes follows from that. At least it seems clear that the traditional classification of 'syncategorematic' was set up in consequence of the preconception that meaning is restricted to naming, and hence that only substantives and pronomials have a meaning of their own. All words at least modify a context—unless ejaculations are an exception—and if not substantives are predicables which apply to instances of something or other and signify some specific quality or character, whether simple or complex, in so applying. Only so could their occurrence in discourse contribute anything to the sense of it.

If this conclusion is justified, then we are freed from a difficulty which the analysis of statements and of complex expressions in general must otherwise encounter; the difficulty, namely, that there would then be elements of discourse which are not elementary *expressions* but require to be bracketed with other elements in the context in order to analyze complex expressions into constituents each of which, having meaning, is itself an expression. This conclusion that *all* explicit elements of discourse are such expressions, allows the discussion of what we shall refer to as analytic meaning to proceed in a simpler fashion than would otherwise be possible.

5. The meaning of any complex expression is a resultant of the meaning of its elementary constituents together with the syntactic relations of these in the whole expression. The element of syntax, however, which is no mentioned constituent but is conveyed by the order of explicit constituents, must not be forgotten.[2]

The sense in which the intensional meaning of any constituent in a complex expression is a constituent of the meaning of the whole expression, has been mentioned. The meaning of a constituent said to be modified by another or others, is not altered but remains the same; merely the including expression has a different meaning than this included constituent of it. 'The kennel where Harry's dog sleeps' does not mean what 'Harry' or 'dog' or 'sleeping', or even what 'kennel' means; but each of these constituents has precisely the same meaning in this context as out of it. Otherwise, since these constituents would have *no* fixed meaning, the whole expression could have none. But the whole expression names or applies to something comprehended by 'kennel' and which is an instance of where-ness and of singularity indicated by 'the', and is essentially characterized by a certain complex relation to something comprehended by 'dog' and by 'sleeping' and to something named by 'Harry'. Each constituent contributes its own meaning to that of the whole; and makes this contribution in a manner determined by the syntax of the whole and indicated by the order in which these constituents are written or spoken.

This fact that the meaning of complex expressions is a function of the meanings of their constituents and their syntactic order, has important bearing on the meaning ascribable to expressions of zero intension and those having universal intension. Especially since analytic statements are expressions which have zero intension, and are distinguished from non-analytic statements by that fact, this manner of considering meaning is essential to understanding the nature of analytic truth.

Two expressions which are complex may have the same intension

[2] Any modification of meaning which is not conveyed either by a symbolized —written or spoken—constituent, or by the order of these constituents according to some general and statable rule of ordering, may be called an *idiom.* Whether there is an irremovable element of idiom in syntactic structure, is a question which we omit.

but be such that one of them contains a constituent or constituents not equivalent in intension to any constituent of the other. For example, 'day following Monday' and 'day preceding Wednesday' have the same intensional meaning: given definitions of the words in these phrases, appropriate to their sense here, it is discoverable from these definitions, together with rules of logic, that they are equivalent and that either one of them means the same as 'Tuesday'—supposing 'Tuesday' similarly defined. No empirical fact but only facts of meaning are essential for discovering such equivalence. But plainly there is a sense in which these two expressions are of different meaning: their total or resultant meaning, which is the same, is differently constituted in the two cases. And without this kind of difference between complex expressions having the same intension, same comprehension, same signification, and same extension, a considerable part of discourse would lack a kind of significance which it has. We should not like to say that "Tuesday is Tuesday" is meaningless; but there may be a point in remarks like "The day following Monday is the day preceding Wednesday" when there would be none in saying "Tuesday is Tuesday." And this point might not be that anyone concerned lacked information about the correct usage of 'Monday', 'Tuesday', and 'Wednesday'. A good deal of proof has this kind of point: in fact, omitting the relatively unimportant consideration that a part of the information contained in the premises is often dropped out in the conclusion, this is the *only* kind of point which deductive demonstration, such as the mathematical, has.

Further, although any two terms having zero intension have the same meaning in all four modes of meaning, some such terms would be said to be synonymous and some would not. Likewise two expressions having universal intension and hence zero comprehension would sometimes be called synonymous and sometimes not. For example, 'either not a triangle or else a plane figure' and 'man or not man' are both of them terms having zero intension, hence universal comprehension and the same meaning in all four modes; but they would hardly be spoken of as synonymous expressions. Similarly, 'February 29th, 1943', and 'round square' are both terms which have universal intension and zero comprehension, but they would not be recognized as having the same meaning. Likewise two analytic statements such as

"Iron is a heavy metal" and "$2 + 2 = 4$" will both have zero intension and universal comprehension, but would not be called equipollent or said to have the same meaning. And two self-contradictory or self-inconsistent assertions such as "Planets describe a hyperbolic orbit" and "$2 + 2 = 5$" have the same intension and extension but would not be classed as equipollent.

This distinction of synonymous or non-synonymous, amongst terms having zero intension or having universal intension, turns upon the *analytic meaning* of such terms; their meaning as complex expressions whose intension is constituted by the intensional meanings of their constituents and the syntactic order of these. And the same is true of the parallel distinction of equipollent or non-equipollent amongst propositions or statements which have zero intension and are analytic or have universal intension and are self-inconsistent.

(The usage of 'equipollent' as applied to propositions, statements, and functions, is not sufficiently well-determined to avoid ambiguity. For this reason, as well as for convenience, let us extend the designations 'synonymous' and 'non-synonymous' to expressions in general. Two statements will be said to be synonymous if the corresponding propositions are synonymous terms. And two statement functions will be called synonymous if the corresponding propositional functions—which are terms—are synonymous.)

6. In order to mark this distinction, as well as for other purposes also, it is essential to compare expressions having the same intension with respect to the ways in which they can be analyzed into constituents which are comparable or not comparable, as between the two expressions in question; that is, to compare their analytic meanings, which have reference not merely to resultant intensional meaning but to the manner in which this is determined from their constituents and syntax. For this purpose, we shall define the relation of expressions which are analytically comparable. (It is hardly significant to speak of analytic meaning in the case of elementary expressions. Nevertheless it will be convenient to be able to extend this designation to them: let us say that the analytic meaning of an elementary expression is simply the intension of it.)

Two expressions will be said to be *analytically comparable* if (1) at least one of the two is elementary and they have the same intension,

which is neither zero nor universal; or (2) if, both being complex, they can be so marked off or analyzed into symbolized constituents that (*a*) for every constituent distinguished in one there is a corresponding constituent of the other which has the same intension, (*b*) no constituent distinguished in either expression has zero intension or universal intension, and (*c*) the syntactic order of corresponding constituents is the same in both, or can be made the same without altering the intension of either whole expression. (It is understood that no expression can be called a constituent of itself.)

Thus 'round excision' and 'circular hole' are analytically comparable. Likewise 'square' and 'rectangle with equal sides', since one of these terms is elementary and they have the same intension, which is neither zero nor universal. But 'equilateral triangle' and 'equiangular triangle', though as whole expressions they have the same intension, are not analytically comparable, because there is no constituent of the former having the intension of 'equiangular' and no constituent of the latter having the intension of 'equilateral'.

We shall be in conformity with good usage—or at least as near to it as it is possible to come in any fashion which is precise—if we say that two expressions are synonymous if and only if (1) they have the same intension and that intension is neither zero nor universal, or (2) their intension being zero or universal, they are analytically comparable. This obviates the paradox which would arise if all expressions of zero intension or all of universal intension were called synonymous or were said, without qualification, to have the same meaning. But for expressions whose intension is neither zero nor universal, the requirement of synonymity is met if they have the same intension—hence also the same comprehension, naming or applying to the same thinkable things, and the same extension and signification. Thus synonyms may have different analytic meanings—if their intension is neither zero nor universal—and synonyms as given in the dictionary frequently do. But expressions of zero intension or universal intension are synonymous if and only if they are analyzable into *constituents* which are synonymous and are *not* of zero or of universal intension, and if the syntactic relations of these constituents are the same in the two cases.[3]

[3] When corresponding constituents have the same intension throughout the given context, the same order of them is a sufficient indication of the same syn-

7. The distinction of the analytic meaning of a complex expression from its holophrastic meaning—its intension as a whole expression merely—has for us the further importance of opening the way to explanation of the fact that while in one sense (that of holophrastic intension) all analytic statements 'say the same thing' and 'say nothing', in another sense (that of their analytic meaning) they say different things, and what they say is significantly factual. Consideration of the analytic meaning of analytic statements also provides the clue to the way, or ways, in which what analytic statements assert can be assured and in which they are distinguished from statements which are made with the intention of affirming analytic truth, but which are erroneous and false. First, however, it will be well to observe the contrast between holophrastic intension and analytic meaning, amongst expressions in general which have zero intension or universal intension; and it will be necessary to notice that analytic statements are divisible into two types.

We have already remarked that expressions of zero intension, which apply to everything thinkable, and those of universal intension, which apply to nothing thinkable, are frequently called meaningless; and while that manner of speaking is vague or unprecise, the ground of it is one which we can understand and appreciate. But we may

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tactic relations, although written or spoken order is, in general, a partial and insufficient indication only of syntactic relation.

There is some doubt as to just what pairs of expressions, having zero intension or universal intension, would properly or reasonably be regarded as synonymous and what pairs would not. The relation here defined as analytic comparability is one of a number which could plausibly be taken as determining this point. There could be little doubt that such expressions which *are* analytically comparable, should—and would—be regarded as synonymous. The doubt is whether this relation is wide enough to take in *all* such pairs.

It should be noted that any two expressions whose equivalence of meaning could be certified by reference to definitions of elementary expressions (words), *are* analytically comparable. That is, if we have a dictionary which defines all one-word expressions by giving a single synonym for each (and may use complex expressions in so defining them) but which defines no complex expression as such, then any two expressions are analytically comparable if, starting from the same expression, we can arrive at each of these two by substituting, for constituents in this original expression, other expressions which are equivalent according to our dictionary. Hence also, if either of two expressions which are equivalent by definition may be substituted for the other, then either of two analytically comparable expressions could be transformed into the other by some series of such operations of substitution.

Thus, with a sufficient logical machinery, analytic comparability could have been defined in terms of the symmetrical and transitive relation 'equivalent by definition'. Nevertheless analytic comparability as defined above is not transitive; and there might be objection to calling it analytic *equivalence*.

also observe that where the expression in question is complex and constituents in it do *not* have zero or universal intension, there may be a point in using and in relating such expressions, which would be absent in the case of elementary expressions of zero or universal intension. Indeed, it is a suggestive fact that language affords very few elementary expressions having this character. 'Being', 'entity', 'thing' and 'everything' about exhausts the list of one-word substantives having zero intension and universal comprehension; and amongst these 'thing' is doubtful, being often used in the sense of 'individual', which excludes abstract entities; and 'everything' is not an elementary expression. Amongst predicables, we should have only attributives like 'thinkable', 'comprehensible', and 'nameable' which have zero intension; and these are all complex expressions whose significance turns principally on the not-null intension of their components. It is difficult to think of *any* one-word expressions of universal intension, excepting 'zero' and 'nothing', the latter of which is plainly complex and privative in sense. Almost all expressions of universal and of zero intension are constituted such by a relation between constituents which themselves have an intension neither zero nor universal; and the reason for our having and making use of such expressions lies in that character of them. For example, such a phrase as 'not a triangle or else a plane figure', is determined to be holophrastically of zero intension from the specific intensional meanings of its various constituents—none of them having zero intension or universal intension—and from the syntactic relations of these which the phrase itself expresses. We understand this zero intension and universal comprehension of the whole expression, through understanding each of its constituents separately and this expressed relation of them. Similarly, the universal intension and zero comprehension of such an expression as 'round square' or 'non-vertebrate mammal' is determined from the intensional meanings of constituents—none of which is universal or is zero—and the syntactic relation of them in the phrase. The significance which use of such terms may have, on occasion, rests upon this fact that, though as whole expressions they have the same meaning as 'anything' or as 'nothing', and always apply or never apply, this zero or universal intensional meaning of them is constituted by a significant relation—one which obtains

sometimes only—amongst constituents which are themselves specific and are significant in the sense of sometimes applying and sometimes not. Indeed we should never have occasion to use terms like 'being', 'everything' and 'nothing' if it were not that we convey something by *putting these in relation* to other expressions. Obviously, absolutely nothing can be said and no thought conveyed without using elementary expressions whose intension is neither zero nor universal. Thus it is the analytic meaning of such expressions, or the analytic meaning of the context in which they are used, which alone renders them significant. And that fact is important for the nature of analytic statements, whose holophrastic intension is always the same and is zero.

8. It would be possible to say that an analytic statement always asserts some relationship of intensional meanings, amongst which some at least are not zero intensions or universal intensions, except for the fact that there are two classes of analytic statements, and this would hold for one of them only.

We shall refer to these two types of statement as explicitly analytic and implicitly analytic respectively—though these designations are somewhat figurative, and are made use of only because there are no brief descriptive names which could be chosen which would be literal and precise. There is also difficulty in making plain precisely the character which constitutes the specific difference of the two, because of the multiplicity of ways in which a statement of either kind may be expressed, and because many modes of expression are ambiguous as between the two.[4] We shall, however, attempt to make as clear as possible the root distinction of the two, and to indicate the more typical modes of expressing each in ordinary language.

An *explicitly analytic* statement is an analytic statement (hence *true*) which asserts the logical necessity of something. (A statement is logically necessary if and only if the contradictory of it is self-inconsistent.) An *implicitly analytic* statement is one which asserts something which *is* logically necessary (and whose contradictory is

[4] In symbols, this matter would be much simpler. Let '$\diamond p$' represent the statement which holds when and only when 'p' is self-consistent; and '$\sim q$' represent "It is false that q." Then any *true* statement of the form '$\sim \diamond \sim p$,' or which is reducible to this form, is explicitly analytic. And if 'q' is not of the form '$\sim \diamond \sim p$' or reducible to it, but '$\sim \diamond \sim q$' *is true*, then 'q' is implicitly analytic.

self-inconsistent) but *does not assert that* it is logically necessary. An explicitly analytic statement is thus a modal statement, though oftentimes the manner in which it is expressed might not be readily identified as modal. An implicitly analytic statement is non-modal; and for most such statements, the simple categorical character of it would be readily apparent.

Perhaps the basically important difference of these two types can be brought out by an illustration. That all cats are animals is determinable from the intensions of 'cat' and 'animal'. The manner in which any presented or considered object is determined to be classifiable as a cat requires determination that it is an animal: all cats are by definition animals. This analytic relationship could be expressed in a variety of ways:

"All cats are necessarily animals."

"That a cat is an animal, is logically necessary."

"A cat is by definition an animal."

"That anything should be a cat but not an animal, is logically impossible."

"The conception of a cat which is not an animal, is self-contradictory."

"That anything is a cat implies (strictly implies or entails) that it is an animal."

"The connotation of 'cat' includes the connotation of 'animal'."

"From the premise that a thing is a cat, it is deducible that it is an animal."

"Whatever is nameable by 'cat' is nameable by 'animal'."

The variety of ways in which this logical or necessary or definitive relation between being a cat and being an animal could be formulated, is legion. And all of the above, as well as any other manner of stating such logical or necessary connection of meaning, are explicitly analytic statements.

One way of remarking this explicitly analytic character of such statements, would be to observe that in order to *deny* any one of them it is not necessary to affirm that some cats are *not* animals—that any non-animal cat exists; one need only assert that this relation between cats and animals is not a logically necessary one; that there *could* be a cat which was not an animal; that non-animal cats are consistently thinkable; that being a cat does not strictly imply being an animal.

That is, any one of the above requires that there be a logically necessary relation of the classifications 'cat' and 'animal'. And if the relation of cats to animals should be merely contingent and empirically verifiable, then these explicitly analytic statements would all of them be false.

In contrast to the above, the statement that the class of (existent) cats is included in the class of animals, is an implicitly analytic statement. It is genuinely analytic and what it affirms can be assured by reference to the meanings of 'cat' and 'animal' without recourse to further and empirical evidence. But also it might be established—as well established as most laws of science, for example—by generalization from observed instances of cats. And it could be *true* even if it were not possible to determine this truth from the defined meaning of 'cat' and 'animal'. Such an implicitly analytic statement would also have various equivalent forms of expression. For comparison with the above, let us list a few:

"All (existent) cats are animals."

"That a cat is an animal, is a true generalization."

"No non-animal cats are to be found."

"The denotation of 'cat' is included in the denotation of 'animal'."

"If a thing is a cat, then it is an animal," (construing 'if-then' as a so-called material implication, which always holds except when the if-clause is true and the then-clause is false.)

To put the matter briefly—though a little incautiously—an explicitly analytic statement says that something is true of all thinkable things (of a mentioned kind), under all conceivable circumstances, whereas the corresponding implicitly analytic statement says only that this is true of all actual things under actual circumstances. The explicitly analytic statement affirms that something is necessarily true; the implicitly analytic statement, that this thing (which *is* necessarily true) is actually true.[5]

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[5] Some logicians have supposed that explicitly analytic and modal statements generally are about *expressions,* whereas *implicitly* analytic and non-modal statements are about things or actualities. This dictum is suggestive but unsound. For example, "All cats must be animals," or "What 'cat' comprehends is contained in what 'animal' comprehends"—which are explicitly analytic statements—are no more definitely about the expressions 'cat' and 'animal' than is the statement "What 'cat' denotes is included in what 'animal' denotes," which is non-modal and implicitly analytic. In fact *all* non-modal statements, as well as modal ones, have some equivalent of the form in which quoted constituents, naming expressions, occur.

As this suggests; for every statement having the form of an explicitly analytic statement—asserting something to be logically necessary—there is a corresponding implicitly analytic statement, which asserts only that this something is factual. But the logical connection of these two is a little more complex than this might suggest, and a little troublesome to state and to grasp clearly. It will be of assistance, in this connection, to consider statements having this form which are *false*. Let us compare,

(1) "All featherless bipeds are by definition men" with

(2) "All featherless bipeds are men";

and compare

(3) "All dogs are necessarily animals with hair"

with

(4) "All dogs have hair."

Here (1) and (3) *purport* to be explicitly analytic statements; they *would* be such if they were not false and in fact not analytic at all. Statement (2) *would* be implicitly analytic if it were analytic at all; in fact it is true but not an analytic truth. Similarly, (4) *would* be implicitly analytic if analytic at all; but is in fact neither analytic nor true. It is plain that, regardless of truth or falsity, (2) is deducible from (1), and (4) from (3). But that does not prove the truth of (2) or (4) because the *premise* of the deduction, (1) or (3), is a false premise. Statement (2) is true in fact, but verifiable only from experience and not from any logical consideration or fact of meaning. And (4) is not verifiable at all, either logically or empirically. Further, it is quite obvious that (1) does not follow logically from (2), nor (3) from (4): especially this will be evident in the case of (1), since (2) is true but (1) is false.

We shall not trouble the reader with the logic of this matter beyond what the above examples will suggest, though there *are* further logical questions which are of some importance.[6] The points which particularly concern us here are such as may be clear from the above. *If* '*p*' is in fact an implicitly analytic statement, then the corresponding explicitly analytic statement, equivalent to "'*p*' is necessarily true," is demonstrable by demonstrating the analytic character of

[6] In particular, there is the question whether if '*p*' *is* an implicitly analytic statement, and hence true, it will also be true that "'*p*' is analytic" or "'*p*' is necessarily true" is deducible from the premise '*p*.'

'*p*'; by showing it to follow from facts about meanings which are involved. Because to show that '*p*' can be thus certified by reference to meanings and without reference to empirical facts is to prove "'*p*' is *necessarily* true." We may be able to discover that an implicitly analytic statement, like "All cats are animals" is *true* by empirical investigation, and without discovering that it is analytic. But we can discover that it *is analytic* only by discovering the truth of the corresponding *explicitly* analytic statement, "All cats are necessarily animals," which asserts logical connection between the intension of 'cat' and the intension of 'animal'.

Thus it is explicitly analytic statements which express the epistemologically important fact that something is affirmable as analytic truth. The implicitly analytic statement, such as "Existent cats are animals," *is* certifiable from examination of meanings, hence *is* analytic, but does not assert this epistemological status of the fact it states. And we discover this epistemological status of it—that it is analytic truth—only by discovering the truth of the corresponding *explicitly* analytic statement, such as "That all cats are animals, is a logically necessary fact, whose contradiction involves an inconsistency."

9. Let us make connection between this and the previous point. It would not be correct to say that every analytic statement asserts some relation of intensional meanings of constituents; because in fact implicitly analytic statements do not make that kind of assertion. Instead they are likely to assert some relation of denotations or classes, like "The class of cats is contained in the class of animals." But such a statement is analytic only because there is a corresponding relation of comprehensions, and of intensional meanings, "Nothing is nameable by 'cat' unless it is nameable by 'animal'," without which "All cats are animals" would be merely an empirical generalization, verifiable from observation. Thus the implicitly analytic statement can be known to be analytic only by knowing the truth of the corresponding explicitly analytic statement; and no analytic truth can be known to be such except by knowing some explicitly analytic statement to be true. Every *explicitly* analytic statement *does* assert some relationship of the intensional meanings of constituents; and the relationships of meaning thus statable are the only possible ground of any knowledge of analytic truth.

The holophrastic or resultant meaning of any analytic statement is simply its zero intension, with respect to which it has the same meaning as every other analytic statement, and follows logically from anything and everything. This holophrastic significance indicates simply that the truth of it imposes no limitation on reality, or on any conceivable world; that it requires nothing to be the case for which there is any consistently thinkable alternative. But the *analytic* meaning of an analytic statement, from which this holophrastic zero intension of it is resultant, is the assertion of some specific relationship of intensional meanings, or of a relationship of classes or other entities which is cognitively derivable from such a relationship of intensional meanings. And with respect to this analytic meaning, every analytic statement asserts something different from any other which is not an analytically comparable expression.

There can of course be no incompatibility between the holophrastic meaning of any analytic statement and its analytic meaning. It is by virtue of the relationship it asserts, and the meanings which are related, that it has this over-all zero intension. No relation of meanings as such can impose any restriction upon any actual or thinkable world or any empirical state of affairs. That, for example, nothing is nameable by 'cat' unless it is also nameable by 'animal' does not require the existence of any cat or even of any animal; nor does it require the non-existence of anything whatever. It merely dictates how things, whatever they may be, must in consistency be named. And that the class of cats is contained in the class of animals—when no non-animal is *nameable* by 'cat'—similarly imposes no restriction on any actual or thinkable world: it does not require either the existence or the non-existence of any thinkable thing. On the other hand, no empirical state of affairs, whether actual or only thinkable, could dictate any relation of meanings, or forbid any. It is only the names by which actual or thinkable things might be called; the terms applied to them; which could be incompatible with some relationship of these meanings. It is thus that analytic truth is *a priori,* incapable either of proof or disproof by any empirical fact or set of such observable facts. Analytic truth and empirical truth can have no effect upon each other. Analytic truth is determinative only of the manner in which we may consistently think about whatever experience presents.

The question of the source of our knowledge of analytic truth thus suggests an obvious answer: we know such truth by knowing what we mean; by grasping our own cognitive and intellectual intentions; by understanding what we commit ourselves to in adopting our own modes of classification and setting up the criteria of them. But if this answer should suggest that there is no problem of such knowledge, then plainly, it would be at fault: to understand what our own intentions involve and grasp all that we commit ourselves to in adopting them, may be as difficult as is, for example, the understanding of mathematics, which is an instance of it. Determination of analytic truth is not automatic and inevitable but subject to difficulty and to error. It calls for corroboration and methods of determination and of test.

Here again, there is an answer which may suggest itself. These meanings whose relations stand in question are our own; adopted or neglected or refused at will. They are instituted by decision, and expressed in definitive statement of such decisions. If only we proceed consistently, in accord with those principles of consistency called logic, and on the basis of definitions adopted, all analytic truth may be thus determined and attested.

It is true, and important, that there is no analytic truth which cannot be certified from definitive statements with the help of logical principles. But this suggested answer to the question how analytic truth is knowable, requires examination. Its validity cannot be assessed without giving attention to the nature of definitions and of logical truth.

Chapter V

Definitions, Formal Statements, and Logic

1. Every analytic statement is such as can be assured, finally, on grounds which include nothing beyond our accepted definitions and the principles of logic. And statements belonging to logic are themselves analytic; hence capable of being certified from the definitive meanings of the constant terms constituent in them and the syntactic relations of these which they express.

It may thus suggest itself that the ultimate ground of all analytic truth is to be found in definitive statements, together with rules of the transformation and derivation of linguistic expressions, such rules being themselves resultant from equivalences of definition and the conventions of syntactic usage. And to this it may be added that definitions also are merely conventions of the use of language; determined by decisions made at will concerning the equivalence of expressions. Thus it may appear that analytic truth in general, expresses nothing beyond what is determined or determinable by conventions of linguistic usage.

The conventionalist view thus suggested could hardly be attributed to any logician or school: certainly not without further development which would serve to qualify it in various ways. But if any conception of this general sort be entertained, then analytic truth becomes viewed, commensurately, as relative to the content and structure of a system of language, erected according to rules of usage and of manipulation having, in the last analysis, no further basis than decisions made as we choose or according to our purposes.

But any such conclusion would mistake the significance of what definitions express; and would beg the question of validity of those general statements comprised in logic, and of the source and the test of such validity. The use of linguistic symbols is indeed determined

by convention and alterable at will. Also what classifications are to be made, and by what criteria, and how these classifications shall be represented, are matters of decision. Insistence on these facts is sound. Nevertheless such conventionalism would put the emphasis in the wrong place. Decision as to what meanings shall be entertained, or how those attended to shall be represented, can in no wise affect the relations which these meanings themselves have or fail to have. Meanings are not equivalent because definitions are accepted: definitive statements are to be accepted because, or if, they equate expressions whose equivalence of intensional meaning is a fact. And rules for the manipulation of linguistic symbols, and the transformation and derivation of expressions, can indeed be made at will. But the meanings which our symbols represent cannot be manipulated at all. And our operations upon expressions and the rules of such operation will be significant and valid only if they conform to relationships of meaning which actually obtain.

In fact the question of logical validity sends us back to the original question of analytic truth and how we may attest it. Statements belonging to logic are marked off as a class from other analytic statements only by having a certain kind of generality making them specially useful for the critique of inference. Thus in spite of containing elements of truth which are important, the conventionalist explanation of the nature of analytic truth in general and of our knowledge of it, so far as it is correct, is still circular.

2. What are commonly called definitions are a class of statements which are peculiarly liable to ambiguity. The real interest of them is now of one kind, now of another; and however they are intended, they may be interpreted in different ways which, strictly taken, make them statements of different—though related—significance. Such divergences of the intention and of the interpretation of definitive statements in general, require to be observed before we can even begin to understand, with clarity, that kind of truth which definitions state.

In the first place we should note that the sense of meaning in which a definition may specify or determine a meaning, is the sense of the intensional modes of meaning. When one understands a word by means of a definition, it is the connotative significance of it which

is so understood. The connotation or intension of an expression being fixed and known, the comprehension of it is thereby fixed and known, or can be determined without reference to particular and empirical facts, merely by reflection. Thus definition, in determining intension, also determines meaning in the sense of naming; determines what classification of thinkable things the expression defined correctly applies to. Also it determines signification, which is likewise fixed and known, or knowable by reflection, when intension is given. But a definition cannot express or convey meaning in the sense of denotation. The intension being given, the denotation is fixed—since the facts of existence, whatever they may be, are also fixed, and an expression denotes the existents which it comprehends. But no definition can make known, or knowable by reflection, the denotation of an expression; since it cannot make us aware what things thus nameable exist and what do not. Only acquaintance with the empirical can exercise that function; and any variation of such existential and empirically cognizable fact would mark a corresponding difference in the denotation of the expression in question. At most a definition tells us what is *not* included in the denotation, by indicating what things, even if they do or should exist, are not and would not be correctly nameable by the expression. Thus there is one conception of definitions—namely, that they are statements of the denotation of the expression defined—which may be dismissed from further attention. We should remark, however, that when two expressions are correctly equated in the manner of a definition, then, whatever the facts of existence, they must have the *same* denotation —whatever it is—because they must have the same comprehension.

In a typical definitive statement, the expression to be defined is elementary, or at least verbally simpler, and the defining expression is more complex. Let us therefore take as our paradigm, "$A = BC$ Def.," not asking for the moment what this relation of equivalence by definition is, or whether we have in other respects appropriately symbolized the form of definitive statements in general. Those matters will appear in due course. Statements likely to be formulated in this manner may be intended to express any one of three things:

(1) The statement may relate a symbol to a symbol; may be intended to state that the symbol 'A' is an abbreviation for the sym-

bolism *'BC'*. Let us call a definitive statement having this kind of meaning a *symbolic convention.*

(2) It may relate a symbol to a meaning—supposedly to one antecedently understood; may be intended to state that the symbol *'A'* is used (customarily used, or correctly used, or used in a given context) with the meaning of *'BC'*. Let us call a definitive statement having this significance an *interpretation* or *dictionary definition.*

(3) It may relate a meaning to a meaning; may intend to state that what *'A'* means—in any and all the four modes of meaning—is the same as what is meant by *'BC'*. Let us call a definitive statement so intended an *explicative statement.*

These names are perhaps appropriate; nevertheless we do not intend to beg any questions in choosing them; they may be taken as adopted here merely for convenience of later reference.

It may be remarked that what an explicative statement affirms will be a *consequence* of the corresponding symbolic convention. When *'A'* is used as an abbreviation for *'BC'*, any meaning represented by *'BC'* becomes representable by *'A'*, and *'A'* cannot, without error, be used to represent any meaning not also representable by *'BC'*. Likewise an explicative statement will be a consequence of any corresponding dictionary definition. If the symbol *'A'* is assigned the same meaning which *'BC'* has, then the meaning of *'A'* and of *'BC'* will be the same. Thus explicative statements represent something always true whenever a definitive statement of any form holds; and perhaps for this reason, the sense of explicative statement is the one most commonly assigned to definitions of all types. Nevertheless it is not what those of type (1) and type (2) *state;* and attention to the difference of these three is essential for clarification of many questions connected with definition.

Writing all three of these in the same form is not appropriate but must be unprecise, since failure to indicate which type of statement is intended by a given definition is an ambiguity, even though this kind of ambiguity usually has no serious consequences, the intended significance being ordinarily clear enough from the context.

3. In order to dispel this ambiguity we must have some way of referring to expressions and to symbols, as contrasted with what the expressions mean or name and what the symbols symbolize or represent.

The ambiguity between a term or expression which occurs in discourse as name of a *thing* or things, and the name of the *expression* so used, can be dispelled by the use of quotation marks in the familiar manner of ordinary good usage. (We must not, of course, suppose that this is the *only* good usage of quotation.) Thus when we use the term 'cat' to refer to a cat or cats, the word occurs without quotation marks, as in "Our cat is a maltese." But when we wish to refer to the expression itself, we enclose the word in quotation marks, as in " 'Cat' names a species of mammals."

Thus the term 'cat' ('cat'-unquoted) naming animals, is a different term than " 'cat' " ('cat'-quoted); and " 'cat' " names the term which names cats. (This is a bothersome thing to write about because in order to refer to an expression we must use the name of it and so put the expression referred to in quotation marks. Thus the expression referred to is not what we write in referring to it, but is the one written *inside* the quotation marks; that is, inside the *outermost pair* of quotation marks.) That 'cat' ('cat'-unquoted, naming cats) is a different term than " 'cat' " ('cat'-quoted, naming the term) is easily verified by observing that these two have different meaning in all four modes. 'Cat', naming cats, connotes 'mammal', denotes the class of cats, and signifies the properties essential to felines. " 'Cat'," naming the term, connotes 'linguistic expression' but not 'mammal'; and denotes just one thing, namely that expression which names cats and is symbolized by a certain three letters. And it signifies nothing but the properties essential to being just that expression. Thus 'cat' is a general term, but " 'cat' " (or in fact any expression so quoted) is a singular term.

Unfortunately, when we wish to speak of a linguistic *symbol,* ordinary usage does not provide us with any unambiguous manner of indicating that intention. It is customary to use quotation marks, exactly as if it were the expression and not the symbol which is referred to. In order to dispel this ambiguity let us use French quotation marks, writing '«cat»' as the name of the *symbol* which symbolizes the expression 'cat' and represents animals so named.

Thus we shall speak of cats, which are animals having fur but no connotation; and of the expression 'cat' which has connotation but no fur; and of the symbol «cat» which has neither fur nor connota-

tion but does have a recognizable shape and consists of three letters.

With this in mind, we can now render the three types of definitive statement in unambiguous and more appropriate fashion:

(1) A symbolic convention is a statement of the general form, "«*A*» is an abbreviation for «*BC*»."

(2) An interpretation or dictionary definition is a statement of the form, "«*A*» symbolizes the same meaning that is expressed by *'BC'*."

(3) An explicative statement is one of the form, "*'A'* has the same meaning as *'BC'*."

4. We must now raise the further question whether in the term "'cat'" ('cat'-quoted) which names the *expression,* the term 'cat', naming cats, is a *constituent.* And similarly whether 'cat', naming cats, is a constituent in the name of the *symbol,* «cat», which is used to represent cats. We must raise this question for the reason that the acid test of equivalence of expressions, of the sort which is in point in defining, is the Leibnitzian test previously remarked, that terms thus equivalent can be substituted for one another in any statement without altering the truth or falsity of that statement.

But now suppose we take "'cat'," the name of the term naming cats, to be a complex expression, having the two constituents 'cat' ('cat'-unquoted, naming cats) and the quotation marks which have their own verbal or syntactic significance here. Then if we should write the truism, "'Cat' is the same expression as 'cat'," and if in one occurrence of it we replace the expression *inside* the quotation marks (naming cats) by another having the same intension, we get such a result as "'Cat' is the same expression as 'feline animal'," which is false.

This suggests that the *name* of an expression, including the quotation marks, not only is a different term than the expression it names, but that the expression named or quoted is not even a constituent in it. Because if 'cat' were a constituent in "'cat'," then it would be a constituent in any statement, like the above, in which "'cat'" is constituent. And in that case the substitution of a synonym for 'cat', in "'cat'," ought to give an equivalent *statement.* But as the example just considered proves, it does not.

On the other hand, is it at all plausible that 'cat' ('cat'-unquoted) is *not* a constituent in the complex expression constituted by quoting

it? Could the quotation of it be the expression that it is, and mean what it means, independently of the meaning of the expression which is quoted?

The real and understandable reason for the untoward result above, will be apparent if we consider what the expression 'cat' ('cat'-unquoted) *is*. It is something which would be different if it meant an obsolete kind of whip and not a feline animal; but also would be different if it were symbolized by «feline animal» instead of by «cat». To tell what an expression is, we must in some way indicate what it means—the intensional meaning of it—and also we must specify how it is symbolized. The expression 'cat' is the term naming feline animals and symbolized by «cat». To take another example; in the statement "Harry said 'James is leaving'," the included expression "James is leaving," which is named by the quotation of it, is the expression which asserts that James is going away and is symbolized by the complex symbol «James is leaving». If on the witness stand one should be called on to tell exactly what Harry said, but should *substitute an equivalent expression* for "James is leaving," one's testimony would be false in a manner which might be material. The substitution of an equivalent expression for any expression '——' in any longer expression in which '——' is named by quoting it, may give an invalid result, *not* because the expression quoted fails to be a constituent of the longer expression containing the quotation, but because the *symbol* «——» is also an (unexpressed) constituent of it.

5. The kind of difficulty here exemplified is only one amongst a number of such which have puzzled logicians in their attempt to arrive at precise methods of exact logic. We shall offer an explanation which applies not only to those like the examples but to some others also.

The difficulty of the apparent non-substitutability of synonyms in longer expressions may arise wherever *figurative expressions*—expressions whose actual meanings are not simply derivative from correct definitive meanings—are involved. Not only are figures of speech such figurative expressions; there are many others, including elliptical expressions, abbreviations, and some which are indicated by syntactic devices like quotation marks, or a prefix such as 'so called'. Names which pass currently are often figurative expressions, having

become abbreviated in the course of time, for verbal economy. For instance, when a writer on constitutional law refers to the commerce clause, one could not substitute a synonym for 'commerce' or for 'clause' in what he says without making nonsense of his statements. The manner of naming an expression by writing the expression named in quotation marks is such a figurative expression, though it is a *general* mode of abbreviation, according to a rule, and not a particular abbreviation which is a product of familiarity.

A special class of figurative expressions, offering many difficulties for the application of logical rules, are those which are complex and which have a holophrastic meaning not derivative from the meaning of their explicit (written or spoken) constituents. These, obviously, defy any rules of *analysis*. If we say, for example, that something is a blot on the landscape, nobody could deal successfully with any problem involving analysis of this expression in its context without danger of invalid result, unless the figurative phrase were first replaced by some literal expression of its intended meaning.

Figurative expressions are much more numerous and various in all actual languages than logicians have usually remarked. The general procedure for making them amenable to logical rules is the obvious one: they must first be replaced by literal expressions of their intended meanings before any principles of analysis or transformation can be applied to them or to contexts containing them. And a complex expression will be literal only when any holophrastic meaning intended or conveyed is a meaning resultant from the correct definitive meanings of its elementary constituents and their indicated syntactic relationships.

These considerations resolve the major part of the difficulty which we set out to explain. In the tautology, " 'Cat' is the same word as 'cat'," we cannot substitute a synonym, 'feline animal', for 'cat' (naming cats) in one occurrence of it. And the same is true for the statement, " 'Cat' is spelled with three letters." The reason is that although 'cat' (naming cats) is a constituent in " 'cat' " (naming the term itself), this manner of naming the term is figurative; literally it means 'the expression naming cats and symbolized by «cat»'. Replacing the figurative expression by this literal one, the difficulty disappears: "The expression naming cats and symbolized by «cat» is

the same word as 'cat'," and "The expression naming cats and symboized by «cat» is spelled with three letters," not only are true but they remain true if a synonym, 'feline animal', is substituted for 'cat' (where it now occurs unquoted).

Similarly for the quotation in the statement, "Harry said 'James is leaving'." Anyone who included in his deposition, "Harry said (or uttered) the expression signifying James to be leaving and symbolized by «James is leaving»," would be tiresome and puzzling. But he would then be safe if he substituted synonyms instead of repeating Harry's exact words; e.g., "Harry said (or uttered) the expression signifying James to be on the point of departure and symbolized by «James is leaving»."

The part of the puzzle which remains concerns the expressions which name symbols, like '«cat»' and '«James is leaving»'. Is what is enclosed in the French quotation marks here a *constituent* of the expression *including* these quotation marks: is the expression 'cat' a constituent in the expression '«cat»'? It is not; because what is thus French-quoted is not any expression but a symbol only. We might say that the quoted *symbol* is a constituent in the name written by French-quoting it; but it would be more accurate to say simply that '«cat»' is a holophrastic and figurative name for the symbol composed of a certain three letters.[1] It is for this reason that in the statement "The expression naming cats and symbolized by «cat» is the same expression as 'cat'," the French-quoted item can*not* be replaced by a synonym of 'cat': it cannot be so replaced because it is not an expression and has no synonyms. It is a symbol which is the same whether it represents cats or an obsolete kind of whip. However, '«cat»' is itself an expression, and could, for example, be replaced by the synonymous expression 'the letter «c» followed by the letter «a» followed by the letter «t»'. We should also remark that, in the statement above, 'cat', in the phrase "the same expression as 'cat'," cannot be replaced by a synonym until this expression has been made literal.

[1] To say that a symbol or an expression *is written*, or is spoken, is itself a figurative expression. Literally it is *instances* of symbols and of expressions which occur on paper or in conversation. Though it is perhaps literal to say that a symbol or an expression *occurs* in a longer expression, meaning that it has a position relative to other constituents in the longer expression.

This digression was necessary because the objection dealt with would be sure to be brought against us if consideration of it had been omitted. And perhaps it is justified in any case by the intrinsic importance of the problem. But let us now return to the consideration of the three types of definitive statement which have been remarked.

6. Symbolic conventions and what we have called interpretations or dictionary definitions are traditionally classed as nominal definitions, on the ground that they are statements explicative of names or of the use of language rather than of the real nature of things. The point of objection to this distinction of real definitions from those which are nominal only, is principally the logical-realistic conception, traditionally bound up with it, that the classification of a thing is determined by a metaphysical essence it incorporates. There is hardly room for controversy on this point. Classifications and their criteria are determined pragmatically, not metaphysically, and even when such criteria have been fixed, there can be nothing which is not classifiable in more than one way. Also what is, for one such classification, essential, may be non-essential for another. And there can be nothing in the nature of an object which determines the *fundamentum divisionis* by reference to which it shall be classified. Nevertheless, the mode of classification being given, what determines whether any particular thing belongs to a specified class or not, is the real nature of it; the properties it has and those which it lacks. And its having or not having some character essential to its belonging to a particular class, is a fact which is independent of any pragmatic determination of modes of classifying and of any usage of language. However, *no* definitive statement asserts any existence, either palpable or mysterious, nor depends on any. Even explicative statements stop short with the relations of classifications; of criteria; of meanings; and could not be made true or false by the existence or non-existence of anything whatever. The traditional distinction of real from nominal definitions is, thus, poorly taken. The two genuinely different kinds of questions, answer to either one of which may take the form of a definition, are first, questions about classifications made, and the basis of these, and their relations; and second, questions about the linguistic symbols and the use of them in conveying such distinctions and such relations. The symbols used and the relations of them, and assign-

ment of them to symbolization of meanings, are matters determined by convention. Also what classifications shall be made, and what meanings entertained, are matters subject to decision. But the meanings entertained are as they are and not otherwise, whether they should be entertained or not. And a relation of meanings, once these meanings themselves are fixed, is something which no decision of ours and no mode of symbolization can affect.

This will become clear if we consider somewhat more in detail the three meanings of definitive statements which have been mentioned.

The clearest case of symbolic convention occurs in mathematical systems which are 'uninterpreted' or abstract in the sense of being set up and considered independently of any particular application or interpretation of them. But wherever the attention falls upon the formal structure or relations of concepts as against any empirical application of them, this sense of symbolic convention may be appropriate to the intention of definitive statement. For example, it may be that the concepts *B* and *C*, though having some understood area of application, are not specifically limited within this area but remain undetermined as between a wider and a narrower signification; and the intention of the definitive statement may be something like, "Let us for the time being ignore how, specifically, we shall limit application of *'B'* and *'C'*, but take *'A'* as equivalent to *'BC'*." In fact every definitive statement has the sense of symbolic convention just so far as the intention is to declare a linguistic or notational equivalence rather than to assign an already fixed and clear meaning *'BC'* to a notation «*A*», or to make explicit an already implicitly determined meaning of *'A'* in terms of *'BC'*. And this sense of symbolic convention is the only one which justifiably *can* attach to definitive statement if any ambiguity or unclarity of the defining expression is allowed. No statement can relate either a symbol «*A*» or a meaning of *'A'* to the meaning of *'BC'* unless there *is* a meaning of *'BC'* which is unambiguous and fixed.

The typical instance of interpretation or dictionary definition is, of course, that in which a fixed meaning of the expression *'BC'* is understood and is assigned to the symbol «*A*» as what it correctly symbolizes. Introduction of a novel notation by assigning to it a previously understood meaning, falls under this head. Or explication

of an established linguistic usage of the symbol «*A*», for any who do not know this usage, by mention of a meaning already understood, as that of *'BC'*. But if what the statement asserts is that the meaning of *'A'*, already understood, is the same as that of some other expression *'BC'*, then it is not a dictionary definition but an explicative statement.

An explicative statement is, of course, a so-called tautology if true, since it declares an equivalence of meaning. To fall in this classification, both definiens and definiendum must have a meaning which is fixed and understood. But it should be remembered that an equivalence of one meaning to another is often implicitly determined without being explicitly grasped. Oftentimes a precise definitive statement represents an achievement in the analysis of meaning, and is anything but tautology in the sense of superfluous assertion of identity. It is, further, to be observed that the precise sense of meaning in which an explicative statement asserts equivalence is equivalence of intension, and that, implicitly or explicitly, reference to analytic meaning of one or both expressions is always involved. The tautology "*'A'* = *'A'*" is not possibly explicative of any meaning, unless it should be that of '='. And if "*'A'* = *'BC'*," is explicative, where meaning of both *'A'* and *'BC'* is already fixed and known, it can be so only because of some analysis of the meaning of *'A'* or of *'BC'*, or of both. That the intension of one expression is the same as that of another, may be a discovery of thought precisely because, and only where, there is some constituent of one intension, as grasped, which is not a constituent of the other, in the terms in which it is antecedently grasped. It is thus that an explicative statement "*'A'*=*'BC'*" may still convey something novel to one who, as we say, already knows what *'A'* and *'B'* and *'C'* mean.

7. Almost any definitive formulation may have, now one, now another of these three senses; and it may have one of them to the speaker or writer and another to the hearer or reader. But if we do not vacillate in our manner of taking such a statement, or if, when more than one of these senses is ascribable, we keep them apart, then we shall discover that there is no fact involved in definition which lends color to the supposition that the truth or falsity of any analytic statement can be affected by convention. Because symbolic conven-

tions and dictionary definitions are not analytic statements. And explicative statements, which *are* analytic, assert something the truth of which cannot be altered by any decision about classifications or about symbols or about the use of language.

A symbolic convention is either an expression in the hortatory mood, "Let us use «*A*» as an abbreviation for «*BC*»," or it conveys empirical information about an actual or intended manner of using linguistic symbols; "In this context «*A*» is used as equivalent to «*BC*»." As has been pointed out, once the convention is accepted or the fact of usage understood, it has the consequence of advising us that any meaning assignable to «*BC*» is to be assigned to «*A*» also, and *vice versa*. This understanding gives rise to an analytic statement if or when any specific meanings are so assigned. But the hortation or the advice which formulation of the convention conveys is nevertheless distinct from any such consequence of it. In itself, it equates no meanings. If it did, conventions could not touch it. We cannot *stipulate* relations between meanings: these are fixed when the meanings themselves are fixed.

A dictionary definition typically is statement of a meaning which, in that usage called good, attaches to the linguistic symbol which stands as definiendum. As such, it conveys empirical information and is verifiable or falsifiable by observation of social habits in the use of language. That definitions in the dictionary are such empirical statements is borne out by the fact that sometimes they are in error, and that when the dictionary-maker thus nods, his mistake can be demonstrated by citations of usage in standard works, or by the impossibility of finding such citations in support of him.

However, although symbolic conventions and dictionary definitions are not analytic, but either imperatives or statements of empirical fact, still they may give rise to analytic statements, in a sense and manner already pointed out. As soon as the empirical information which the dictionary conveys has been grasped, we know the subtly different fact, "The *meaning* of '*A*' is the meaning of '*BC*'." When the meaning of '*A*' is fixed and understood, this statement is either analytic or false. Similarly, a symbolic convention gives rise to an analytic statement as soon as fixed meaning is assigned to the symbolism «*BC*». Further, the stipulation or resolution that a symbol is

to have a certain meaning, has a feature, characteristic of the logic of imperatives, which should not be overlooked. As formulation of an intention, it is meant to be binding on our future conduct, and would otherwise be pointless. So long as the decision it expresses is adhered to, the symbol in question must be used in the manner prescribed and convey any meaning which is assigned.

Because of this close connection between symbolic conventions and dictionary definitions on the one hand and truly explicative statements on the other, the character of decisions made at will, which distinguishes conventions, has sometimes been attributed to all definitive statements; and since the validity of analytic statements can be warranted by reference to definitions, has been further extended to analytic statements in general. But the freedom of choice connoted by 'convention' is exactly that element which disappears when we pass from the stipulation or the explanation of a linguistic usage to statement of any resultant connections of meaning. One may use the symbol «*A*» as one chooses, and the symbolism «*BC*» as one chooses. But having chosen, one may not thereafter assert or deny "'*A*' means the same as '*BC*'," as one chooses. Whatever the decisions by which symbols and meanings become associated, the meanings in question have whatever relations they truly have, and these relations are not open to choice nor can they be altered by any decision it is possible to make. Whether '*A*' meaning so and so, and '*BC*' meaning such and such, are or are not equivalent in intension, is something absolute and eternally fixed, regardless of any convention which can be adopted or repudiated. Whether '*A*' means what '*BC*' means, depends on three things: (1) what «*A*» symbolizes, (2) what «*B*» and «*C*» and hence «*BC*» symbolize, (3) the relation which these meanings assigned have to one another. Here (1) and (2) are subject to individual decision or social convention; but the decision or convention being premised—and if it is not, then there are no meanings related—(3) is a matter of unalterable fact.

To suppose that whether a statement is true or not, or is analytic or not, can be in any degree or part a question of linguistic convention—unless what it states is the empirical fact of such convention—is to allow oneself to be deceived by the ambiguity of expressions like "What '*A*' means." The symbol «*A*» means what it has been decided

to represent by it, but the meaning for symbolization of which it has been chosen, has properties which are independent of the choice of symbols or of their being symbolized at all. It is only such independent properties of meanings the formulation of which can be an analytic statement. One may use the symbols «bird» and «biped» as one chooses; but having chosen the meanings usually assigned, one can not then alter the analytic truth of "All birds are bipeds" any more than one can create a biped with four legs, or alter the orbit of Mercury by calling it Neptune. The analytic relationships of meanings are determined by the meanings themselves, and the manner of such determination is beyond the reach of any linguistic convention.

Definitions may be conventional not only in the sense that they may represent the assignment of a meaning to a symbol, but in the further and more important sense that they represent classifications made in ways of our own choosing, according to criteria which we think it useful or important to observe. We may, thus, entertain and utilize certain meanings or we may disregard them. Most of the precise meanings which *could* be thought of, never *will* be thought of or expressed—just as the finite numbers which no one will ever make use of exceed those which will be used in counting. But the relations of meanings never entertained, are what they are, independently of such entertainment of them—just as the sum of two uncounted numbers is independent of what anyone would choose to have it. Furthermore, choice of one mode of classification, or declaration of intent to make use of it in preference to alternatives, denies nothing and affects nothing expressible in terms of any other possible classification.

It does not require the supposition that meanings and the relations of them have some transcendental status, in order to observe this independence of what we may think about them and how we may choose to symbolize them. They are thus what they are, whether they live in Plato's heaven or whether their metaphysical status is merely that of the logical consequences of premises which no one will ever be interested to consider, or of commitments which we implicitly make by our decisions though no one ever will call them in question. Like explicitly analytic statements in general, they bind nothing in nature, and no existence or non-existence can affect their truth. They neither forbid nor require any possibility of sense-experience; and no sense-

experience or the lack of it can weigh either for or against them. And no decision or convention can set them up or knock them down or change them over. They have the security of the intangible and the non-existential; the kind of security and fixity which belongs to logic.

8. The questions concerning definition which have been discussed have a direct bearing upon the further question of the nature of logic and of analytic truth in general. We have said that analytic truth is truth which can be assured by reference to meaning; that an analytic statement is one which can be certified by reference to its analytic meaning; that is, from the intensional meaning of it as resultant from the intensions of its constituents and the syntactic relations of them in the statement in question. Analytic statements are those having zero intension; those which by their meaning impose no restriction upon anything beyond restriction to what is consistently thinkable. Hence also, they are those the denial of which would involve some contradiction, some self-inconsistency.

Some, however, may feel a sort of lack in this conception. This, they may say, is too much like supposing that what is analytically true is a question of direct insight, whereas in fact analytic truth is a question of logic, a formal matter, a matter of *rules*. They will admit that we shall have to add definitions to logic in order to have a sufficient criterion of analytic truth in general; there is no principle of formal logic which will determine, for example, that "All men are animals" is analytically true without reference to the particular meaning of 'man'. And also that reference must be had to that element of meaning which is contributed by the syntax of statements over and above what is contained in the defined meanings of their constituents. But both definitions and syntax—it will perhaps be added—are also matters of rule and belong to what is formal.

There is nothing to be said against the essential correctness of this conception. Everyone will grant that whatever is analytically true is certifiable by reference to definitions and logic and syntax. But if that be taken to imply that it is reducible to a matter of formal rules, then there are two observations which need to be made here. First, and obviously, if definitions are amongst the rules needed for certifying analytic statements in general, then the rules required will have to be as numerous as the definitions in the dictionary. And if the

phrase 'formal rule' should have, by unconscious association, any connotation of intellectual economy and of some peculiar kind of accuracy, or test of accuracy, then that connotation will be specious and misleading here, since no economy is in fact effected by labelling required definitions 'formal rules'. There can be no sufficient test of correctness in a definition which is different from simple and direct observation that it adequately and accurately explicates the meaning in question. Second, if in order to avoid this appeal to discernment of a meaning as something essential for determination of analytic truth in general, it should be alleged that definitions are rules of the manipulation of language, and need not themselves be tested because they are conventionally determined, then as we have seen, the claim is invalid. It is symbols only, and not expressions already having meaning, whose relations may be conventionally determined and which are manipulable according as we may decide by arbitrary rule. Until the symbols which figure in expression of a definitive statement have specific meaning, the definition says nothing. And as soon as they have meaning, it is either true or false according as the meanings in question do or do not have the relation which it asserts. If the definition says anything, then there is a test of its correctness, and this test is simply the test of its character as analytic statement which is provided by reference to its meaning. There is no longer any antecedent formal rule which could be appealed to; and hence none for that part in the determination of analytic truth in general which depends upon recourse to meanings as defined or definable. Formal rules are often of assistance in the transformation of statements, and for determining what may be analytically true. But the supposition that one must always have a rule for validation, is merely a pedantic affection for intellectual excess baggage and logomachy. In fact, such rules for determining the analytic character of statements, while they may be of much importance and provide needed tests, are essentially no more than heuristic devices and are never strictly necessary if we understand the statement with which we have to deal.

This same consideration applies also to logical rules in general. If we always infallibly grasped all that is contained in our own meanings, we should always observe every entailed conclusion in understanding our premises, and never have a need for logic. In that sense

all logical rules are merely heuristic devices for ameliorating our universal human stupidity. And if we should suppose that formal logic always provides some sufficient and final test of analytic truth, then we should be talking in circles. Because the only test of logic itself is that its principles must be analytically true. And if we should suppose ourselves freed from the necessity of an appeal to meanings by the character of logic as formal, then we should be somehow misapprehending the nature of formal statements; which are indeed statements having a certain generality, but it is not what makes them general which marks them as logical. All statements belonging to logic are formal, but not all statements which are formal belong to logic. Logic includes only formal statements which are analytic; and what assures them as analytically true is not what makes them general and formal but precisely that element of their meaning which is non-formal and specific. *Thus the only final test of the validity of logical rules, is the test of them as analytically true statements.*

9. What makes logic formal is the fact that the kind of truth it can certify is a kind which does not depend on *certain* meanings in the statements thus logically certified. Logic tells us that nothing is both a bird and not a bird, because it tells us that whatever A is, nothing is both A and not A. The statement so assured is determined true by reference to its *form,* inasmuch as the specific meaning of 'bird' is irrelevant to the ground on which the truth of it is logically determinable. And similarly, the statement "If all Greeks are men and all men are mortal, then all Greeks are mortal" is determinable as true by reference to the form of it, because it can be assured by the principle that for any A and B and C, if all A is B and all B is C, then all A is C; and the meanings of the terms 'Greeks', 'men', and 'mortal' are here irrelevant to the ground of this assurance.

Thus logic is formal in the sense that its principles are statements involving variables; and any statement having a variable constituent or constituents is appropriately called a formal statement. We must, however, carefully distinguish formal statements from statement functions. The expression, "Nothing is both A and not A" may be intended as a statement; but if so it is elliptical and means, "For every term 'A', nothing is nameable both by 'A' and by 'not A'." Without the prefix, "For every term 'A'," it would, strictly, make no

statement, either true or false, but would be a statement function. Omission of such understood prefixes in formal statements is almost the rule rather than the exception; and for this reason they are sometimes called *asserted propositional functions*. But without some prefix of this sort, they are not statements, and are not assertable; and with it they are not functions.

It will be best to be a little more exact about this matter. We have seen that if 'φx' be any statement function in which the variable constituent is 'x', then any constant (non-variable) expression substitution of which for 'x' makes 'φx' a statement, either true or false, is called a *value* of 'x' in 'φx'. Similarly if '$\psi(x, y)$' be a function having two variable constituents, 'x' and 'y', and substitution of the constant 'a' for 'x' and of the constant 'b' for 'y' transforms '$\psi(x, y)$' into a true or false statement, then the ordered couple '(a, b)' is a value of the variable '(x, y)' in '$\psi(x, y)$', and we may say that 'a' is a value of 'x' and 'b' a value of 'y'. Thus "For all values of 'x', φx," "For some value of 'x', φx," "For all values of 'x' and 'y', $\psi(x, y)$," "For some values of 'x' and 'y', $\psi(x, y)$," represent formal statements. But "For all values of 'x', $\psi(x, y)$" is still a statement function, because the variable 'y' in '$\psi(x, y)$' is not mentioned in the prefix. The variable 'x' which *is* mentioned in the prefix, is called an *apparent* variable or *bound* variable, but 'y', which is not mentioned in the prefix, is called a *real* variable or *free* variable.[2] Thus we may say that a formal statement is a statement having one or more constituents which are apparent variables, but no constituent which is a real variable.

We should also note one further small point in passing. In the formal statement, "For all values of 'x', x is red or x is not red," 'x' in the function-part, "x is red or x is not red," is a variable. But 'x' in the prefix, "For all values of 'x'," is *not* a variable but refers to the *variable constituent* 'x' in the function-part. Wherever 'x' is a variable, it always makes sense to substitute a value for it.

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[2] Incidentally, it should be noted that "For all values of 'x', φx" *represents* a formal statement but *is* a statement function, because 'φ' is here a real variable, the values of which are, by notational meaning, restricted to predicates or predications. The expression 'φx' is a function of two variable constituents, 'φ' and 'x'; the expression '$\psi(x, y)$' is a function of three, 'ψ', 'x', and 'y'. Such expressions have meaning, because they have notational meaning and syntactic meaning. Theorems of logic involving constituents like 'φx' or '$\psi(x, y)$' are most often stated elliptically: e.g., "For every value of 'x', φx or it is false that φx" is intended to assert, "For all values of 'φ' and all values 'x', φx or it is false that φx."

But such substitution for 'x' in the prefix of a formal statement results in nonsense, such as "For all values of 'Uncle John's barn', Uncle John's barn is red or Uncle John's barn is not red."

10. As we have said, some formal statements but not all belong to logic. The physicist who writes "$v = gt$," meaning "For all values of 'v' and 't', the measure of the terminal velocity, v, of a freely falling body near the earth is equal to the measure of the time of fall, t, multiplied by the gravitational constant, g," makes a formal statement. So does any biologist or economist in stating any law of his science in a form involving the use of variables, or anyone else in making any general statement in this manner.

We should take the physical statement quoted to be true. But we must note here that the physicist is speaking of *actual* velocities and *actual* times of fall only, and otherwise his statement would be false. That we could *meaningfully* substitute Alice-in-Wonderland measures of velocities and times of fall for 'v' and 't' in his equation, and write "$100 = 10g$," has no bearing on the truth or falsity of what he intends to assert. According to his intention, the prefix-part of his statement should be such as "For all *actualities* denoted by values of 'v' and 't'." But in the formal statement of *logic*, "For all values of 'x', x is red or x is not red," such restriction of what is asserted to the actual or existent is unnecessary: the statement holds for any *meaningful* substitution of values for the variable, and for all thinkable things named by expressions which are such values.[3] This is the case because, for this or any other formal statement belonging to logic, the statement which results from any substitution of values for variable constituents in the function is an *analytic statement*, like "Uncle John's barn is red or it is false that Uncle John's barn is red," which is certifiable from its meaning alone and has no dependence on the

[3] Here, as frequently throughout, we speak of a thing as *thinkable*, meaning 'consistently thinkable'. But the self-inconsistent, like what is both round and square, is in its own oblique sense thinkable; else we should not know that this book, for example, is *not* both round and square. Specifically, what is meant by 'round square' is thinkable in the sense that 'round' is thinkable and 'square' is thinkable, and the syntax of the phrase prescribes an understood manner of compounding these two meanings. But it is intuitively evident that these two constituents cannot be so compounded.

We must return later to this topic of formal statements expressing laws of nature. (See Chapter VIII, especially Sections 8-11.) The present point is simply that such formal statements, in contrast to laws of logic, are *not analytic*.

actual content of reality or upon experience. The physicist's statement, or any law of nature, is not analytic and not certifiable by reference to meaning, but is synthetic and known only by inductive generalization from experience.

We could express the intended restriction of the physicist's statement to actualities in the function-part of it instead of in the prefix: e.g., "For all values of 'v' and 't', either v is not the measure of an actual velocity of a freely falling body near the earth and t the measure of its actual time of fall, or $v = gt$, where g is the measure of the gravitational constant." And in some similar fashion, we could do this in any formal statement of a law of nature. But *still* what is so stated is not analytic and not certifiable by reference to meaning but only by inductive generalization from experience—i.e., by reference to what exists and what does not. Also we could, if we should choose, restrict any formal statement of logic to actualities: e.g., "For all existents denoted by values of 'x', x is red or x is not red." But *still* it is analytic (implicitly analytic) and certifiable from its meaning without any required corroboration by experience.

Although as has been pointed out, it would not be necessary to recognize more than one kind of prefix in formal statements; since intended restriction to the existential could always be expressed in the function-part, it is more convenient to recognize two types of such prefixes, "For all values of 'x' (whether naming existents or only thinkable entities)" or "For some value of 'x' (naming an actual or a consistently thinkable entity)" which do not restrict the assertion made to what exists, and on the other hand, "For all existents denoted by values of 'x' " or "For some existent denoted by a value of 'x'—or for brevity, "For all existents, x" or "For some existent, x"—which do restrict what is asserted to the actual. (For the sake of comparison, the unrestricted prefixes could be expressed, "For all logically possible entities, x" and "For some possible entity, x.") This would be more convenient especially because so many functions and statements do not, by the manner of their expression, indicate explicitly whether restriction to the existent is intended or not.

11. However, as we have seen, the fundamental point for the distinction of formal statements belonging to logic from others, is not the one found in such restriction of what is asserted to the existent or the absence of such restriction, whether the restriction be expressed

in the prefix or in the function-part. It lies rather in the fact that, whether there is such restriction or is none, the formal statement belonging to logic is analytic and certifiable by reference to meaning. Whether *all* such formal statements which are analytic should be accounted as belonging to logic, is a further question which we shall come to later; but at least it will be evident without further discussion that no non-analytic formal statement will have the character of a principle of logic.

If this should be challenged, it is difficult to know how proof could be given. In the first place, because the word 'logic', like any other, may be used as one chooses; and because 'logic', like 'physics' or 'mathematics' denominates a field whose boundaries are a little vague and could be precisely delimited in more than one way. But supposing the field of logic thus precisely delimited, still what has been said could be shown correct only by examples sufficient in number and variety to illustrate the general truth of it. We shall not even present such sufficient illustration: the reader will be able to provide his own examples, and satisfy himself on the point. What is more important for us here, is the *manner in which* a formal analytic statement belonging to logic is certifiable by reference to its meaning.

Let us take an example which will have the advantage of being a most obvious instance of truth assured by formal logical principles, and one which, time out of mind, men have found clear and highly impressive.

The psychologically simplest of all forms of reasoning having any wide application is represented by the *AAA* and *EAE* syllogisms in the first figure. And as is well known, the whole theory of the syllogism can be derived, with the help of certain auxiliary principles, from the fact that these two syllogistic forms are valid, and hence from Aristotle's *dictum de omni et nullo*.[4] Also *EAE* is reduced to the *AAA* form if the major premise "No M is P" is replaced by its equi-

[4] The auxiliary principles needed for reducing all valid syllogisms to this form are simple and not too numerous: First, that the contradictory of "All X is Y" is "Some X is not Y"; and the contradictory of "No X is Y" is "Some X is Y." Second, traditionally recognized equivalences such as that "No X is Y" is equivalent to "No Y is X" and to "All X is non-Y"; that "Some X is Y" is equivalent to "Some Y is X"; and that 'non-non-X' is equivalent to 'X'. Third, that "If p and q then r" is equivalent to "If p but not-r then not-q" and to "If q but not-r then not-p," where 'not-p' is the contradictory of 'p'.

valent "All M is non-P," and the conclusion, "No S is P" by "All S is non-P." So that whatever validates the AAA form, validates all reasoning expressible in the form of any valid syllogism.

Further, as De Morgan pointed out, the validity of the AAA syllogism depends on nothing beyond the transitivity of the relation between X and Y expressed by "All X is Y."[5] This cannot but be the case because the two statements, (1) "If all M is P and all S is M, then all S *is* P," and (2) "The relation of X to Y expressed by 'All X is Y' is transitive," are merely two ways of saying the same thing. And how should one know the fact so stated? Obviously, by knowing what 'all' and 'is' mean, and understanding the syntax of expression in the form, "All —— is -----." One who understands meanings in English to that extent, will know that the relation so expressed is transitive. In other words, we know the truth of "If all A is B and all B is C, then all A is C" by knowing the meaning of the *constants* in this statement and understanding it syntactically. Through such understanding of the constant meanings involved, we know that truth of a statement of this form is independent of any particular meanings assigned to the variables, 'A', 'B', and 'C', and that it holds true for all values of these. It is in such wise that we can certify the validity of any correct syllogistic inference.

This kind of knowledge of the truth of analytic principles is not, of course, confined to the relationships which figure in traditional logical forms. Just as in the case of the relation (or relations) expressed by "All —— is -----," so for any relation; one who knows what 'greater than' means, or what 'equal to', or 'north of', or 'next after', or 'preceding', or 'round the corner from' means, knows for each of the relations so expressed whether it is transitive or not. Similarly we know, of any relation which is expressed with sufficient clarity, whether it is symmetrical or unsymmetrical, reflexive or irreflexive, and a one-to-one or many-to-one or one-to-many or many-to-many relation. Whoever understands the language expressing a relation, knows what properties are entailed in any assertion of it, by knowing the intension and hence the signification of it. And it is through such properties entailed in assertion of a relation that validity of the passage from premises stating certain relationships to a con-

[5] Transactions of the Cambridge Philos. Soc., vol. X, pp. 177-78.

clusion stating a certain relation is logically certifiable. The analytic truth of logical principles, justifying such modes of valid inference, similarly is certifiable, as has been illustrated in the case of the syllogism, by understanding the intensional meaning of the formal statement which expresses the principle in question. And it is not determinable in any manner essentially different; is not certifiable in any way which does not, at bottom, depend upon properties entailed by intensional meanings which are involved.

12. In the formal statements expressing logical principles, the prefix "For all values of ——," is oftener than not omitted, as indeed it is in formal statements generally. Thus one says, "If all A is B and all B is C, then all A is C," omitting to add, "Whatever A and B and C may be." Or one says, "Nothing is both A and not A," meaning "It is false that x is A and x is not A," and making explicit the intent "for all values of 'x'," by use of the word 'nothing', but omitting to mention the intended generality conveyed by use of the variable 'A'. Such omission of the prefix indicating generality is characteristic not only of traditional logic but—somewhat surprisingly—in the more completely symbolic form now commonly given to statements of logic.

For example, the Law of Contradiction, just referred to, would currently be symbolized, as in *Principia Mathematica,*

$$\text{"}\vdash : (x) \,.\sim(\varphi x.\sim\varphi x),\text{"}$$

"For all values of 'x', it is false that (φx, and it is false that φx)." Here the generalization with respect to the variable constituent 'x' is explicit. But 'φ' also is a variable, since obviously it conveys no specific meaning, beyond the notationally signified restriction of it to stand for some (or any) predication such that values of the whole expression 'φx' will be statements. And the intended generalization of this variable 'φ' is understood but not explicit. Full expression of the principle might be,

$$\text{"}\vdash :. (\varphi) : (x) \,.\sim(\varphi x.\sim\varphi x).\text{"}^{6}$$

[6] Some logicians would allege that 'φ' is here not a variable in the same sense that 'x' is a variable, and would deal with the kind of generality indicated above by the prefix '(φ)' in a different manner. In the writer's opinion, there is at least no necessity for distinguishing between the generality of what may be called predicate variables, like 'φ', and that of variables like 'x' whose values are substantival or pronomial expressions.

"For all values of 'φ' [for all values of 'x', it is false that (φx, and it is false that φx)]."

In a fully symbolized formal statement like the above, it is possible that the reader may be troubled to see that what is expressed can be certified by reference to meanings involved because, as one might say, there are no specific non-variable meanings set down in this symbolic statement. That, however, would be a misunderstanding. Let us list the constant meanings here symbolically expressed:

(1) The sign '$\vdash$' is simply the sign of assertion; and the three dots after it (a larger number than anywhere occurs in what follows) indicates that the *whole* of what follows is asserted.

(2) 'φ' in parenthesis is an abbreviation of "For all values of 'φ'."

(3) The two dots following '(φ)' convey a syntactic meaning; namely (since no equal number of dots occurs at any later point) that "For all values of 'φ'" qualifies all that follows.

(4) '(x)' is abbreviation of "For all values of 'x'."

(5) The dot following '(x)' has the syntactic significance that "For all values of 'x'" qualifies all that follows.

(6) The tilde '$\sim$' is abbreviation for "It is false that."

(7) The parentheses enclosing what follows this first tilde have their usual syntactic significance that the whole expression enclosed is to be taken together, and qualified by the sign '$\sim$' prefixed to it.

(8) By notational convention 'x' is a (specific but unspecified) variable constituent. By a further notational convention, 'x' is restricted to values which are substantival or pronomial expressions.

(9) By notational convention 'φ', in 'φx', is restricted to values which are predications—such that, a value of 'x' being a pronomial, a value of 'φx' will be a statement.

(10) The single dot between 'φx' and '$\sim\varphi x$' within the parenthesis, has the meaning of 'and' connecting these two statement functions.

(11) By notational convention, it is understood that any value which should be substituted for the variable constituent 'φ' or the variable constituent 'x' must be substituted for that same symbol wherever it occurs throughout the expression.

(12) Finally, the order in which these various symbols are written down—like the order of words in any sentence—has a syntactic significance essential to determination of the meaning of the whole.

If these various symbols, each having by itself the same meaning mentioned above, were written in a different order, then either something different would be conveyed, or the whole would be nonsense.

Thus although all the elements of *constant* meaning, in this symbolization of the logical statement, are conveyed by ideographic symbols or by notational devices instead of by the words of ordinary language, it nevertheless involves just as numerous, and the *same,* elements of constant meaning as occur in the rendering of it in English. And it is by reference to these constant meanings (as against the elements of purely variable signification, 'φ' and 'x') and by reference to the syntax of the whole expression, that the analytic truth of this formal statement may be certified.

Perhaps it may be helpful to observe that the manner in which such a symbolically expressed formal principle is certifiable by reference to the intensional meanings involved in statement of it, is fundamentally no different than for any other manner of expressing such principles. The elements of constant meaning will be equally various and equally complex in the manner of their relation in either case. If for example, the same principle just discussed were expressed in the more usual manner, "For every '*S*' and '*P*', it is false that *S* is *P* and *S* is not *P*," the meaning of this statement, by reference to which it is certifiable, would be constituted by the following constituent meanings:

(1) of the prefix, "For every ——," before any statement function.

(2) of the prefix, "It is false that."

(3) of 'is' in "*S* is *P*" and "*S* is not *P*."

(4) of 'and' in "*S* and *P*" and between "*S* is *P*" and "*S* is not *P*."

(5) of 'not' in "*S* is not *P*."

(6) of the notational convention by which '*S*' stands for the same thing in all three occurrences, and '*P*' likewise.

(7) of the syntactic meaning of the whole which is conveyed by writing these particular parts of speech in this particular order.

(8) of '*S*' and '*P*' as being variable constituents, which is explicit in the prefix, "For every '*S*' and '*P*'."

And very likely we have forgotten to list some essential elements of the meaning of this expression, because of their obviousness and familiarity.

Such complexity of meaning, however, is nothing against the fact that whoever truly understands what the statement means may thereby know the truth of it without reference to any further consideration. One who understands any statement of logic may be assured of its truth from the intension of it, as constituted by the intension of its constituents and their syntactic relations. He is in position to observe that the truth of it is such as would impose no limitation on anything beyond limitation to what is consistently thinkable.

13. This analytic character is of the essence of logical truth, because it is essential that it be independent of any and every empirical fact; that it hold not only of what happens to be the case in actuality but of all thinkable things and under all conceivable circumstances. The importance of this character of logic does not lie in any interest which we have in the transcendental and all possible. It is, on the contrary, a completely practical interest rooted in two pervasive characteristics of human life; first, in the frequency of situations in which we *do not know* what exists and what does not; what is the case and what is not; and second, in the fact that whenever we contemplate an action which we may take or abstain from, and wish to make our decision wisely, we must think about at least one world (which would contain the alternative we eventually decide against, and all the consequences of it) which is not actual and never will be. Whenever we find ourselves thus in doubt about or ignorant of material facts, and whenever we consider what action we shall commit ourselves to, we are required to contemplate alternatives which are not factual—though at the moment we cannot be sure *which* alternatives these are. And in order that our consistent (logical) thinking about these non-existents and these non-actual states of affairs may be of practical use to us, it is essential that what is thus merely thinkable and never will be the case should nevertheless conform to the canons of consistency. Logic must hold of whatever *could* be; and a logic whose assurance was confined to existential fact, would be of little or no service to any human being.

This possibility of determining truth by reference to what we mean, and what extends to all that is consistently thinkable, is precisely the point of difference between analytic general truths and empirical laws. As has been pointed out, *all* laws could be expressed as formal

statements: this is a consequence of that generality by which they are called laws. As we have also seen, formal statements which are thus general can be classified in two ways; (1) as analytic or not, and (2) as assertions which are or are not restricted to the actual, either by the form the prefix which is expressed or understood, "For all values of '——' denoting existents," or in the function-part of the statement.

Any law of natural science (which states a material fact and not a definition or merely logical or mathematical fact) exemplifies the class of those which are non-analytic; and the class of those which are asserted only of what exists, and would be false or at least incapable of being assured if asserted to hold of all consistently thinkable things and under all conceivable circumstances. Thus the law of gravitation, "$v = gt$," holds for measures of the velocity and time of fall of all actual bodies near the earth—when correction has been made for resistance of the air; but it does not hold of all consistently thinkable things and under all imaginable circumstances, and would not even be true of a world such as this one was believed to be from the time of Aristotle up until Galileo made his famous experiment from the Tower of Pisa. Any general law of logic, by contrast, exemplifies the class which are analytic; and the class which are assertable without restriction to the existent, for all values of variables involved. That S is P or S is not P, for example, holds for any S and P which the most untrammeled imagination could conjure up, provided only the imagining be self-consistent.

We have also seen that, while formal statement of natural laws would be either false or uncertain if given the form in which values of the variables are not restricted to the actual, either in the prefix or in the function-part, formal statements which are analytically true could be so restricted if one choose; but when they are thus stated as general facts about the existent or actual only, they are *still* distinguished from the generalizations of natural science by being analytic—implicitly analytic.

To put the same matter in another way: analytic truths are true of the all possible; and what is true of the all possible is *a fortiori* true of all actuality; but what is true of all actuality will not necessarily be true of all that is consistently thinkable. And what is true

of all actuality but is *not analytic,* can in no wise be assured except by induction from empirical observation, and belongs to natural science.

As a fact, formal statements belonging to logic frequently appear in the form of formal statements of extension and of extensional relationships; which means that they are assertions restricted to the actual.[7] Thus the one fact which is of first importance for us here is that formal statements of logic are analytic; and that the truth of them is certifiable from their intensional meaning, as constituted by the intensions of their constituents and their syntax. They can be so assured without regard to values of their variable constituents because they can be certified by reference to the meaning of *constants* occurring in them and their syntatic structure, which the variables, having none but syntactic and notational meaning, merely help to preserve.

14. However, although all statements belonging to logic are formal statements which are analytic, or can be given that form, not all analytic formal statements are such as would commonly be regarded as belonging to logic. And the question which, amongst such statements, are to be included in logic, is one which can be settled only by some convention or pragmatic decision. Also, there is no one decision, as against others which are possible and plausible, which can be shown to have anything compelling in favor of it. The reason why there is thus no clearly dictated boundary between principles of logic and other formal statements which are analytic, may be briefly indicated.

First, it should be observed that in addition to what would usually

[7] Partly this is the case for no good reason, but is due to certain historical accidents of the development of exact logic, or to unsound theory. In such cases, the result is that logical principles appear in the form of implicitly analytic, instead of explicitly analytic statements. But in part it is due to the fact that a *relation* may be intensional, analytic, and necessary though the facts or suppositions *related* are extensional, non-analytic, and contingent. Thus a statement of the general type which can be suggested by "If the actual is so and so, then also it will be such and such" may, in a particular instance, be a general principle of logic, though in a sense which will be clear, it is a statement restricted to actualities. The complexities of this sort in logic are considerable. But they alter no general conclusion here set down; and they do not have the kind of interest which would warrant our including here the long and somewhat involved discussion which would be necessary in order to make this matter fully clear.

be classed as laws of logic itself, there are other statements which are logically certifiable. Any statement derived from a principle of logic by substituting constants for the variables in the function which the principle asserts, would be such. Further, the principle being analytic, any instance falling under it will likewise be analytic, since the principle is certifiable through the meaning of its constant constituents and independently of any particular meaning assignable to its variables.

It seems appropriate to regard logic as confined to statements having a high degree of generality, or a particular kind of generality, and to regard instances falling under such statements as not belonging to logic unless they are themselves general (though less comprehensive than those of which they are instances). This limitation of the field, however, is a convention regarding use of the term 'logic': the opposite decision is open to anyone who should choose to use that word more widely, and would even have certain advantages.

It is further to be observed that there are many statements which are both analytic and general but nevertheless would not commonly be classed as belonging to logic. For example, "All birds are bipeds," or, "For all values of 'x', if x is a bird then x is a biped." But is this statement one which is validated by a law or laws of logic? Like every analytic statement, it is. Analysis of the meaning of 'bird' reveals that 'bird' and 'biped bird' have the same intension; and consequently that "All birds are bipeds" has the same intensional meaning as "All biped birds are bipeds." And this last is validated by the law of logic, "For every A and B, AB is A." The statement "All birds are bipeds" is logically certifiable—*if* you know what 'bird' means; and, of course, know also what 'all' and 'are' and 'biped' mean, and understand the syntax of the statement. But to determine the meaning of 'bird', one presumably does not consult logic but the dictionary. And having learned what the dictionary has to say on the subject, to consult logic is superfluous, since the dictionary says, in effect, that whatever is nameable by 'bird' must be nameable by 'biped'.

Logic does not explicate the meaning of 'bird', but it does explicate 'all' and the properties of the relation here expressed by 'are', and similarly the meaning of such other words as 'implies' and 'not' and 'either-or'. In fact, all its principles, as we have seen, can justly

be regarded as explicative statements of such meanings, or as derivative from such explications by using at the same time *other* laws of logic, themselves having a similar character and significance. But it does not include explications of meanings in general. Though, once more, anyone who should choose to regard all definitions and other explications of intensional meaning as belonging to logic, would encounter no difficulty in carrying out his convention consistently, and his decision would even have the advantage of effecting certain simplifications of logical theory.

If, in view of this fact that the content of logic consists of statements explicative of intensional meanings, and statements derivative (logically) from these, we ask *what* meanings logic explicates and what explications of meanings it excludes, in order to bound this field of logic, then we shall find that any decision on this point is either determined pragmatically only or else is quite arbitrary. The only indicated principle of selection is the principle that logic should cover those meanings which occur frequently enough in discourse, and in ways which make them important for determining the consistency and validity of the discourse in which they occur; particularly meanings such that by reference to explications of them alone—or to them principally—such consistency and validity can still be determined if the *other* terms of the discourse should be replaced by variables, thus producing a paradigmatic skeleton or *form* of this discourse. This is the always recognized desideratum, our concern for which accounts for the inclusion of any statement in logic: to arrive at a sufficient critique of the consistency and validity of discourse and of thought; at a canon of inference. But if, on this principle, we look for any absolute distinction between analytic statements belonging to logic and those not so classified, we shall find that there is none: there is only a difference in the degree or the frequency of usefulness for purposes of attesting consistency and validity.

We might wish to look upon logic as including general statements validating inferences, and a sufficient set of these to validate all inferences which genuinely are valid. Or we might wish to select a set of statements which will be thus sufficient for validating all valid inferences if we stipulate that any statement deducible from

those we set down and include under logic is also to be included in logic. But if so then, either way, we shall find that we have unwittingly included every analytic statement under logic. First, because every analytic statement is formal (or equivalent to one which is formal) and validates inferences. And second, because by including in logic whatever statements are deducible from any selected set labelled 'logic' we include all analytic statements whatever.

The first point is illustrated by the example already used. "All birds are bipeds" is equivalent to "For all values of 'x', if x is a bird then x is a biped." And for any other analytic statement, there would be, in one way or another, an equivalent which is explicitly formal. And any such statement would be a rule validating the instances falling under it by substitution of constants for the variable constituents. Thus "For all values of 'x', if x is a bird, then x is a biped," validates "If an eagle is a bird then an eagle is a biped," "If the wren in our yard is a bird then the wren in our yard is a biped," "If this stone is a bird then this stone is a biped," and so on endlessly.[8] There is no fundamental difference between "For all values of 'x', if x is a bird then x is a biped" (which one might wish to exclude from logic) and "For all values of 'x' and 'y' and 'z', if x is y and z, then x is y" (which one might want to include in logic), except for the greater generality of the latter statement, and the fact that it can be expressed in a more restricted vocabulary of logical constants.

Observing this failure of the first kind of attempt to mark off statements of logic from others that are analytic, we may try the second approach: we may say that it is not the question whether a given analytic statement validates other statements of valid inferences which is to be the criterion, but the question whether we *require* this particular analytic statement in our set labelled 'logic' in order to have principles sufficient to cover every case of valid inference. But our difficulty is still much the same: how are we to keep any analytic statement out of our set? Are we going to enumerate at the outset

[8] If "All birds are bipeds" is an *implicitly* analytic statement, then the meaning of 'if-then' here will be that of material implication. But a material implication or a so-called formal implication validates inference in the sense that no antecedent or premise which is true can lead to any consequent or conclusion which is false.

every law which is to be classed as belonging to logic? That obviously is impracticable. Plainly we shall allow ourselves to include laws which we do not write down initially but could arrive at logically from those which are written down. But then we encounter the difficulty that *every* analytic statement is deducible from any law of logic; is deducible, in fact, from any premise whatever, whether logic or not or even true or not, and however irrelevant it may appear to this analytic statement in conclusion. This is the case because every analytic statement has zero intension and universal comprehension; and any statement having this character will be deducible from any premise whatever, if we are permitted to use, as our rules of deduction, principles which could not be lacking in any logic sufficient for validating actually valid inferences. A statement has zero intension and is analytic if and only if its contradictory has universal intension and is self-inconsistent; that is, 'q' is analytic if and only if '$\sim q$', "It is false that q," entails its own denial, which is 'q' itself. Thus supposing any statement 'q' to be analytic, it will then be deducible from any premise, 'p' as follows:

(1) If p, then either p and q or p and $\sim q$.
(2) But if p and q, then q; which was to be proved.
(3) And if p and $\sim q$, then $\sim q$.
(4) But *ex hypothesi,* if $\sim q$, then q; which was to be proved.

If any step here should not be allowable according to our logic, then our logic would be insufficient for valid inferences, because each of these steps is valid. And if it should be objected that such deduction would be possible only if we knew in advance that the proposition, 'q', was analytic and entailed by its contradictory, then the answer is that any proposition which *is* analytic is so transformable that the contradictory of it will become explicitly and by its form self-contradictory. And any logic insufficient to validate such transformation would, again, be insufficient for inferences which in fact are valid.

We say nothing here of the different project of developing a satisfactory logic from definitions and postulates in the manner of an abstract system, by the rigorous use of so-called metamathematical or metalogical rules of derivation. That project has its own interest and importance and its own problems. But it fails to throw any different light on the nature of analytic statements as those which

are derivable from definitions together with logical principles. First, because if the logic so derived is such as could be regarded as adequate, from any reasonable point of view, then it will contain all formal principles familiarly regarded as logical principles; and *applications* of this logic will validate any inferences validated by logic in any satisfactory form. Analytic statements in non-logical terminology, like "All birds are bipeds," will not be metalogically derivable from its postulates; but the reason for this exclusion will be only that suitable definitions of the terminology involved in such statements will not be included in the system. Second, this manner of arriving at a body of logical principles leaves aside any question *why* the particular set of assumptions from which it derives are chosen. The obvious answer to question on that point is that the criterion of such choice is the exclusion of principles which would give invalid results when used as rules of inference and the inclusion of such as will give valid results in a sufficiently wide range to make the system a usable canon of inference. This implicit desideratum recognizes the importance of validity of the included logical principles; but it throws no light on the question why, in fact, these particular principles are valid when others, which might have been postulated, would not be. Thus it omits altogether the root question of what makes this system *acceptable as logic,* though the whole development is determined by reference to an external norm of such acceptability.

As a fact, the results of such metalogically developed systems of logic indicate the same conclusion: the only practicable manner of distinguishing statements belonging to logic from others which are analytic, is by marking them off as the class of those expressible exclusively in terms of some vocabulary of logical constants. And the particular vocabulary so chosen is determinable only by some pragmatic consideration of sufficiency for deductive purposes in hand.

In short, the characterization of analytic truths as those which can be certified by definitions together with logic, fails to indicate any answer to the epistemological questions: What is the nature of analytic truth? and How do we know such truth? It so fails for three reasons. First, because it is essential that the definitive statements accepted be analytic truths themselves; otherwise what is deducible from them would, in general, fail to be analytic truth. And

amongst definitive statements in general, it is explicative statements only, connecting expressions already having assigned meanings, which are thus analytic. Second, because logic itself must consist of analytic truths, distinguishable from other analytic truths in no manner which is epistemologically fundamental. And third, because the question why a proposed logical principle is valid, merely asks for demonstration that it *is analytic*. Thus, confronting the question, "What is analytic truth and how do we know it?," any answer supposedly indicated by taking logical deducibility from definitions as the criterion of the analytic, would be an answer which is circular. Because the acceptability of a definition depends on its being an analytic truth. And the validity of any inference from a definition depends upon the analytic truth of the principles in accordance with which it is drawn.

Chapter VI

Linguistic Meaning and Sense Meaning

1. The original determinations of analytic truth, and the final court of appeal with respect to it, cannot lie in linguistic usage, because meanings are not the creatures of language but are antecedent, and the relations of meanings are not determined by our syntactic conventions but are determinative of the significance which our syntactic usages may have. Once we have penetrated the circle of independent meanings and made genuine contact with them by our modes of expression, the appeal to linguistic relationships can enormously facilitate and extend our grasp of analytic truth. But the first such determinations and the final tests must lie with meanings in that sense in which there would be meanings even if there were no linguistic expression of them, and in which the progress of successful thinking must conform to actual connections of such meanings even if this progress of thought should be unformulated.

When the subject of intension was first mentioned in Chapter III, we noted the possibility of more than one interpretation of intensional meaning, compatible with all that was there said of it. It is in fact possible to think of intension in either of two ways. First, it may be taken as constituted by the pattern of definitive and analytic relationships of the word or expression in question to other words and other expressions.[1] And second, it may be taken as the criterion in terms of sense by which the application of expressions is determined. The first of these, we shall call linguistic meaning; the second, sense meaning.

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[1] Some would say 'syntactic' here instead of 'analytic'. But we are using 'syntax' and 'syntactic' in the narrower meaning previously indicated (footnote, p. 61) and nearer to the customary significations of these terms. A relationship of two expressions is analytic if the statement of it is an analytic statement.

The linguistic meaning of an expression is the intension of it as that property which is common to all expressions which could be substituted for the one in question without altering the truth or falsity of any statement, or altering the signification of any other context in which this expression in question should be constituent. It is intensional meaning in the sense in which the intension of a term would be discursively exhibited by the totality of other terms which must be applicable to a thing if the term in question applies; and in which the intensional meaning of a statement would be discursively exhibited by the totality of other statements deducible from it. It is intensional meaning in the sense in which what a word means is other *words* and phrases; and what a statement means is other *statements*. One who tries to find out how otherwise he may express himself when those addressed fail to understand him, is concerned with linguistic meaning; as is also one who fails to understand an expression and seeks to remove his difficulty by the discovery of linguistic equivalents.

Or to take a more nearly adequate example: one who tried to learn the meaning of an Arabic word with only an Arabic dictionary at hand, might—if his acquaintance with Arabic be slight—be obliged to look up also words used in defining the one whose meaning he sought, and the further words defining these, and so on.[2] He might thus eventually determine an extended pattern of linguistic relations of the word in question to other Arabic expressions. If the process of this example could, by some miracle, be carried to its logical limit, a person might thus come to grasp completely and with complete accuracy the linguistic pattern relating the term in question to all other terms in Arabic with which it had any essential or analytic relationship. But—supposing the person in question to be also lacking in wit, so that he learned nothing through his investigation excepting that of which the dictionary informed him—he might still fail to understand, in a sense which will be obvious, what any one of these words *meant*. What he would grasp would be their linguistic meaning. And what he might still fail to grasp would be their sense meaning.

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[2] It would improve the illustration if we should suppose that while all words defined, and all which define them, are in Arabic, the *relations* between these are expressed in English; that is, that the 'syntactic language' is one already understood.

What we indicate by this phrase *sense meaning* is intension as a *criterion in mind,* by reference to which one is able to apply or refuse to apply the expression in question in the case of presented, or imagined, things or situations.[3] One who should be able to apply or refuse to apply an expression correctly under all imaginable circumstances, would grasp its sense meaning perfectly. But if, through faulty language sense or poor analytic powers, he could still not offer any correct definition, then he would fail to grasp (at least to grasp explicitly) its linguistic meaning.

Because many logicians have of late been somewhat preoccupied with language, intension as linguistic (or 'syntactic') meaning has been overemphasized, and sense meaning has been relatively neglected. These two aspects of intensional meaning are supplementary, not alternative; and separable by abstraction rather than separated. One would seldom, if ever, carry out any investigation of meaning in terms of either one of them exclusively. Traditionally, the notion of intension has been explained, now in the manner of linguistic meaning, now in that of sense meaning, and oftentimes in ways which speak of them both together. This failure, or refusal, to separate the two is fundamentally right-minded rather than mistaken. But there are motives of some importance for epistemology which lead to their distinction; and on the whole it is sense meaning which is the more important for investigation of knowledge, and should be emphasized. For example, those who demand theoretical verifiability or confirmability for significance in a statement, have in mind sense meaning as the prime requisite of meaningfulness in general. Likewise those who would set up the criterion of making some empirically determinable difference as the test of any genuine difference of meaning. And those who would demand operational significance in any precise and acceptable concept are insisting upon the requirement of sense meaning.

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[3] As criterion *in mind,* sense meaning is intensional meaning rather than signification: it is that in mind which *refers to* significaton. Signification comprises essential properties; and these properties have their being when and where they are instanced, regardless of the association of them with any term or expression. Animality, for example, is a certain property objectively incorporated in animals, which would be just what it is regardless of any linguistic usage associating it with the symbol «animal». It was in order to dispel the subtle ambiguity of the traditional usage of 'intension'—ambiguity as between a meaning in mind and an objective character meant—that it seemed necessary to add signification to the list of fundamental modes of meaning.

2. For sense meaning, imagery is obviously requisite. Only through the capacity called imagination could one have in mind, in advance, a workable criterion for applying or refusing to apply an expression under all circumstances of presentation. But for reasons made familiar by the long controversy between nominalists, conceptualists and realists in logic, sense meaning cannot be vested directly and simply in imagery. The nominalist denies the possibility of sense meaning on such grounds as the impossibility of imaging dog in general or triangle in general, or of having in mind any representation of a chiliagon which should be adequate for distinguishing between a polygon of 1000 sides and one having 999. It is the persistence of such nominalism which, in large measure, is responsible for the current tendency to identify meaning with linguistic meaning exclusively.

The utter weakness of nominalism lies in the obvious fact that we *do* entertain general meanings, as we could not if the nominalist were right. But the nominalistic premises are likewise obvious facts; and it is the weakness of logical realism and of most conceptualist doctrines that they offer nothing better than verbal and unintelligible answers to these nominalist objections.

The valid answer was indicated by Kant. A sense meaning, when precise and explicit, is a schema; a rule or prescribed routine and an imagined result of it which will determine applicability of the expression in question. We cannot adequately imagine a chiliagon, but we easily imagine counting the sides of a polygon and getting 1000 as the result. We cannot imagine triangle in general, but we easily imagine following the periphery of a figure with the eye or a finger and discovering it to be a closed figure with three angles.

Many protagonists of operational significance forget to mention the imagined result, and would—according to what they *say*—identify the concept or meaning exclusively with the routine. Presumably this is merely an oversight: no procedure of laying meter sticks on things would determine length without some anticipatory imagery of a perceivable result which would, for example, corroborate statement that the thing is three meters long.[4] When the meter stick has been

[4] The concept of a length of three meters is general, since many things may have this property. The concept of *length* is *more* general, and does not con-

applied, it is some observed coincidence which gives the decision of length; else there is none. The operations are requisite only in the sense of setting up conditions under which an observation giving this decision will be possible. If the physicist find a meter stick already lying on the object to be measured, in the required fashion, he will not insist on taking it up and performing the operation of applying it before taking his reading.

But although the notion of what we here call sense meaning has been emphasized by pragmatists, operationists and holders of empiricistic theories in general, it would be claiming too much for these theories of knowledge to grant them any monopoly of the conception. Because attribution of meaning in this sense requires only two things; (1) that determination of applicability or non-applicability of a term, or truth or falsity of a statement, be possible by way of sense-presentable characters, and (2) that *what* such characters will, if presented, evidence applicability or truth should be fixed in advance of the particular experience, in the determination of the meaning in question. That *all* significant expressions have meaning in a sense which meets these two requirements, might well be doubted, in advance of investigation, on almost any epistemological theory. In particular, whether terms of universal applicability and analytic statements whose falsity is not logically possible, have such sense meaning, is precisely the question which we wish here to approach. But that in the case of *most* terms and statements, there must be some criterion in mind, in grasping their meaning, which would determine applicability or truth by way of sense-presented characters, is too obvious a thesis to be denied by anyone. Whoever approaches an empirical situation with intent to apply or refuse to apply an expression, or assert something as evidenced or its falsity as evidenced, must—if he knows what he means—be somehow prepared to accept or reject what he finds as falling under or confirming what he thus intends. Otherwise applicability could never be determined at all, and there would be no such thing as apprehensible empirical fact or empirical truth or falsity.

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tain what is peculiar to any one length. Nevertheless it contains something more than the general rule for the routine of length-measurement—we include with or in that rule a mode of determining *what* length the thing measured will be determined to have, or a mode of deciding for *any* given length, whether the thing measured has that length.

3. It will, however, be necessary to observe also what the requirement of sense meaning does *not* demand, lest a too narrow significance, militating against the usefulness of it, should be imposed upon this conception. First, the supposition that an expression has sense meaning does not require that whether it is satisfied or met in a particular instance should be immediately obvious or even that it should always be determinable. That a presented object has length, and that the notion of length has sense meaning, does not require, for example, that we should be able to tell what the length of the thing is with no meter stick at hand. Nor does the fact that a thing observed has color, and that this color of it is sense-determinable, imply the possibility of such determination under poor illumination. As the operational conception emphasizes, conditions for determining applicability and empirical truth do not always exist ready-made but more characteristically require to be sought out or created. Indeed we may note that there is *no* conception the applicability or inapplicability of which is *always* determinable, whatever the conditions. And the more important or the more precise the meaning in question, the more likely it is in general that the conditions requisite for determination are exceptional rather than the rule.

Inasmuch as this is true, the criterion of applicability or of truth will require to be phrased in hypothetical terms; *If* such and such conditions are satisfied, *then* the finding so and so will determine applicability or truth. And that the conditions of the hypothesis are not in a given instance met, argues no unclarity and no lack of sense specificity in the meaning in question. The practical difficulty in the way of determining by experience whether there are mountains on the other side of the moon, in no wise militates against the sense-meaningfulness of the assertion of them. Such difficulties have no relevance to the criterion in mind and the clarity or unclarity of it. And it is such clarity of the criterion alone which this mode of meaning demands.

Nor is it requisite to sense meaning that the question of applicability of our meanings should *ever* be categorically determinable. (This is a point which will need further consideration when we come to investigate the bases of empirical knowledge in Book II.) The more careful we are to be accurate in formulating the requirements for

complete corroboration of what we mean, the more apparent it will become how infrequently (if ever) we can attain to empirical certainty. Even if we should be forced to the conclusion that no empirical matter ever reaches the stage of theoretical certainty, beyond which further evidence could not possibly weigh for or against it, still that would argue nothing against the sense-specificity of our criterion in mind, provided only we should be capable of recognizing what would be *further evidence* for and what would be further evidence against the conclusion that the term applies or the statement in question holds. This last proviso, however, *is* essential: so far as we should be unprepared to recognize further corroboration if we should find it, the meaning in question must be—as sense meaning at least—in some part or measure indeterminate and calling for some removal of this indetermination as a clarification of the meaning in question. In short, sense meaningfulness of an expression does not require even theoretical possibility of decisive verification of its applicability in a given instance; but it does require that there be no theoretical limit of possible confirmation.

Sense meaning obviously could not be identified with denotation, and is in no wise dependent upon existence of what is meant. Some theories in which application and verification and empirical tests are emphasized as essentially connected with meaningfulness, have tended to identify the mode of meaning in question with denotation. But this would appear to reflect some confusion of thought. Sense meaning as criterion, is independent of any question of existence or non-existence of that to which the criterion applies. The fact that there are no centaurs has no bearing on the meaningfulness of 'centaur': we should recognize a centaur if we saw one; and that fact proves the term to have sense meaning. Comprehension and sense meaning are coterminous; but denotation and sense meaning are not.

If intension can be taken *universally* as sense meaning, then terms which have zero intension and are applicable to everything thinkable must have such meaning, as well as terms which have universal intension and apply to nothing which is consistently thinkable. Also analytic statements, whose comprehension is universal and their intension zero, and self-contradictory statements

which have zero comprehension and universal intension, must have sense meaning, if intension and sense meaning are coterminous. In these cases, one might well think that intension is revealed as a purely linguistic mode of meaning, having no empirical reference whatever and no significance of anything identifiable in terms of sense. But before discussing that topic, we should give more adequate attention to the nature ad properties of linguistic meaning.

4. There have been some students of analysis who have declared themselves to be radically empiricistic, but at the same time have told us that philosophy has nothing which it can legitimately offer except logical analysis; and also that analytic statements lack any sense significance, and investigation of them must be by way of linguistic study and semantics.

It would be doctrinaire to deny to students of philosophy the privilege of speculation upon the broader and more general aspects of problems the investigation of which belongs principally to the natural sciences; particularly so with respect to those aspects of such problems which concern the fate of human interests in this world and the validity of human values. But perhaps we should all recognize some justice in the conception that the *peculiar* business of philosophy is with those problems which are resolvable by reflection, and neither require to be determined nor could be determined by empirical procedures. One essential concern of philosophy at least is analysis and the determination of analytic truth. But the conception that such analytic truth is a primarily verbal matter, concerned with the *expression* of facts rather than with any matters of fact to be expressed; and that analytic truth is cut off from any direct bearing upon problems affecting human life more vitally than through our use of language; is one which we shall less easily accept. We should do ill, however, if we failed to appreciate how widely this conception of meaning in general as linguistic can be extended, and how nearly adequate to the whole range of problems of analysis it can be made.

When the intensional meaning of a term is taken as a test-schematism and an anticipated result of it, or when it is conceived in any other manner as a criterion of application which can be entertained in advance of the particular occasions of application, we have meaning in a sense in which it is essentially independent of

the use of language. Such meanings-in-application represent something which even a creature without the language habit would have to entertain in order to use his intelligence for the successful conduct of life. But when the intensional meaning of a term, '*A*', is taken as correlative with and exhibited by the totality of predications which are entailed by the predication of '*A*', and the intension of a statement as correlative with the totality of its deducible consequences, then we have meaning in a sense which can be construed as exclusively linguistic, and which may be taken as independent of any question of empirical application. Even if applications be considered, they may be thought of as derivatively determinable from linguistic relationships and the rules of linguistic consistency—as, for example, that when '*A*' by its definition entails '*B*' we shall not apply '*A*' to anything but refuse to apply '*B*'; and when '*q*' is by linguistic relationships derivable from '*p*', we shall not under any circumstances assert '*p*' but deny '*q*'. Thus one may take meaning as basically determined from definitions and other linguistic rules. And if applications be considered at all, still any question *how* connection is to be made between language and the empirical occasions of application and assertion, may be set aside as not the kind of question with which logic and analysis are necessarily concerned. Thus meaning as linguistically determined may be thought of as capable of standing on its own feet, and as independent of any sense-recognizable characters associated with it in anybody's mind or any test-schematism by which empirical application of it should be determined. And problems of analytic truth may be taken as resoluble without going outside the circle of linguistic relationships determined by linguistic rules.

Particularly, one's attention may be directed to meaning in this sense of linguistic pattern in contemplating abstract deductive systems. Here the terms originally assumed will be 'undefined'; and other terms, introduced by definition, will be assigned a meaning only in the sense of stipulated relation to these undefined terms. The whole set of such terms, defined and undefined together, will have only such meaning as accrues to them through such definitive relationships to one another and through some set of further postulated relations which limit the possible interpretation of them. Within such an abstract system, the terms used will have meaning only to

the exent and in the sense determined by the complex pattern of analytic relationships, originating in stipulations of linguistic usage and exhibited *in extenso* in the system itself as deductively developed.

5. If we think of the meaning of words and expressions *only* as something specifiable in terms of other words and other expressions, then it must strike us that *all* use of language has somewhat the character of such an abstract deductive system. If in expressing the meaning of a word, we can only use other words to express it, then either we must be led back eventually to words which are not defined and whose meaning is, so to say, anticipatory of later introduced relationships to other terms, or we must recognize that determination of all meanings involved in a system of language must be mutual, and can consist only in the pattern of their analytic relations determined by the stipulations of linguistic usage. Linguistic meaning must be in this sense eventually circular, and can be identified only with the network of relations in which any expression in question stands to others.

However, this might be said to be, not so much an observation about the nature of meaning, as observation of a predicament characterizing the attempt to *express* meaning. We must express meanings by the use of words; but if meaning altogether should end in words, then words altogether would express nothing. The 'language-system' as a whole would 'have no interpretation', and there would be no such fact as the meaning of language. This observation is, of course, essentially just. Meaning as language-pattern abstracts altogether from that function of language by which it empirically applies. Precisely what is omitted in such conception of meaning as linguistic, is intension as criterion of classification and as determinant of those characters by which the sensibly presented may be recognized and made intelligible. The linguistic meaning of 'red', for example, is its meaning in a sense which can be conveyed to the man born blind as easily as to another. Sense meaning, however, as the criterion of application, can be expressed in words; indeed, we may say that this is what words do express; but it cannot be literally put into words, or exhibited by exhibiting words and the relations of words. Such patterns of linguistic relation can only serve as a kind of map, for location of the empirical item meant in

terms of sense-experience. If there were no meanings in the mode of sense meaning, then there would be no meanings at all.

Psychologically and cognitively, meaning altogether is derivative from the sensuous criteria of recognition. We have first—first in importance at least—certain matters before our minds as presented in experience, or as represented; and the whole business of language —perhaps of thinking also—arises from the desirability, or the necessity even, of signalizing such empirically presented and presentable items. The analytic structure of our linguistic patterns is a character of the edifice which rises from the foundation of meanings in the prior sense of empirical content and criteria of empirical recognition. Further, any usefulness of our linguistic patterns consists eventually in their guidance of our identifications of the sense-recognizable so as to conform these to our intentions and render them consistent. Meaning in any sense is something entertained for the ultimate purposes of accepting or rejecting, identifying and classifying. In order that linguistic expressions should function for guidance of such ways of acting, there must be, correlated with words in our minds, a meaning which cannot literally be disclosed by any use of words or any inspection of words and their relations.

Nevertheless there are many problems consideration of which does not require that we should go beyond the linguistic patterns themselves. As the reference, above, to deductive systems may serve to suggest, many problems of logic and analysis are such. In fact, if logic be straitly enough conceived, *all* questions of logic can be successfully dealt with in terms of linguistic meaning alone and without reference to any correlated sense meaning. Logic so conceived need never be concerned with any question of what is and what is not empirically presented or presentable, or with any representation or schema for the recognition of things. It will not matter, within such logic itself, what imagery may be associated with language used, in anybody's mind, provided only consistency be preserved. Indeed logic could be dealt with as if it concerned only the discourse of disembodied spirits in an empirical vacuum (if that leaves discourse possible), who contemplated nothing beyond their own verbalisms, but who, for some unmentioned reason, conformed their verbalizing to certain rules. It would not be essential that these rules should be

matters of agreement; or even that there should be communication at all. Each could discourse to himself in ways of his own choosing and about nothing but his own discoursings. If he discoursed by reference to rules, there would be consistency or inconsistency, deducibility, and logic. We ordinary mortals would, very likely, be irked by the spectacle of such beautiful souls, and minded to make a few sentences to end sentences about sentences; but this emotional reaction of ours would be irrelevant to the integrity of their occupation in weaving intricate and admirable logical patterns for their own contemplation.

The possibility of setting off linguistic meaning, by abstraction from all connection with sense-application, is genuine—and need not be fantastic. And the possibility of restricting logic and the theoretical treatment of analytic problems generally to what concerns such linguistic pattern alone, is likewise genuine. The possibility of such rigorous analytic developments, by 'mathematical' and 'metamathematical' procedures, may constitute one motive for this abstraction of linguistic meaning from all sense-application. Logic *can* avoid all reference to the applications of words, beyond the vocabulary of logic and syntax itself. The assertion that it *does* deal thus exclusively with relations of linguistic expressions would, of course, be dogmatic; the announcement of a methodological stipulation as if it were some kind of objective fact. Just at what point restriction of the subject-matter of a discipline represents a useful separation of problems, and where instead it will militate against the usefulness of that discipline, is primarily a question of the purposes to be met. And that such usefulness of analytic developments does not necessarily dictate inclusion of problems of application, is something that mathematics and the history of it more or less make evident.

It should go without saying, however, that since the use of logic is not for the esthetic satisfaction which may be found in the formal patterns of it, but for the attainment of consistency and validity in thinking; and since thought is for the guidance of action in the face of experience; reference to sense, if omitted in logic itself, must at some point in the applications of it be restored. There are few questions which are quite unaffected by the use of language; but to

suppose that all problems of reflection, or even those appropriately included in philosophy, are capable of solution by reference to linguistic considerations alone, would be too extreme a view to be considered.

6. There is a further possible motive for the discrimination of linguistic meaning from all sense meaning, which may be found in the different bearing of these upon the problem of meaning as communicable and as something this community of which should be verifiable. Assuming that it is essential to the meaningfulness of a linguistic expression that one who uses it should have in mind some criterion of its application, still it is not clear that two persons who use the same language and 'understand each other' by means of it must necessarily have in mind the same thing. It *is* essential, if the purposes for which language exists are to be met, that they should signalize the same objective realities by the same language. But it is not clear that presence of the same objects is, or must necessarily be, signalized to different individuals by qualitatively identical presentations in their experience. Hence use of the same expressions in the presence of the same objective facts does not necessarily imply the same sense-criteria of application. So far as the schematism of application involves overt behavior, common meaning presumes community of such test-routine; but so far as it is some observed resultant which must determine the decision, it is not evident that use of the same terms on the same occasions indicates that the same sense meanings are in mind. And even supposing sense meanings to be common, still it is not clear how such community could be verified. Thus the notion of sense meaning, as criterion in mind which determines application, may be objected to as involving reference to the unverifiable and ineffable.

What may be thus in another's mind, we can only argue to from the observed similarity of his behavior, including his use of language, and from his observable similarity to us in other respects. Such a conclusion may be regarded as inductively justified if we are content to class as probable a conclusion from observed similarities to similarity in a respect which can never be directly observed. (Perhaps we should find that this is a common type of inductive conclusion, frequently exemplified in science, and not avoidable without abandon-

ment of many current generalizations of science). Otherwise we shall have to regard the supposition of such community as a postulate —since certainly it is a conclusion which all believe, in their non-pedantic moments at least.[5]

It may be thought that such questions can be obviated, or at least put over to another context, by treating meaning exclusively as linguistic. That is, it may be thought that there is methodological advantage at least in taking intension as linguistic meaning, because in the case of another person linguistic usage is a part of his directly observable behavior.

But if such confinement of problems dealt with to what is verifiable by direct observation should be any part of the motive for preferring to treat meaning in general as linguistic rather than as sense meaning, then it should be pointed out that any supposed advantage in this respect is illusory. There is the same possibility of taking meaning exclusively in terms of an objectively observable correlate in the one case as in the other. And in either case, community of meaning, as between different persons, must rest upon inductive evidence and can hardly attain to theoretical certainty. We have thought it well judged to take sense meaning as criterion *in mind;* but the important character connoted by 'in mind' here is 'entertained in advance of instances of application which are pertinent' rather than any necessary contrast between what is in mind and what would be describable in terms of overt behavior. Common-sense reference to meanings as something 'inwardly observable' when entertained, with an assurance exceeding any which outward observation of another could give, has indeed been intended. But if anyone conceive it imporant to exclude what is thus inwardly observable only, then that aspect of the matter is dispensable. One may consider such criteria of application, as meanings entertained in advance, in terms of incipient behavior or behavior attitudes if one choose; and the observability of these will then be comparable to the observability of the use of language. The real point is the distinction between meaning as indicative of and indicated by application on the one hand, and on the other, meaning as relation not to objects and objective occasions but to other linguistic

[5] Such questions were discussed in *Mind and the World-Order,* Ch. IV and Appendix C.

expressions. And whichever of these two aspects of meaning one would emphasize, it will be essential to that clarity and precision required in logic and like problems, that a meaning should be something which is determinate beyond what any number of observed occasions of the use of expressions will assure with theoretical certainty. No classification can be completely fixed by observation that such and such items are accepted as subsumed under it. Always theoretical alternatives with respect to instances of some specifiable type, not yet examined, will remain over, and leave any *criterion* of the classification in like measure indeterminate—this quite apart from any question of the persistence of behavioral attitudes observed to date. And likewise in the case of meaning of a term as exhibited by, let us say, accepted relationships of synonymity. As the illustration of the Arabic dictionary may make evident, one does not determine linguistic meaning with precision by observation of a single accepted synonym, unless the further linguistic relationships of that synonymous expression are already fixed. For theoretical determinateness of linguistic meaning, complete classification of all pairs of expressions as synonymous or non-synonymous would be required. And observed occasions of another's linguistic usages are as insufficiently indicative of this as are observed occasions of application for fixing the criterion of application thus exemplified. In either case, our evidence of what another person means, in the mode of intensional meaning, can be inductive only and will fall short of theoretical certainty. Whether we have better assurance of our own meanings, and if so on what ground, is perhaps a question just as well omitted. As what we *intend* at the moment at least, a meaning seems to be as open to examination as anything we are likely to discover.

7. In any case, between intension as linguistic relationship and intension as sense reference, there is a necessary and obvious connection which derives from the function of language itself. Terms in general denote things and signify characters of them, and statements are intended to express facts. If there are expressions which are empirically vacuous, still these are thoroughly bound up with others having concrete meaning. In consequence, there must be correspondence between these two aspects or ways of taking intensional meaning, unless some correction is needed either of our

definitions and other accepted analytic statements or of our ways of determining applications of expressions.

Linguistic pattern of analytic connections may be abstracted, temporarily or from some limited point of view, from all relation to the concrete, and considered only as logical or 'syntactic' or systematic structure of symbolisms awaiting specific interpretation. But if we are to avoid the fantastic, then at some point the empirical reference of language must be restored. Definitions must express criteria of application, and analytic statements must limit the allowable modes of classifying and designating. We must define our terms conformably to our applications of them; and we must apply them conformably to our definitions. We can, so to say, start from either end of this relationship, but eventually the connection must be made. To an extent at least, we can set up analytic relations of linguistic expressions—more accurately, of linguistic symbols—by convention and arbitrarily. But having set them up, we must then respect them in any interpretations or applications. If our definitive conventions and postulated linguistic relations are not bound by antecedent fact, at least they are resolutions binding on our further practice. They limit our later freedom to make other and similar conventions; and they limit also our freedom to interpret and apply. Validity requires not only consistency of what we say with what else we say, but also consistency of what we say with what we do. Or, on the other hand, we can start from sense-recognizable characters, taken as essential for the application of terms and as constituting our criteria of classification. And then we shall find the allowable modes of definition and the truly analytic relationships determined by the fact of the inclusion of one test of application by another; the entailment of one essential character by another, or the incompatibility of one sense-apprehensible character with another.

The question which of these two aspects or ways of construing intensional meaning is the more fundamental, and which is derivative, should find a partial answer at least from consideration of another question: Does language exist, in general, for the sake of signalizing characters found in things and for the sake of practice guided by sense-apprehension; or are classifying, naming and relating things, activities which go on for the sake of supporting a language habit and exemplifying concretely our chosen forms of syntax?

Insofar as the problems in which we are interested are the epistemological ones, the final and finally important consideration is the fact that interpretation of meaning as linguistic significance can afford no sufficient clue to the determination of analytic truth, whereas interpretation of it as sense meaning may indicate an obvious source and criterion of it.

The only origin of the analytic and *a priori* character of some statements, as contrasted with the synthetic and *a posteriori* character of others, which is suggested by reference to linguistic usage, is the fact that the former class of statements are certifiable, eventually, from definitions, together with the rules of logical transformation and derivation. Probing further as to the independence which such definitive and logical formulations have of all empirical matters of fact, the only explanation which can be found for this in meaning as linguistic, lies in the conventional character of definitive statements as stipulations of linguistic usage and in the similarly stipulative character of logical principles as supposedly derivative from definitions and formulations of accepted syntactic usages.

Admitting the accuracy of the considerations thus evoked, and admitting the possibility of treating logic as simply derivative from definitive and syntactic formulations, the shortcoming of such explanation is simply that it does not explain what needs to be explained. It affords no clue to the *a priori* character of analytic truth as independent of empirical fact. It explains this independence, but it accomplishes this explanation by divesting analytic statements of any character of *truth;* or at least by *abstracting from* any character of analytic statements by virtue of which they could be either true or false.

As has been pointed out, no definitive statement can be at one and the same time stipulative and the expression of any kind of fact. Considered as linguistic conventions, definitions are either resolutions or hortations (genuinely stipulative) or they are merely empirical statements of actual or intended usage. Furthermore, neither stipulations nor empirical facts of linguistic usage can in any wise determine or affect a relation of meanings—in any good sense of the word 'meaning'. The use of *symbols* is subject to stipulation, and the representation of a given meaning by a particular symbol is likewise subject to stipulation. And the customary or good usage

of symbols as substitutable for one another, and as conveying certain meanings, is a matter of empirical fact which can be reported. Likewise the expression of a certain relationship by a certain syntactic order or other manner of speaking and writing, is subject to stipulation; and actual usages of this sort are matters of empirical fact. Without definitive and syntactic conventions, there would *be no connection* between meanings and symbols, and no connection between order of symbols and relations of meanings. The *mode of expression* of any analytic truth is thus dependent on linguistic conventions; as is also the manner in which any empirical fact is to be formulated and *conveyed.* But the *meanings which are conveyed* by symbols, on account of a stipulated or a customary usage of them, and the relation of meanings conveyed by an order of symbols, on account of syntactic stipulations or customary syntactic usage, are matters antecedent to and independent of any conventions affecting the linguistic manner in which they are to be conveyed. And nothing in the nature of a truth to be told (or a falsehood) puts in its appearance until the linguistic symbolisms used have a fixed and understood meaning assigned to them, or until the syntactic structure of the kind of verbalism called a statement conveys an equally fixed and understood relationship of meanings symbolized. There is no statement of any truth, analytic or otherwise, until a relation of meanings, in some mode of meaning, is asserted. The manner in which any truth is to be told by means of language, depends on conventional linguistic usage. But the truth or falsity of what is expressed, is independent of any particular linguistic conventions affecting the expression of it. If the conventions were otherwise, the manner of telling would be different, but what is to be told, and the truth or falsity of it, would remain the same. That is something which no linguistic convention can touch. Until the conventions affecting expression are fixed, and hence the meanings in question are fixed, literally nothing is said by any string of symbols. And when the conventions and the meanings are fixed, the truth of what is said depends, not on the symbolizations, but on the meanings symbolized.

It is quite true, as we have tried to indicate, that matters of logical construction and derivation, such as the deduction of the theorems of a mathematical system from definitions and postulates, can be

reduced to the status of a kind of glorified chess-game, with symbols as the pieces and definitions and rules of the syntactic type as the chess-rules governing allowable moves to be taken in deriving theorems. And what end-results can be obtained by such moves according to the rules, is as sternly limited in these terms as in terms of deducibility considered as a consequence of meanings and assertions. There are even purposes which are well served by reducing deduction and system-building to this chess-game status. But we should be more careful than will come about naturally and easily to separate clearly what belongs to the chess-game from what belongs to establishment of any analytic truth, in spite of the kind of point for point correlation which may exist in such cases. The result of the symbol-game with syntactic rules does not *say* anything, any more than does the result in a game of chess. Until meanings are assigned, there is no kind of truth in question—or only the truth of what you can do by allowable moves with certain pieces of symbolism. And once the symbols represent meanings, the substitution of symbols and other allowable moves must be carefully governed from respect for the truth, in terms of these meanings; otherwise, it will be a very poor game with a negligible result.

8. What lends plausibility to this conventionalist interpretation, which finds no significance in analytic truth beyond the significance of linguistic conventions of definition and syntactic usage, is the fact that, in a sense which has been discussed, all analytic statements say the same thing and say nothing. With respect to empirical matters of fact, their significance is vacuous, requiring *no* particular matter of fact which has any empirical alternative, and forbidding none. But as has also been observed, it is with respect to their intension considered holophrastically only, that all analytic statements have the same meaning and are thus vacuous. Considered analytically, as expressions the intension of which is constituted by the intensional meaning of constituents and syntactic order, analytic statements say different things, and what they assert is something certifiable by specific relation of the specific meanings of their constituents—which in general are *not* empirically vacuous meanings. "All cats are animals" asserts a relation of the intensional meaning of 'cat', which is neither zero nor universal, to the intension of 'animal', which like-

wise is neither zero nor universal. Or else it asserts a relation of the two classes, which relation can be known to hold *a priori* by considering the relation of the intensions of 'cat' and 'animal'. So that whether this statement, as intended, affirms a relation of classes and is implicitly analytic, or affirms a relation of intensional meanings and is explicitly analytic, in either case it is this latter relationship which must be known if the statement is to be determined as analytically true. That is, we can apprehend the analytic truth of "All cats are animals" only by knowing "All cats are necessarily animals."

The *epistemological* question about analytic truth relates to the nature of this necessity and how we know it. The conventionalist answer has the merit of pointing out that this is *not* a necessity arising from any force of nature, or from any empirical state of affairs. It is not a physical or biological or otherwise natural necessity. Nature may be anything conceivable, and the forces of nature anything imaginable, but still there would be no possibility of a non-animal cat. But if it be alleged that this necessity arises from our linguistic conventions as to the use of the expressions 'cat' and 'animal' and 'all' and 'are', and the syntactic usage affecting the expression "All cats are animals," then it is at least obscure just what may be meant by 'usage' here, and we shall not, in fact, find any answer to our epistemological question by looking to linguistic meaning and to usage in the sense of conventions of language.

The question whether "All cats are animals" is analytically true, or "Some rats triangles bite" is analytically true, cannot be determined *without* reference to conventionally determined use of words and of syntactic order in making statements. If the expression 'rats' (more accurately, the symbol «rats») was used as in fact 'cats' is used, and 'some', 'triangle' and 'bite', as in fact 'all', 'animal', and 'are' are used, and if the conventions of syntactic order were those of statements in German, then "Some rats triangles bite" *would be* analytically true. And if 'cats' were used as in fact 'rats' is used, and so on—the reader can fill out the rest of the illustration—then "All cats are animals" would *not* be analytically true. It is neither the linguistic symbolisms nor their conventionally determined relations to other symbolisms nor the conventions of syntax, which determine any analytic truth. These determine only the manner of the expression

of it; and it is *what is expressed* which is analytically true or not. Something which *is* expressed by 'cat', but might be expressed by 'rat', has to something which is expressed by 'animal', but might be expressed by 'triangle', a relation which is expressed by 'all-are' but might be expressed by 'bite'; and the whole fact so expressed is determinable as true independently of any appeal to empirical fact. It is this status of analytic truth attaching to what is thus expressed, no matter *how* it is expressed, which is the epistemological question. And conventions of definition and syntax afford no answer whatever to that question.

9. The answer is to be found by reference to the sense meanings of 'cat' and 'animal'; by reference to the criteria according to which we apply or refuse to apply these expressions to things.

The sense meaning of expressions having zero intension is vacuous. It would be subtly incorrect to say that they have *no* sense meaning, because in understanding what they mean we understand something by virtue of which we are aware, in advance of any particular experience, that whatever this experience presents will be compatible with what this expression requires. If 'either not square or else rectangular' had *no* criterion of its applicability, then we should never know whether it applied or not, instead of knowing that it always will apply. Still an expression of this kind lacks sense significance of the kind which its constitutents 'square' and 'rectangle' have. This knowledge of its universal applicability derives in fact from grasp of the sense meaning of these constituents, and of the significance of 'not' and 'or' in constituting this holophrastic sense-significance of the whole expression. What we know in advance of any particular occasion is that by virtue of the criterion of applicability of 'square' and of 'rectangle', 'not a square or else a rectangle' will always apply. We do not require examination of particular instances, because *a sort of experiment in imagination is sufficient.*

'Round square' has the opposite kind of lack of sense significance; it never applies; we cannot imagine anything satisfying it. But this lack of significance attaches to its intension as holophrastic: the constituents 'round' and 'square' have specific sense meanings such that they sometimes apply and sometimes not. And the relation syntactically expressed between 'round' and 'square' prescribes a certain

manner of relating the senses of 'round' and 'square'; the same manner of relating them as is prescribed for 'red' and 'square' in determining the sense meaning of 'red square'. And the phrase 'round square' does not lack sense meaning in the manner in which such an expression as 'ectoplasm' would: we are not at a loss just how to test its applicability, but know quite well what test would be in question; and it is from that apprehension of what a thing must be in order to satisfy 'round square' that we know, in advance of any experience, that it will never apply. The experiment of trying to put together in imagination the sense meanings of 'round' and 'square' in the manner prescribed by the syntax of the phrase, is sufficient to assure this universal non-applicability *a priori.*

10. It is this kind of fact about the relations of criteria of application of expressions to one another which is pertinent to our assurance *a priori* of the truth of analytic statements, as well as our assurance *a priori* of the falsity of statements which are self-inconsistent. Because what any explicitly analytic statement asserts, when we consider the intension of it not merely holophrastically but analytically, is some relationship of intensional meanings of constituents in it. And in general, these constituent intensions will be neither universal nor zero: nothing can be said by using exclusively expressions which always apply or which never apply. And if the statement in question is implicitly analytic only, and does not assert a relation of intensions to its constituents but something else, still in order to know it true analytically and *a priori,* what we must know is the truth of the corresponding explicitly analytic statement, which does assert such a relationship of intensional meanings. We know that "All squares are rectangles" because in envisaging the test which a thing must satisfy if 'square' is to apply to it, we observe that the test it must satisfy if 'rectangle' is to apply is already included. This experiment in imagination—which we must be able to make if we know what we mean and can recognize squares and rectangles when we find them—is sufficient to assure that the intensional meaning of 'square' has to that of 'rectangle' the relation prescribed by 'all-are'.

This kind of fact, conveyed by an analytic statement, is obviously one whose holding or not holding is independent of what anyone

would choose to have it or happens to be convinced of. Taking these sense meanings apart from any question of their verbal expression, a relation of them is as much a brute fact, unalterable to our wish and will and obdurate to any decision or convention of ours, as is the fact that trees have leaves and rocks are hard. In this sense, the facts of logic and of mathematics are as fixed and unmanipulable as are the facts of physics or the fact that you can't put a bushel of apples in a peck measure. It is this kind of fact which makes the relation of two expressions, each signifying a specific character of things, either true or false, independently of the verbal symbols of the two expressions or of the syntactic conventions affecting statement of the relationship.

This is the more fundamental significance of analytic statements, in which what they express would be a matter of concern to any intelligent creature even if he lacked the language habit altogether. Such a creature would still, by virtue of what is involved in intelligence, make classifications and recognize what belonged under each by some specific and perceptible character. The relation of one such character, operating as criterion of classification, to another, would likewise be a matter of intelligent concern, in the interest of obviating unnecessary question of the direct relation of empirical factualities, when such relationship could be antecedently determined by reference to the recognizable characters operating as signals of their classification. The fact that it is uneconomical and unintelligent to wait upon particular empirical occasions in order to discover whether what is square is also rectangular, or whether a peck measure will hold a bushel of apples, has no dependence on linguistic usage, but springs from the antecedent connection of what, as it happens, is signified by the words 'square' and 'rectangular', 'peck' and 'bushel'. That the verbal *expression* "All squares are rectangles" conveys a logically necessary fact, could not be determined in entire independence of what the constituent *expressions* 'square' and 'rectangle' convey, but the fact of the relation *expressed by* "All squares are rectangles" has no dependence upon our conventions of expression or even on the existence of language. No manner of devising a system of language could affect it, and no decision of ours could make it otherwise than it is.

11. The compatibility or incompatibility of sense-recognizable characters, and the inclusion of one in another or its exclusion by another, is thus the root of the matter. *A priori* statable truth arises when characters so related are made the basis of classification and of the application of linguistic expressions. That what is asserted by an analytic statement is knowable in advance of particular occasions and incapable of being adversely affected by any empirical finding, reflects the fact that it is a relation of classifications and their criteria which is in question. If the test for the property or character *A* and that for the property or character *B* are so related that in satisfying the former anything must also satisfy the latter, this relationship can be discovered without raising any question of what in particular satisfies or fails to satisfy either test. And what is thus discoverable by examination of criteria cannot be upset by any fact of existence or non-existence or any disclosure of experience. If the positive result of a test for *A* includes positive result of a test for *B*, then the facts of reality or experience may, so to say, be anything they like, but they cannot conceivably present us with a case of *A* which is not a case of *B*. These ways in which we classify phenomena impose no limitation whatever upon what shall exist to be classified or what shall present itself in experience. And conversely, what particular phenomena are actual or are presented, can impose no limitation on the sense-recognizable characters by which we may choose to make our classifications, provided only we adhere to our own criteria as fixed.

The question, "Does your schematism for determining application of the term 'square' include your schematism for applying 'rectangle'?" is one determined in the same general fashion as is the answer to the question, "Does your plan of a trip to Chicago to see the Field Museum include the plan of visiting Niagara to see the Falls?" A test, like a plan, must be sense-recognizable when carried out. And like a plan, it must be capable of being envisaged in advance. If the plan lacked sense-apprehensible character as envisaged in advance, then we should never know whether we were following it or not, nor whether what happened satisfied it or not. Similarly, if a criterion of the application of a linguistic expression lacked sense-significance, we should be unable to determine in any given case whether the

factually presented conformed to it or not. A criterion, like a plan, is determined antecedently to apprehending anything which satisfies or fails to satisfy it, and whatever happens or fails to happen when we apply it does not alter or affect this criterion itself. And a relation of criteria, which an analytic statement may formulate, is a sense-apprehensible relationship, like the inclusion of one plan in another, or the incompatibility of them.

In whatever sense we can say that criteria of application could be only in a mind, a relation of them could likewise be only in a mind, and is not an out-there fact. But it is dubious to say that a test-routine and the sense-apprehensible result of it could be only in a mind: the pertinent point is that, taking it as a basis of classification, a routine and a positive result of it are entertained hypothetically only, so far as any particular occasion of experience is concerned. The antecedent decision to include things in a classification, or exclude them from it, according as this test is satisfied or not, is something beyond the power of any out-there circumstance adversely to affect.

However, in believing or asserting our criteria to have certain relations, we can make mistakes—though no mistake which is not intrinsically possible of correction merely by taking thought upon the matter. Every student of logic or mathematics discovers this, to his sorrow. The only reason that there are not false analytic statements as well as true ones is that we do not *classify* statements of relations amongst our meanings or criteria as analytic when the asserted relationships do not in fact obtain. It is thus that what analytic statements affirm falls properly under the head of knowledge, and has a significant opposite in a kind of possible error, even though it is a type of knowledge which *can be* assured *a priori* and independently of any existential fact or any particular empirical presentation.

12. Let us sum up this matter, in conclusion. There are three factors involved in determining analytic truth of any statement; two of which are subject to convention, though in ways which are different, and one of which is not amenable to any decision we can make. First, there is the manner of linguistic expression. The ways of conveying meaning by the use of verbal symbols are fixed by convention, and no statement could be determined as true or not, or as analytic or not, without reference to the verbal expression of it.

But while relations of symbols to symbols, determined by what we have called a symbolic convention, may dictate that whatever is symbolized in a certain way may also be symbolized in a certain different manner, and may forbid the symbolization of anything in one fashion unless it can be symbolized also in another, relationships so set up determine no truth except in the oblique sense of determining a relation of *whatever* meanings are conventionally symbolized in such and such a manner. Until symbols have fixed and specific meanings, a relation of them conveys no relation of meanings; and as soon as the meanings attaching to symbols are fixed, the question whether a relation of symbols expresses truth depends upon the relation of the meanings so expressed. Also, there would be these relationships of meanings which hold, whether they be verbally symbolized or not, and irrespective of the manner of their symbolic representation. Thus the conventions of language determine no analytic truth but only how it may be expressed. They are a factor in the analytic truth of statements only because correct expression of a relation which holds is essential to the truth of statements.

Second, there is the factor constituted by our ways of classifying, according to criteria of our own choosing. Every expression having fixed meaning signifies some testable and recognizable property or character which is the essential mark of its applicability. What such characters we choose to note, or find it important to note, is a matter of decision; and in that sense what meanings we shall entertain and express, amongst all those which could be entertained and expressed, is conventionally determined. These criteria of the application of expressions, entertained in advance, or hypothetically with respect to any empirical occasion, constitute the intensional meanings of expressions we choose to apply. The intensional meanings may also be indicated by relations of the expression in question to other *expressions*. But this linguistic meaning must be in accord with the criteria of application of the expressions so related. And it is only by virtue of a reference beyond verbal expressions altogether, to what concerns the possible application of them, that there is such a fact as the meaning of language in general or a specific meaning of any expression, however related to others. When meanings in the sense of criteria of application have been assigned to verbal expressions,

the relation of the verbal expressions can no longer be determined or affected by any decision, but depends on the actual and discoverable relation of these criteria themselves.

The root of the matter thus lies in the third factor; in the relations of testable and sense-recognizable characters which are our criteria of classification and of the application of verbal expressions. One such essential property signified may include or entail another; as the criterion of squareness includes the criterion of rectangularity, and the applicability of 'cat' entails the applicability of 'mammal'; and one such may exclude another as incompatible; as satisfaction of the test of squareness excludes satisfaction of the test of circularity, and as applicability of 'cat' excludes applicability of 'fish'. It is in such relations of sense meanings which are taken as criteria of the application of expressions that the determination of analytic truth is finally to be found. Such relationships are as they are, and are not subject to any convention or decision. They are capable of determination, in advance of and independently of any particular occasion on which expressions apply or fail to apply, through that envisagement of the criteria of which we must be capable if we know what we mean in the sense of being able to recognize an instance of it when we find it.

An analytic statement has itself no specific criterion of its applicability beyond what determines that it could not fail to be satisfied under any circumstances. It has zero intension, imposing no limitations, and being applicable to any conceivable world regardless of what particular matters of empirical fact are contained in it. But this zero intension can be determined only by grasping this holophrastic significance of it as constituted analytically by the relation which it asserts to hold between specific meanings. Either it affirms a relation of intensional meanings of constituents in it, which relation is certifiable by reference to these intensions as sense meanings; or it asserts a relation of constituents in some other mode of meaning such as denotation, but one which can be assured—and can *only* be assured in advance of particular empirical occasions—by assuring a corresponding relation of intensional meanings. It is in this sense that we are able to determine the truth of any analytic statement if we understand what we mean by it.

13. This essential connection of verbal expressions which have meaning with some criterion of their possible application or truth, is also the consideration which is fundamental for the question whether there are any synthetic *a priori* truths, or whether all statements whose truth can be known independently of their confirmation by particular experiences are analytic.

It would hardly be desirable to enter at length upon that question here: it is a dead, or nearly dead, issue; conviction that all *a priori* truth is analytic being now quite general. On the other hand, there is no equally general agreement upon any premises sufficient to support that conclusion; and brief consideration is worthwhile for the sake of side-lights which can thus be thrown upon other questions with which we are more nearly concerned.

The impressive historical expression of the belief that there are synthetic judgments truth of which is knowable *a priori,* is the conception of Kant that there are certain limitations of our capacity to receive sense-impressions, and hence of our capacity to represent or imagine, which are *not* at the same time limitations of our capacity to conceive, and hence are not limitations of conceptual meaning.

This doctrine is not quite explicit in the "Transcendental Aesthetic," because it would be paradoxical to attribute to such terms as 'triangle' and 'straight line', a conceptual meaning not limited by the possibilities of intuiting and imagining triangles and straight lines. It would be thus anomolous because such terms name distinctly spatial things; and space and time, as forms of intuition, are set over against the concepts of the understanding. Thus Kant does not raise the question whether mathematical concepts have, like the physical concepts of substance and of cause and effect, a problematical extension beyond the conditions of intuition and representation which limit our possible application of them. He merely notes that the definitions of mathematical terms, plus logic, are insufficient premises for principles such as that the sum of the angles of a triangle is equal to two right angles, and a straight line is the shortest distance between two points. Hence that these propositions must be synthetic; and their *a priori* certainty must be attributed to conditions of representation over and above what is contained in the concepts.

It is in later sections, concerning the concepts of the understand-

ing, that this basis of synthetic judgments *a priori* becomes quite clear —though Kant's language is in places confusing, and inconsistent with the doctrine to which he nevertheless commits himself.

Let us discuss the questions involved, so far as possible, in terms of Kant's own suppositions. Our possible *application* of concepts like 'substance' and 'cause' are limited by our schematism of them under the conditions of representation in time. Beyond our capacity thus to apply them in possible experience, they have no meaning for us. (Kant says just that in several passages; and in such passages he uses both the terms *Bedeutung* and *Sinn.*) Apart from sense-representation, they are mere 'empty titles' of concepts. Nevertheless they have a problematic extension beyond these limitations of sense-experience. For example, the *conceptual* significance of 'substance' is merely 'that which is subject and cannot be predicate'. And from this definitive meaning the principle that in all change substance is the permanent, is not deducible. However, this principle of physics has *a priori* certainty—so Kant believes—when the further conditions of a schematism in time, as conditions of *application* of the concept to sense-things, are added. Thus this principle is supposed to be both *a priori* and synthetic.

Similarly, the principle that everything that happens presupposes something on which it follows according to a rule, is supposed to be *a priori* but non-analytic. The concept of cause has problematic extension beyond possible sense-experience, and the notion of an uncaused cause is not precluded in the concept, but is—for natural phenomena—precluded by conditions of temporal schematism and hence of our possible application of the concept.

Thus Kant conceives that logic, and the definitive or conceptual meaning of terms, extend not only to phenomena but also to supersensible or noumenal things which we cannot intuite or represent but still can think. If it be asked how we can give even problematic content and significance to concepts, beyond the realm of sense-things amongst which alone we can genuinely find an application for them, Kant answers by the notion of an 'analogon'. This notion is left quite obscure, apart from the obvious suggestion that an analogon is a kind of unsatisfactory envisagement of something which we cannot adequately represent, through partial analogies of it to what we

can experience or imagine. Thus we can vaguely think first causes, such as supersensible free moral agents, and substances which, like God, are not beings whose existence is limited by space or time; and the *conceptual* significance of 'substance' and 'cause' extends, problematically, to such non-phenomenal entities.

The conception is, thus, that terms have a purely conceptual significance, expressible by a definition and not limited to objects of our possible experience but extending to 'things in general'. They have also a sense meaning, which is further limited by a schematism of our possible application of them to empirical objects. This schematism imposes conditions not derivable from the definition of them. Something—e.g., that every event has a cause—is supposed to be assured by this schematism of any possible empirical application of the concept (hence to be *a priori* true of all phenomena) which is not deducible from the definitions or conceptual significances in question (and hence is non-analytic).

However, omitting other criticisms which might be made of this Kantian doctrine, we must observe that it commits a fallacy of ambiguity. We have here, not one meaning of terms like 'substance' and 'cause' but two. There is, for example, the broader meaning of 'substance' as that which is subject and cannot be predicate, which (let us suppose) covers not only physical objects and psychological entities but extends to supersensible things as well. This broad meaning does not entail any temporal or spatial character of what is to be called a substance. And there is the narrower meaning of 'phenomenal or natural substance' which *does* entail whatever is involved in that schematism by which alone we can give the term empirical application. And there is the broader meaning of 'cause' as 'that in the absence of which a thing could not be'; and a narrower meaning, as 'that in the absence of which a phenomenon would not empirically exist or occur'. The broader concept does not entail temporal antecedents and other characters essential to all phenomena, but the narrower concept does.

Let it be admitted, for the sake of the argument, that there are such terms which have empirical application but at the same time a conceptual significance which is wider and is not confined by conditions of such empirical application. And let us suppose, with Kant,

that there can be some statement "All *A* is *B*" such that the conceptual signification of *'A'* does not entail the conceptual signification of *'B'*, but that the representation or schema of empirical application of *'A'* does entail *'B'*. Now let it be asserted that "All *A* is *B*" is *a priori*, because *'A* not-*B'* is not representable or imaginable; and that "All *A* is *B*" is synthetic because the concept of *'A'* does not entail *'B'*. We then have a fallacy of four terms. Because if *'A'* here is not confined in comprehension to the phenomenal but extends also to things in general and in themselves, then the impossibility of representing *'A* not-*B'* proves nothing about the connection of *'A'* and *'B'*. (And with this, Kant is in agreement: he does not suppose there are synthetic propositions *a priori* about the supersensible.)[6] But if the statement is confined to 'phenomenal *A'*, as it must be in order to be *a priori*, then it is not synthetic, because 'phenomenal *A'* entails all conditions essential to *A's* being identifiable in experience, including whatever is involved in the schema of empirical application of the term.

Thus Kant's claim of synthetic *a priori* truth is plausible only because he did not write in the qualification 'phenomenal' where he nevertheless took it for granted and where it is essential to his argument. For example, if 'whatever happens' connotes temporality of what is spoken of, and if being a temporal happening entails being caused, then "Whatever happens has a cause" is an analytic proposition. But if temporality is not here connoted, or if being a temporal event does not entail being caused, then no ground for holding this proposition to be *a priori* is revealed.

It may be objected that we miss the point: that Kant believed he had established that being a temporal event *entails* being caused through the necessities of all possible experience and representation, but that this connection is not derivable from the *concepts* or *definitions* of 'temporal event' and 'cause'. This objection undoubtedly states Kant's own understanding of the matter. And he conceived that the (or some) entailments which figure in geometrical proof are similarly not *logical* entailments but such as arise from necessities of sense-representation and all possible experience. But it must be re-

[6] Except 'from the practical point of view'—a matter which we would best leave aside here.

plied here that anything which is essential to the temporal character of an event must be included in the adequate concept of it as a temporal event, and anything without which geometrical entities cannot be recognized must be included in concepts of them as spatial. A definition which does not entail logically all characters essential to what is defined, is faulty.

There are some indications that Kant was troubled over this point. Faced with the question whether the concepts of spatial entities must not include whatever is of the essence of their spatial character, he cannot—as he does in the case of the concepts of substance and cause—allege a distinction between the merely logical essence or definition and limitations of our possible intuition. He cannot do this because space is *exclusively* phenomenal. But so too is time; and the same consideration applies to 'temporal happening'. There is some evidence in his writing that, on account of such difficulty, he entertained the thought that space and time, as forms of intuition, are *not concepts*. But this, if it were to be carried through consistently, would have most disconcerting consequences; e.g., that either space and time do not have essential properties or that these cannot be *conceived* and are inexpressible; and that either there are no concepts of 'triangle', 'circle', etc., or that such concepts omit the peculiar *space* characters of these entities. And if this last should be the case, then there would be as much reason to think of supersensible triangles (not limited in *conception* by the necessities of space-representation) as to think of possible supersensible substances and causes.

It would be ungrateful and unjust to blame Kant for not foreseeing that, from genuinely adequate mathematical definitions, the theorems of mathematics might be deducible. Have we such entirely adequate concepts even today? Rather we should thank him for pointing out the indispensability of schemata of sense or construction for our empirical meanings. But however grave our difficulties in achieving analyses which reveal as analytic those truths of which we feel certain in advance of particular empirical confirmations, we must find the alternatives too disconcerting to accept. Suppose, for example, we should think to discover—as Kant did—that certain steps of mathematical demonstration are valid only by reference to necessities of space-construction or of the temporal schematism of

counting, and do not follow from their premises by logic alone. Then we must think that there is an unexpressed premise, implicit in these necessities of construction, and such that when it is elicited and made explicit, our conclusion will follow by sheer logic. And since this necessity of construction belongs essentially to space-order or time-order, we shall not adequately have defined space-things in general, or temporal entities, until it has been included in the definitive specification of them. Thus when we shall have amended our procedure by correct analysis, our demonstrated theorem will be revealed as *a priori* because analytic. To this manner of regarding the apparently synthetic character of such *a priori* truth, we shall have only two alternatives. Either we must suppose that there are characters of all spatial or all temporal things, which we recognize with certainty as essential, but which we are altogether incapable of expressing and including in definitive statements of our concepts; or else we must suppose that in addition to demonstration by reference to logical principles there is a kind of elenchus between premises and conclusion which is recognizable as valid *a priori,* but valid for no reason which we can ever express as a general rule of deduction.

14. Leaving aside any question of Kant and the correct interpretation of his doctrines, we may see the essential consideration which suggests the impossibility of synthetic judgments *a priori.* Any character in the absence of which we should refuse to apply a term, is of the essence. It is included in the signification of the term; and any definition which does not entail such an essential character represents a faulty analysis of the meaning in question. Such faults of analysis are fatally easy: almost one can say they are the rule and not the exception. Every logician from Plato down has found occasion to point out how liable we are to accept as definition some formulation which covers readily thought-of instances but fails to elicit and include characters which we should nevertheless require to be present where we apply the term defined. A connection of meaning is recognized as intrinsic; hence statement of it as holding *a priori* for all things comprehended by the term in question. But our verbal expression of these meanings may omit the ground of this intrinsic connection of them. And thus, through failure of analysis, the appearance of synthetic judgments *a priori* can arise.

Normally it is our sense meanings which are first definite, and our verbal formulations which are required to conform. In exceptional cases such as the abstract systems of modern mathematics, it may be the pattern of linguistic formulation which rules, and possible interpretation in terms of sense which is to be determined. But in any case where linguistic expression and sense meaning fail to go together and to be in accord, we must either roam the heaven of the supersensible, or take a meaning entertained to be inexpressible, or we must recognize an inconsistency or inadequacy and seek to correct the fault.

If meaning be taken exclusively as linguistic meaning, the supposition becomes possible—and has actually been advanced—that the distinction between analytic and synthetic is relative to the 'language' or 'language system'. This notion of language system is obviously derived from analogy between an 'ideal' language and a mathematical system as derived from a set of primitive propositions, including definitions. And this comparison—which in other respects has its uses—is misleading on one point which is here of importance. In a mathematical system all defined expressions are defined in terms, eventually, of primitive expressions originally taken as undefined. And these undefined expressions are not, in the abstract mathematical system itself, assigned any meaning at all. Hence the undefined expressions, and therefore all propositions of the system, are subject to 'interpretation', and will ordinarily—if not always and necessarily—be capable of more than one interpretation. But in a language—whether a real language or an artificial 'ideal' language—there could be no terms without determined meaning: symbols without meaning are not language, or even symbols. Even if meaning be construed exclusively as linguistic, terms would not, presumably, be divested of their function of naming and applying, and no expression would be construed as genuinely a term which was ambiguous.[7]

If a language be so construed by analogy to a mathematical system, and meanings be taken as exclusively linguistic, it becomes apparent in what sense it may be true that whether certain statements are 'ana-

[7] It is extremely doubtful if *any* pattern of linguistic relation to other expressions can determine meaning uniquely. And expressions having more than one consistent interpretation, in a system having syntactic structure, are not constants but a kind of variables whose possible interpretations are values of them.

lytic' or 'synthetic' is relative to the language system. To put the matter as simply as possible: it can be the case that a statement "All *A* is *C*" will be logically certifiable if there be some third term *'B'* which by the manner of its definition connects the linguistic meaning of *'A'* with the meaning of *'C'* in the requisite fashion; but if this term *'B'* and the definitions in which it occurs be dropped from the language system, then it may be that "All *A* is *C*" is no longer logically certifiable. (The parallel kind of fact may often be observed in the case of mathematical systems as derived from definitions and a set of postulates by rules of logic.)

However, it wants no extended examination of the complexities of logico-mathematical systems to reveal the egregious character of the supposition that whether a statement can be known true without empirical confirmation (as any analytic statement can) is relative to one's vocabulary. Even when we find it advantageous, from some point of view or for some purpose, to construe meanings in this exclusively linguistic fashion, by reference to definitions accepted and incorporated in a system, and to confine allowable certification of statements as analytic to derivation by accepted formal rules from such accepted definitions, it is still not allowable to forget that language would not be language if the terms which stand in such linguistic pattern did not also have fixed significations and criteria of their application. And whether two such meanings-in-application are or are not connected in a manner which is certifiable by analysis, and independently of empirical particulars, cannot possibly be relative to the vocabulary we command, however true it may be that our *discovery* of such connection can be facilitated or impeded by the presence or absence of mediating terminology, which would make deduction of it amenable to formal and accepted principles of linguistic derivation. Such a connection as that which holds between what we mean by 'square' and what we mean by 'rectangular', and the incompatibility of 'square' with 'round', need not wait upon any linguistic vehicle for their recognition. It would seem, rather, that the fact of such relationships is what rules our acceptable definitive statements and renders them significant of something more than verbiage. Such analytic connections may *become* amenable to formal derivations when the properties signified, or the things to which these properties

are essential, are defined conformably to relationships which they actually have. Without such definitive statements, conformed to analytic relationships of signification, principles of logic would not generally be sufficient for the derivation of analytic truths. And as will be obvious, the range of such truths which can be assured from logic alone, without other premises, is strictly limited, and inadequate to the range of analytic facts in general.

It has been pointed out that every analytic statement is deducible from any premise whatever; but deducibility, in the ordinary and most useful sense of that word, is a different matter from formal derivability according to some limited set of rules of linguistic derivation. The deduction of, for example, "All men are animals," from any premise one might choose, cannot be accomplished without recognizing, at some point and in some manner, the meaning of 'man' and the meaning of 'animal' and the relation of these two by virtue of which 'non-animal man' is a contradiction in terms.

Thus if definitions, or relationships such as they may state, can be made use of in deduction only if they are previously accepted linguistic formulations, and if the only deductions allowed are those according to accepted formal rules of linguistic transformation and derivation, then the class of statements derivable from accepted definitions by accepted formal rules—and perhaps called analytic—will indeed be limited according to the vocabulary of defined terms, and according to what definitions of terms are accepted, as well as by reference to the particular rules of linguistic transformation and derivation which are accepted. And the distinction of statements labelled 'analytic' from others, could not be expected to coincide with the usual one, or the class of such statements with those which commonly would be so regarded, unless the devisers of this language system should have been most circumspect and ingenious in conforming their rules of derivation to acceptable logical principles, omitting none which ordinary deduction needs, and in making their vocabulary and their accepted definitions conform to the contents of an ideal dictionary. So far as an adequate logic goes, this conformability of what is accepted in devising a language system to what is acceptable by our ordinary logical sense, is a manageable ideal. But so far as vocabulary and definition go, it is obviously not attainable within practical limits.

The point of importance here is that such devising of language systems must be aimed at some antecedently determined goal—e.g., sufficiency for arithmetic, or for mathematics in general—or else it is merely an idle game, played according to rules which are arbitrary, and with results having no serious significance. But the only kind of goal which makes this kind of game worth playing is one dictated by conformity of what is derivable from accepted definitions according to accepted rules with what are recognized as analytic truths, or some class of these. And the problem notably suggested by this reasonable intent of such procedure, is simply the question: *Why are these results accepted as analytic truths, or some class of such?* That is the problem having epistemological importance. The language system as thus skilfully devised is itself acceptable or not by reference to some antecedent criterion. If we had no *other* way of determining analytic truth, antecedent to such efforts, the efforts themselves would be pointless. And if we have such antecedent test of worth in a language system, the question of root importance, which has still to be answered, is what these criteria are and what is the source of such validity as they have.

There is, then, no objection to recognition that when a language system is conformed to whatever would make it ideal, the distinction of analytic from synthetic will coincide with the distinction between statements derivable from accepted definitions, by accepted rules of formal transformation and derivation, and those not so derivable. We merely note, in passing, the practical impossibility of presenting in brief terms any language system adequate to recognizedly analytic truth in general, and the unimportance, from any point of view, of the non-coincidence of the class of such derivable sentences in a given language system with the class of statements accept*able* as analytic, insofar as the language system falls short of the ideal.

We should also recognize that when coincidence between the results of some rigorously devised system and some class of antecedently recognized analytic truths has been measurably approached, then the question whether the remaining differences represent defects of the system or, on the other hand, are indicative of previously unnoted defects of common conception, may well become a serious and important question. But the relativity of what is labelled 'ana-

lytic' merely by reference to accepted formulations of an arbitrarily devised language system, and without reference to conformity of that system to any antecedent norm, becomes a matter of no serious consequence whatever. Since language was not in fact brought down from heaven, but is a product of human devising, the important question relates to this norm or antecedent criteria controlling acceptability of statements put forward as definitive and the admissibility of rules put forward for guidance of deductive derivations.

It is to questions of that sort which we have attempted to find the answer. Language is not language until it possesses fixed meaning, determining what expressions signify and require as essential for their application. The criteria of such applications are sense meanings; test-routines and requisite apprehensible results of these. Such criteria are, and by their function must be, capable of envisagement in advance of particular applications. And the relations between sense meanings, ascertainable by comparison of them as such criteria, and independently of particular empirical occasions, is the source of our analytic knowledge. Such knowledge, like the meanings it concerns, is essentially independent of linguistic formulation, though the modes of linguistic expression are a frequent and more or less reliable clue to the relationships of meanings so expressed.

Such test-schematisms of the applicability of expressions are, of course, of importance not only in connection with analytic truth but also, and perhaps more obviously, in connection with empirical knowledge, statement of which is synthetic. We shall have occasion to consider them more at length in Book II.

BOOK II

Empirical Knowledge

Chapter VII

The Bases of Empirical Knowledge

1. If the conclusions of the preceding discussion are to be accepted, then all knowledge has an eventual empirical significance in that all which is knowable or even significantly thinkable must have reference to meanings which are sense-representable. But this conception that even what is analytically true and knowable *a priori* is to be assured by reference to sense meanings, does not, of course, abrogate the distinction between what may be known independently of given data of sense and that which cannot be so known. Analytic statements assert some relation of meanings amongst themselves: non-analytic statements require relation of a meaning to what is found on particular occasions of experience. It is the latter class alone which may express empirical knowledge. They coincide with those the falsity of which is antecedently thinkable.

Empirical truth cannot be known except, finally, through presentations of sense. Most affirmations of empirical knowledge are to be justified, proximately, by others already accepted or believed: such justification involves a step or steps depending on logical truth. The classification as empirical will still be correct, however, if amongst such statements required to support the one in question, either deductively or inductively, there are some which cannot be assured by logic or analysis of meaning but only by reference to the content of a given experience. Our empirical knowledge rises as a structure of enormous complexity, most parts of which are stabilized in measure by their mutual support, but all of which rest, at bottom, on direct findings of sense. Unless there should be some statements, or rather something apprehensible and statable, whose truth is determined by given experience and is not determinable in any other way, there would be no non-analytic affirmation whose truth could be determined at all, and no such thing as empirical knowledge. But also there

could be no empirical knowledge if there were not meanings capable of being entertained without dependence on particular occasions. No experience or set of experiences will determine truth of a statement or a belief unless, prior to such experience, we know what we mean; know what experiences will corroborate our affirmation or supposition and what experiences will discredit it. Apprehension of the criteria by which what we intend may be recognized, must be antecedent to any verification or disproof.

We shall find, however, that most empirical statements—all those ordinarily made, in fact—are such that no single experience could decisively prove them true; and it can be doubted that any experience would conclusively prove them false. We *do* entertain assertable meanings of a sort which *can* be decisively determined to hold or not to hold; but statements having that kind of significance are not usually expressed, both because there is seldom occasion to express them and because there is no language in which they can be easily expressed without ambiguity. It is items which belong somewhere in the upper stories of our structure of empirical beliefs which can be clearly put: it is those which are at or near the bottom, required to support the whole edifice, which there is difficulty to state without implying what does not genuinely belong to the import of them. Thus the analysis of an ordinary empirical judgment such as might indicate the foundations of it in given experience, encounters a difficulty which is primarily one of formulation. The reason for this is something which must be understood and appreciated at the start, if we are not to fall into some kind of misconception which would be fatal for the understanding of empirical knowledge in general.

2. Let us turn to the simplest kind of empirical cognition; knowledge by direct perception. And let us take two examples.

I am descending the steps of Emerson Hall, and using my eyes to guide my feet. This is a habitual and ordinarily automatic action. But for this occasion, and in order that it may clearly constitute an instance of perceptual cognition instead of unconsidered behavior, I put enough attention on the process to bring the major features of it to clear consciousness. There is a certain visual pattern presented to me, a feeling of pressure on the soles of my feet, and certain muscle-sensations and feelings of balance and motion. And these items mentioned are fused together with others in one moving

whole of presentation, within which they can be genuinely elicited but in which they do not exist as separate. Much of this presented content, I should find it difficult to put in words. I should find it difficult because, for one reason, if I tried to express it precisely in objectively intelligible fashion, I should have to specify such items as particular muscles which are involved and the behavior of them, and other things of this kind; and I do not in fact know which muscles I am using and just how. But one does not have to study physiology in order to walk down stairs. I know by my feelings when I am walking erect—or I think I do. And you, by putting yourself in my place, know how I feel—or think you do. That is all that is necessary, because we are here speaking of direct experience. You will follow me through the example by using your imagination, and understand what I mean—or what *you* would mean by the same language—in terms of your own experience.

The experience I have as I approach the steps and look down is familiar: it is qualitatively specific, and undoubtedly supplies the clues on which I act. For example, if I had approached the steps with eyes shut, I should have been obliged to behave quite differently in order to avoid falling. Let us single out the visual part of the presentation for particular consideration. Ordinarily I have no occasion to express empirical content of this sort: it performs its office of guiding my behavior and thereupon lapses from consciousness. But if I attempt to express it, I might say: "I see what looks like a flight of granite steps, fifteen inches wide and seven inches deep, in front of me." The locution 'looks like' represents my attempt to signalize the fact that I do not mean to assert that the steps *are* granite, or have the dimensions mentioned, or even that in point of absolutely certain fact there are any steps at all. Language is largely pre-empted to the assertion of objective realities and events. If I wish, as I now do, to confine it to expression of a presented content, my best recourse is, very likely, to express what I take to be the objective facts this presentation signalizes and use locutions such as 'looks like', 'tastes like', 'feels like', or some other contextual cue, to mark the intention on this occasion to restrict what I say to the fact of presentation itself as contrasted with the objective state of affairs more usually signified by the rest of my statement.

This given presentation—what looks like a flight of granite steps before me—leads to a prediction: "If I step forward and down, I shall come safely to rest on the step below." Ordinarily this prediction is unexpressed and would not even be explicitly thought. When so formulated, it is altogether too pedantic and portentous to fit the simple forward-looking quality of my conscious attitude. But unless I were prepared to assent to it, in case my attention were drawn to the matter, I should not now proceed as I do. Here again, the language I use would ordinarily be meant to express an objective process involving my body and a physical environment. But for the present occasion, I am trying to express the direct and indubitable content of my experience only, and, particularly, to elicit exemplary items which mark this conscious procedure as cognitive. As I stand momentarily poised and looking before me, the presented visual pattern leads me to predict that acting in a certain manner—stepping forward and down—will be followed by a further empirical content, equally specific and recognizable but equally difficult to express without suggesting more than I now mean—the felt experience of coming to balance on the step below.

I adopt the mode of action envisaged; and the expected empirical sequent actually follows. My prediction is verified. The cognitive significance of the visual presentation which operated as cue, is found valid. This functioning of it was a genuine case of perceptual knowledge.

Let us take another and different example; different not in any important character of the situation involved, but different in the manner in which we shall consider it.

I believe there is a piece of white paper now before me. The reason that I believe this is that I see it: a certain visual presentation is given. But my belief includes the expectation that so long as I continue to look in the same direction, this presentation, with its qualitative character essentially unchanged, will persist; that if I move my eyes right, it will be displaced to the left in the visual field; that if I close them, it will disappear; and so on. If any of these predictions should, upon trial, be disproved, I should abandon my present belief in a real piece of paper before me, in favor of belief in some extraordinary after-image or some puzzling reflection or some disconcerting hallucination.

I do look in the same direction for a time; then turn my eyes; and after that try closing them: all with the expected results. My belief is so far corroborated. And these corroborations give me even greater assurance in any further predictions based upon it. But theoretically and ideally it is not completely verified, because the belief in a real piece of white paper now before me has further implications not yet tested: that what I see could be folded without cracking, as a piece of celluloid could not; that it would tear easily, as architect's drawing-cloth would not; that this experience will not be followed by waking in quite different surroundings; and others too numerous to mention. If it is a real piece of paper before me now, then I shall expect to find it here tomorrow with the number I just put on the corner: its reality and the real character I attribute in my belief imply innumerable possible verifications, or partial verifications, tomorrow and later on.

But looking back over what I have just written, I observe that I have succumbed to precisely those difficulties of formulation which have been mentioned. I have here spoken of predictable results of further tests I am not now making; of folding the paper and trying to tear it, and so on. Finding these predictions borne out would, in each case, be only a partial test, theoretically, of my belief in a real piece of paper. But it was my intention to mention predictions which, though only partial verification of the objective fact I believe in, could themselves be decisively tested. And there I have failed. That the paper, upon trial, would really be torn, will no more be evidenced with perfect certainty than is the presence of real paper before me now. It—provided it take place—will be a real objective event about which, theoretically, my momentary experience could deceive me. What I meant to speak of was certain expected experiences—of the *appearance and feeling* of paper being folded; of its *seeming* to be torn. These predictions of *experience,* would be decisively and indubitably borne out or disproved if I make trial of them. But on this point, the reader will most likely have caught my intent and improved upon my statement as made.

3. Let us return to the point we were discussing. We had just noted that even if the mentioned tests of the empirical belief about the paper should have been made, the result would not be a theoretically complete verification of it because there would be further and

similar implications of the belief which would still not have been tested. In the case of an important piece of paper like a deed or a will, or an important issue like the question whether "Midsummer Night's Dream" was written by Shakspere or by Bacon, such implications might be subject to test years or even centuries afterward. And a negative result might then rationally lead to doubt that a particular piece of paper lay on a certain desk at a certain time. My present example is no different except in importance: what I now believe has consequences which will be determinable indefinitely in the future.

Further, my belief must extend to any predictions such that I should accept the failure of them as disproof of the belief, however far in the future the time may be which they concern. And my belief must imply as probable, anything the failure of which I should accept as tending to discredit this belief.

Also it is the case that such future contingencies, implied by the belief, are not such that failure of them can be absolutely precluded in the light of prior empirical corroborations of what is believed. However improbable, it remains thinkable that such later tests could have a negative result. Though truth of the belief itself implies a positive result of such later tests, the evidence to date does not imply this as more than probable, even though the difference of this probability from theoretical certainty should be so slight that practically it would be foolish to hesitate over it. Indeed we could be too deprecatory about this difference: if we interrogate experience we shall find plenty of occasions when we have felt quite sure of an objective fact perceived but later circumstance has shocked us out of our assurance and obliged us to retract or modify our belief.

If now we ask ourselves how extensive such implied consequences of the belief are, it seems clear that in so simple a case as the white paper supposedly now before me, the number of them is inexhaustible. For one thing, they presumably will never come to an end in point of time: there will never be a time when the fact—or non-fact—of this piece of paper now lying on my desk will not make some trivial difference. If that were not the case, then it must be that at some future date it will become not only practically but theoretically impossible that there should be a scintilla of evidence either for or against this supposed present fact. It would not be possible for any-

one even to think of something which, if it should then occur, would be such evidence. That even the least important of real events will thus make no conceivable difference after a certain time, is not plausible. If that should be so, then what belongs to the past, beyond a certain stretch, could be something worse than an unknowable thing in itself; it could be such that the very supposition of it could make no conceivable difference to anyone's rational behavior; and any alleged interest in its truth or falsity could be shown to be fictitious or pointless, or to be confined to having others assert or assent to a certain form of words. In that sense, this belief would then become meaningless, having no conceivable consequence of its truth or falsity which would be testable or bear upon any rational interest.

It will be well for the reader to come to his own clear decision on this question; whether it is or is not the case that the truth of an objective empirical belief has consequences which are inexhaustible and are such that there is no limited number of them whose determination theoretically and absolutely precludes a negative result of further tests and hence *deductively* implies all further and as yet untested consequences. It will be well to become thus clear because this point has decisive consequences for the nature of empirical knowledge. Also these consequences are disconcerting: those who are more interested in pretty theories than in facts will be sure to repudiate this conception, whether they acknowledge such repudiation or merely pass this point without making any uncomfortable admissions.

In fact, one objection to this conception is likely to occur to us promptly. It will strike us as dubious that we can believe, all in a minute, something whose consequences—which by implication we must also be believing—are not finitely enumerable. But that objection is not one which offers serious difficulty: what it reflects is principally a necessary comment on 'believing' and 'knowing'; and it cannot be more implausible than that we can know anything at all. This difficulty concerns the sense in which the 'consequences' of a belief—those statements whose proven falsity would discredit it—are 'included in' the belief. A little reflection will remind us that *every* proposition has innumerable consequences, deducible from it by laws of logic: or if that fact has escaped us, the logicians can easily make it clear, by providing us with formulas by which we can, from any given premise you please, deduce different conclusions without

limit, so long as we can think of new terms to write in certain places in these formulas. The kind of deducible consequences of a proposition which such formulas would give are not entirely comparable to the kind we are here thinking of: the nature of the kind of consequences here in question will call for further examination; and other important questions are suggested, though we would best not pause upon them here. But on the point at issue, the comparison holds: it cannot be doubted that belief in *any* proposition commits us to innumerable consequences, disproof of any one of which would require rationally that the belief be retracted, whether we explicitly think of these consequences in believing what implies them or not. And surely, what is supposed to be or asserted to be empirical fact, cannot be supposed or asserted irrespective of what would, at some future time, be evidence concerning it, and irrespective of further possible tests the failure of which would discredit our supposition or assertion. The fact that such consequences of what we affirm are inexhaustively numerous, cannot stand as a valid objection to this conception.

4. Let us now give attention to our two examples, and especially to the different manner in which the two have been considered. Both represent cases of knowledge by perception. And in both, while the sensory cues to this knowledge are provided by the given presentation, the cognitive significance is seen to lie not in the mere givenness of these sensory cues but in prediction based upon them. In both cases, it is such prediction the verification of which would mark the judgment made as true or as false.

In the first case, of using my eyes to guide me down the steps, the prediction made was a single one. Or if more than one was made, the others would presumably be like the one considered and this was taken as examplary. This judgment is of the form, "If I act in manner *A*, the empirical eventuation will include *E*." We found difficulty in expressing, in language which would not say more than was intended, the content of the presentation which functioned as sensory cue. We encountered the same difficulty in expressing the mode of action, *A*, as we envisaged it in terms of our own felt experience and as we should recognize it, when performed, as the act we intended. And again this difficulty attended our attempt to express that expected

presentational eventuality, *E*, the accrual of which was anticipated in our prediction.

As we considered this first example, the attempt was to portray it as a case in which a directly apprehensible presentation of a recognizable sort functioned as cue to a single prediction; the prediction that a certain directly recognizable act would lead to a particular and directly recognizable result. If we are to describe this cognitive situation truly, all three of these elements—the presentation, the envisaged action, and the expected consequence—must be described in language which will denote immediately presented or directly presentable contents of experience. We attempted to make clear this intent of the language used by locutions such as 'looks like', 'feels like'; thus restricting it to what would fall completely within the passage of experience in question and what this passage of experience could completely and directly determine as true. For example, if I should say, "There is a flight of granite steps before me," I should not merely report my experience but assert what it would require a great deal of further experience to corroborate fully. Indeed, it is questionable whether any amount of further experience could put this assertion theoretically beyond all possibility of a rational doubt. But when I say, "I see what *looks like* granite steps before me," I restrict myself to what is given; and what I intend by this language is something of which I can have no possible doubt. And the only possible doubt *you* could have of it—since it concerns a present experience of mine—is a doubt whether you grasp correctly what I intend to report, or a doubt whether I am telling the truth or a lie.

This use of language to formulate a directly presented or presentable content of experience, may be called its *expressive* use. This is in contrast to that more common intent of language, exemplified by, "I see (what in fact *is*) a flight of granite steps before me," which may be called its *objective* use. The distinctive character of expressive language, or the expressive use of language, is that such language signifies *appearances*. And in thus referring to appearances, or affirming what appears, such expressive language *neither asserts any objective reality of what appears nor denies any*. It is confined to description of the content of presentation itself.

In such expressive language, the cognitive judgment, "If I act in manner *A*, the empirical eventuality will include *E*," is one which

can be verified by putting it to the test—supposing I can in fact put it to the test; can act in manner *A*. When the hypothesis of this hypothetical judgment is made true by my volition, the consequent is found true or found false by what follows; and this verification is decisive and complete, because nothing beyond the content of this passage of experience was implied in the judgment.

In the second example, as we considered it, what was judged was an *objective fact*: "A piece of white paper is now before me." This judgment will be false if the presentation is illusory; it will be false if what I see is not really paper; false if it is not really white but only looks white. This objective judgment also is one capable of corroboration. As in the other example, so here too, any test of the judgment would pretty surely involve some way of acting—*making* the test, as by continuing to look, or turning my eyes, or grasping to tear, etc.—and would be determined by finding or failing to find some expected result in experience. But in this example, if the result of any single test is as expected, it constitutes a partial verification of the judgment only; never one which is absolutely decisive and theoretically complete. This is so because, while the judgment, so far as it is significant, contains nothing which could not be tested, still it has a significance which outruns what any single test, or any limited set of tests, could exhaust. No matter how fully I may have investigated this objective fact, there will remain some theoretical possibility of mistake; there will be further consequences which must be thus and so if the judgment is true, and not all of these will have been determined. The possibility that such further tests, if made, might have a negative result, cannot be altogether precluded; and this possibility marks the judgment as, at the time in question, not fully verified and less than absolutely certain. To quibble about such possible doubts will not, in most cases, be common sense. But we are not trying to weigh the degree of theoretical dubiety which commonsense practicality should take account of, but to arrive at an accurate analysis of knowledge. This character of being further testable and less than theoretically certain characterizes every judgment of objective fact at all times; every judgment that such and such a real thing exists or has a certain objectively factual property, or that a certain objective event actually occurs, or that any objective state of affairs actually is the case.

A judgment of the type of the first example—prediction of a particular passage of experience, describable in expressive language—may be called *terminating*. It admits of decisive and complete verification or falsification. One of the type of the second example—judgment of objective fact which is always further verifiable and never completely verified—may be called *non-terminating*.

However, if the suggested account should be correct, then the judgment of objective fact implies nothing which is not theoretically verifiable. And since any, even partial, verification could be made only by something disclosed in *some* passage of experience, such an objective and non-terminating judgment must be translatable into judgments of the terminating kind. Only so could confirmation of it in experience come about. If particular experiences should not serve as its corroborations, then it cannot be confirmed at all; experience in general would be irrelevant to its truth or falsity; and it must be either analytic or meaningless. Its non-terminating character reflects the fact, not that the statement implies anything which is not expressible in some terminating judgment or other, but that no limited set of such terminating judgments could be sufficient to exhaust its empirical significance.

To be sure, the sense of 'verifiable' which is appropriate to the principle that a statement of supposed objective fact which should not be verifiable would be meaningless, is one which will call for further consideration. 'Verifiable', like most 'able' words, is a highly ambiguous term, connoting conditions which are implied but unexpressed. For example, the sense in which it is verifiable that there are lines on the other side of this paper, is somewhat different from the sense in which it is verifiable that there are mountains on the other side of the moon. But such various senses in which 'verifiable' may be taken, concern the sense in which the verifying experience is 'possible'; not the character of the experience which would constitute verification. And in general we may safely say that for *any* sense in which statement of objective fact is 'meaningful', there is a coordinate and indicated sense in which it is 'verifiable'.

It may also be the case that, for some judgments at least—those called 'practically certain'—a degree of verification may be attained such that no later confirmation can render what is presently judged more certain than it is at the moment. That turns on considerations

which we are not yet ready to examine. But as will appear, these postponed considerations further corroborate, instead of casting doubt upon, the conclusion that no objective statement is theoretically and completely certain. For that conclusion—which is the present point—the grounds mentioned would seem to be sufficient.

5. The conception is, thus, that there are three classes of empirical statements. First, there are formulations of what is presently given in experience. Only infrequently are such statements of the given actually made: there is seldom need to formulate what is directly and indubitably presented. They are also difficult or—it might plausibly be said—impossible to state in ordinary language, which, as usually understood, carries implications of something more and further verifiable which *ipso facto* is not given. But this difficulty of formulating precisely and only a given content of experience, is a relatively inessential consideration for the analysis of knowledge. That which we should thus attempt to formulate plays the same role whether it is expressed, or could be precisely expressed, or not. Without such apprehensions of direct and indubitable content of experience, there could be no basis for any empirical judgment, and no verification of one.

To this there is no alternative. Even if one should wish to suppose that *all* empirical statements are affected by uncertainty; one could not—short of an absurd kind of skepticism—suppose them all to be doubtful in the same degree that they would be if there were no experience. And if there are some empirical statements not thus utterly doubtful, then there must be something which imparts to them this status of better-than-utterly-doubtful. And that something must be an apprehended fact, or facts, of experience. If facts of this order should not be clearly expressible in language, they would still be the absolutely essential bases of all empirical knowledge.

Those thinkers who approach all problems of analysis from the point of view of language, have raised numerous difficulties over this conception of the empirically given. We shall not pause to clear away all the irrelevant issues with which the point has thus been surrounded. That point is simply that there is such a thing as experience, the content of which we do not invent and cannot have as we will but merely find. And that this given is an element in perception but not the whole of perceptual cognition. Subtract, in what we

say that we see, or hear, or otherwise learn from direct experience, *all that conceivably could be mistaken;* the remainder is the given content of the experience inducing this belief. If there were no such hard kernel in experience—e.g., what we *see* when we think we see a deer but there is no deer—then the word 'experience' would have nothing to refer to.

It is essential to remember that in the statement or formulation of what is given (if such formulation be attempted), one uses language to *convey* this content, but what is *asserted* is what the language is intended to convey, not the correctness of the language used. If, for example, one say, "I see a red round something," one assumes but does *not* assert, "The words 'red' and 'round' correctly apply to something now given." This last is not a given fact of present experience but a generalization from past experience indicating the customary use of English words. But one does not have to know English in order to see red; and that the word 'red' applies to this presently given appearance, is not a fact given in that experience.

Knowledge itself might well get on without the formulation of the immediately given: what is thus directly presented does not require verbalization. But the *discussion* of knowledge hardly can, since it must be able somehow to refer to such basic factualities of experience. If there should be no understood linguistic mode of telling what is given, the analysis of knowledge would have to invent one, if only by arbitrary figure of speech. But our situation is hardly so bad as that: such formulations can be made, in a manner the intent of which, at least, is recognizable by what we have called the expressive use of language, in which its reference is restricted to appearances—to what is given, as such.

Apprehensions of the given which such expressive statements formulate, are not judgments; and they are not here classed as knowledge, because they are not subject to any possible error. Statement of such apprehension is, however, true or false: there could be no doubt about the presented content of experience as such at the time when it is given, but it would be possible to tell lies about it.[1]

[1] It would be possible to take statements of the given as involving judgment of correspondence between the character of the given itself and a fixed (expressive) meaning of words. But a judgment, "What is given is what '———' expresses" is not expression of the given but of a relation between it and a certain form of words. There is such a 'judgment of formulation' in the case of *any* statable fact. Let *'P'* be an empirical statement which says nothing about

Second, there are terminating judgments, and statements of them. These represent some prediction of further possible experience. They find their cue in what is given: but what they state is something taken to be verifiable by some test which involves a way of acting. Thus terminating judgments are, in general, of the form, "If *A* then *E*," or "*S* being given, if *A* then *E*," where '*A*' represents some mode of action taken to be possible, '*E*' some expected consequent in experience, and '*S*' the sensory cue. The hypothesis '*A*' must here express something which, if made true by adopted action, will be *indubitably* true, and not, like a condition of my musculature in relation to the environment, an objective state of affairs only partially verified and not completely certain at the time. And the consequent '*E*' represents an eventuality of *experience,* directly and certainly recognizable in case it accrues; not a resultant objective event, whose factuality could have, and would call for, further verification. Thus both antecedent and consequent of this judgment, "If *A* then *E*," require to be formulated in expressive language; though we shall not call it an expressive statement, reserving that phrase for formulations of the given. Also, unlike statements of the given, what such terminating judgments express is to be classed as knowledge: the prediction in question calls for verification, and is subject to possible error.

Third, there are non-terminating judgments which assert objective reality; some state of affairs as actual. These are so named because, while there is nothing in the import of such objective statements which is intrinsically unverifiable, and hence nothing included in them which is not expressible by some terminating judgment, nevertheless no limited set of particular predictions of empirical eventualities can completely exhaust the significance of such an objective statement. This is true of the simplest and most trivial, as much as of the most important. The statement that something is blue, for example, or is square—as contrasted with merely looking blue or appearing to be square—has, always, implications of further possible experience, be-

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language. "This fact is correctly stated by '*P*'" is then a different statement, stating a relation between the fact which '*P*' asserts and the verbal formulation '*P*'. Correlatively, it is always possible to make a mistake of formulation, even where there could be no possible error concerning what is formulated. (In Book I, where we were frequently concerned with matters of logic, we used small letters, *p*, *q*, etc., to represent statements, following the current logical usage. But from this point on, it will make for easier reading if we represent statements by capital letters, *P*, *Q*, etc.)

yond what should, at any particular time, have been found true. Theoretically complete and absolute verification of any objective judgment would be a never-ending task: any actual verification of them is no more then partial; and our assurance of them is always, theoretically, less than certain.

Non-terminating judgments represents an enormous class; they include, in fact, pretty much all the empirical statements we habitually make. They range in type from the simplest assertion of perceived fact—"There is a piece of white paper now before me"—to the most impressive of scientific generalizations—"The universe is expanding." In general, the more important an assertion of empirical objective fact, the more remote it is from its eventual grounds. The laws of science, for example, are arrived at by induction from inductions from inductions - - -. But objective judgments are all alike in being non-terminating, and in having no other eventual foundation than data of given experience.

6. The point of distinguishing expressive statements of given data of experience from predictive and verifiable statements of terminating judgments, and both of them from statements of objective fact, representing non-terminating judgments, is that without such distinctions it is almost impossible so to analyze empirical knowledge as to discover the grounds of it in experience, and the manner of its derivation from such grounds.

All empirical knowledge rests ultimately upon this kind of evidence and calls for the corroboration constituted by the facts of presentation. The cue to any statement of perceived actuality is in such presentation; and if there is to be any further confirmation of such statement, that can come about only through some further presentation. But unless the fact of presentation itself be distinguished from the objective fact it is cue to or corroborates, we shall never be able to understand or formulate the manner in which objective belief receives its warrant, or to explain how a belief which has some justification may nevertheless prove later to have been mistaken.

One says, for example, "I see a sheet of white paper," "I hear a bell," "I smell honeysuckle." Some datum of sense gives rise to the belief expressed. But what is believed does not coincide with the fact of sense: the belief expressed may be mistaken and the experience, as we say, 'illusory'; whereas the actual character of the given datum

as such, is indubitable. If the belief expressed is corroborated by further investigation, there will be, again, data of sense. But these additional and corroborating data will not be the totality of the objective fact believed in and corroborated; and expression of the verifying event of experience will not coincide with expression of this objective fact.

Again; if the statement of objective fact, in whatever degree it may have become already assured, is further significant—if it implies what could be further and empirically determined but is not strictly deducible from past and present findings—then always it signifies something verifiable but as yet unverified, and is, in corresponding measure, itself subject to some theoretical uncertainty. We have concluded that all statements of objective fact do have this character. That conclusion being premised, it becomes essential to distinguish statements of the given and presently certain, as well as statements of terminating judgments which later experience may render certain, from such statements of objective fact. Otherwise it becomes impossible to assure objective truth as even probable. If what is to confirm the objective belief and thus show it probable, were itself an objective belief and hence no more than probable, then the objective belief to be confirmed would only probably be rendered probable. Thus unless we distinguish the objective truths belief in which experience may render probable, from those presentations and passages of experience which provide this warrant, any citation of evidence for a statement about objective reality, and any mentionable corroboration of it, will become involved in an indefinite regress of the merely probable—or else it will go round in a circle—and the probability will fail to be genuine. If anything is to be probable, then something must be certain. The data which eventually support a genuine probability, must themselves be certainties. We do have such absolute certainties, in the sense data initiating belief and in those passages of experience which later may confirm it. But neither such initial data nor such later verifying passages of experience can be phrased in the language of objective statement—because what can be so phrased is never more than probable. Our sense certainties can only be formulated by the expressive use of language, in which what is signified is a content of experience and what is asserted is the givenness of this content.

It is not, of course, intended to deny here that one objective statement can be confirmed by others; or to maintain that all corroborations of belief are by direct reference to immediate experience. Some objective beliefs are deductively derivable from others; and many—or even most—objective beliefs are inductively supported by other, and perhaps better substantiated, objective beliefs. It is only contended that in such cases where one objective belief is corroborated or supported by another, (1) such confirmation is only provisional or hypothetical, and (2) it must have reference *eventually* to confirmations by direct experience, which alone is capable of being decisive and providing any sure foundation. If one objective statement, *'Q'*, is supported by another objective statement, *'P'*, the assurance of the truth of *'Q'* is, so far, only as good as the evidence for *'P'*. Eventually such evidence must go back to something which is certain—or, as we have said, go round in a circle and so fail of any genuine basis whatever. Two propositions which have some *antecedent* probability may, under certain circumstances, become *more* credible because of their congruence with one another. But objective judgments *none* of which could acquire probability by direct confirmations in experience, would gain no support by leaning up against one another in the fashion of the 'coherence theory of truth'. No empirical statement can become credible without a reference to experience.

That we may have before us some presentation whose character as given we can be sure of, and that at the same time we know, through or by means of this presentation, some objective thing or event, is not here denied but affirmed. What is immediate and certain, however, is not the objective thing, event, or state of affairs which is known, but the content of experience which evidences it—as having some probability, which may be 'practical certainty'.[2] That the con-

[2] This statement has no implication of a dualistic or phenomenalistic interpretation of the relation of mind to reality in cognition. It is still possible, in terms of the conception here presented, to affirm that the content of presentation is an authentic part or aspect or perspective which is ingredient in the objective reality known. Such language is figurative, when measured against the ordinary meaning of 'part' or the ordinary meaning of 'ingredients' of objective things. But the view thus figuratively expressed may be consistently and literally correct—provided one is prepared to accept the implications that an elliptical appearance may be genuine ingredient of a real round penny, the bent stick in the water an ingredient of the really straight stick, and one's nightmare an ingredient of mince pie for supper. The hiatus implied, in the view here presented, between immediate sense presentation and objective reality thus evidenced, is not the denial that the content of presentation may be 'numerically identical'

tent of any such belief is, at least theoretically, completely verifiable in experience, is also affirmed. But such *complete* verification of the belief, is at no time wholly given.

7. Perceptual knowledge has two aspects or phases; the givenness of something given, and the interpretation which, in the light of past experience, we put upon it. In the case of perceiving the white paper, what is given is a certain complex of sensa or qualia—what Santayana calls an 'essense'.[3] This is describable in expressive language by the use of adjectives of color, shape, size, and so on. If our apprehension ended with this, however, there would be no knowledge here; the presentation would *mean* nothing to us. A mind without past experience would have no knowledge by means of it: for such a mind the apprehension would be exhausted in mere receptivity of presentation, because no interpretation would be suggested or imposed.

If anyone choose to extend the word 'knowledge' to such immediate apprehensions of sense—and many do, in fact—there is no fault to be found with that usage. Such apprehensions of the given are characterized by certainty, even though what it is that we are thus certain of, is something difficult of clear and precise expression when separated from the interpretation put upon it. And without such sense-certainties, there could be no perceptual knowledge, nor any empirical knowledge at all. We have chosen not to use the word 'knowledge' in this way: and if it be given this broader meaning which would include apprehension of the immediate, it must then be remembered that one cannot, at the same time require that knowledge in general shall possess a signification of something beyond the cognitive experience itself or that it should stand in contrast with some possible kind of error or mistake. Apprehension of the given, by itself, will meet neither of these requirements.

It is the interpretation put upon this presentation which constitutes

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with a part or aspect of the objective reality, but the denial that it is ever the whole of the objective reality believed in, or that it is ever unambiguously decisive of the statement of an objective property or existence of a specific objective thing or event. The kind of 'ingredients' which the sense-presented always are, can be 'ingredient' in such very different things and objective states of affairs! On the other hand, there is no implication here that the stuff of physical things is mind-stuff; or that both mind and matter are constituted out of neutral stuff. There is no implication at all on this metaphysical point.

[3] Though it would appear that Santayana calls some other things essences also.

belief in or assertion of some objective fact. This interpretation is imposed in the light of past experience. Because I have dealt with writing paper before, this presently given white oblong something leads me to believe there is a sheet of white paper before me. This interpretation is, in some measure, verified by the fact of the presentation itself: my belief has some degree of credibility merely because this presentation is given—a degree of credibility commensurate with the *im*probability of exactly such presentation as this if there were *not* a piece of white paper before me. For the rest, my belief is significant of other experience, taken to be in some sense possible, but not now given. This significance ascribed to the fact of the presentation and expressed by statement of the belief aroused, is equivalent to what *would be* accepted as complete verification of it. The *practical* possibility of such envisaged verification, or of any part of it, would not be here in point: it is the meaning which is here in question. When I entertain this interpretation of the given experience, this belief in objective fact, I must know what I thus mean in terms of experience I can envisage, if the meaning is genuine. Otherwise the truth of it would not be even theoretically determinable.

To construe this interpretation of the given experience—this belief in objective fact which it arouses—as verifiable and as something whose significance can be envisaged in terms of possible confirmations of it, is what dictates that the statement of this objective belief must be translatable into terms of passages of possible experience, each of which would constitute some partial verification of it; that is, it must be translatable into the predictive statements of terminating judgments. If we include the whole scope of the objective statement believed, endlessly many such predictions will be contained in its significance. This is correlative to the fact that, no matter to what extent the objective belief should have been, at any time, already verified, the truth of it will still make some difference to further possible experience; and correlative to the further fact that, at any moment, the truth of this objective assertion is something which I might now proceed to confirm in more than one way. That test of it which I choose to make, does not negate or extrude from the objective intent of the belief, what has reference to *other* possible confirmations which I choose *not* to put to the test. Thus it is not possible to make all possible confirmations of an objective belief or statement, and complete the verification of it. (Which is no more a contradiction than

is the fact that one can never finish counting all the numbers that can be counted.)

The fact that both the meaning and the verification of empirical belief concern the predictions of further possible experience which the truth of it implies, makes the terminating judgments into which it is thus translatable centrally important for understanding the nature of empirical knowledge. We turn to that topic in the next chapter. The remainder of the present chapter will be occupied with certain further small matters which concern the conception of the meaning of objective empirical statements which the above account implies.

8. This conception that a statement of objective empirical fact is translatable into some set of predictive statements each of which formulates some possible confirmation in direct experience, the whole set of such statements being inexhaustible in number, will be sure to seem puzzling in certain ways and to suggest certain objections. Most of these questions which will arise are such as could not be answered satisfactorily here without anticipating much of what is to follow; and when the discussion of later chapters is before us, the answer to be given will be—we hope—sufficiently clear. But it seems well to take preliminary notice of them here.

In the first place, the statement that the cognitive meaning of an objective statement is correlative with that of some set of predictive statements, each representing a theoretically possible confirmation, is not quite accurate. As has been indicated, the present sensory cue in given experience is already a partial verification and certainly has its place in the cognitive significance of the belief aroused. Amendment to include this should be understood. As has been pointed out, the givenness of present data may constitute a partial verification which renders the belief it arouses highly probable, since any datum of fact, *D*, justifies judgment that '*P*' is probable, in whatever degree *D* itself would be *im*probable if '*P*' should be false. My experience at this moment, for example, justifies my belief in a piece of white paper before me as probable in the degree in which it is improbable that I should have just this present given content of experience if there were *not* such a piece of paper here. And that, I may say, amounts to practical certainty. It is not strictly the present data of sense, all by themselves, which warrant this assurance: an infant seeing what I

now see, would not believe what I believe or find my belief justifiable to him if he could understand it and assess it reasonably. It is my data of sense together with certain further beliefs, of which I feel assured, which are in point—that is a complication which must later engage us. But perhaps this notice of the significance of presently given experience in the verification of belief aroused, will be sufficient to remove one possible misunderstanding which might impede us.

Another possible point of difficulty concerns the interminable character of complete verification. It is difficult to deny that verification of objective fact is thus interminable, in view of the consideration that every objective fact has at all times some further empirical significance and later verifiability: the reader will, we hope, feel the weight of that consideration without additional discussion. But if the difficulty should be that where complete verification is interminable, we can never *come any nearer* to complete assurance of what we believe, and verification seems thus to fall into a situation affected by Zeno's paradoxes, then that difficulty can be removed. The interminability of verification—supposing that at *no* point it will become the situation that all further possible confirmations are *deducible* from the fact of those already made—does genuinely make it impossible to raise the probability of the objective belief to be verified to theoretical certainty. But it does not prevent new confirmations from increasing the antecedent probability. Unless skepticism is the only possible outcome of a just examination of empirical knowledge—and nothing here justifiably suggests that—it must be the case that every new confirmation of an objective belief (unless this new confirmation should be *deductively* and certainly predictable from past ones) must increase the antecedent probability of what is believed; and by the same token must increase the antecedent probability of each and every further possible but as yet untested confirmation of it.[4] Thus although the probability of empirical belief can never reach theoretical certainty, there is nothing in the present conception which denies the possibility of its being increased indefinitely, and nothing *a priori* in-

[4] The principle governing such increase of antecedent probability by additional confirmations, is the general principle of 'inverse probability', already alluded to: after confirming events $V_1, V_2 \ldots V_n$, a new confirmation, V_{n+1} increases the probability of 'P' in measure as event V_{n+1}, was antecedently improbable if $V_1, V_2, \ldots V_n$ be the case but 'P' be false.

compatible with its being increased to any degree whatever, short of certainty.

Perhaps it is another sort of difficulty, however, which occurs to us; it strikes us as fantastic that the meaning of an objective statement should consist in an unlimited number of predictions of possible future confirmations (together with what is presently given). This kind of possible objection has a number of different aspects.

For one, it concerns the possible logical equivalence of a verbally simple objective statement such as "There is a piece of white paper now before me" with an unlimited set of predictions of its possible confirmations. The reader will already have observed that, however surprising it may be that a simple statement '*P*' should be equivalent to an unlimited set of other statements, there is no difficulty about that beyond the difficulty that such an unlimited set of statements cannot be conjointly stated. As has been noted, every statement, '*P*', has an unlimited number of implications, 'Q_1', 'Q_2', 'Q_3', ... And there will hardly be objection to the supposition that there is nothing in the meaning of a statement beyond what is contained in some implication of it.

The reader will already have observed a connection between what was said about sense meaning in Book I and the present analysis of empirical objective statements. And perhaps he is puzzled to determine whether that earlier account and the one here given are compatible. We there defined sense meaning as the criterion in terms of sense by which the application of expressions is determined. And we indicated, by a forward reference, the necessity of further consideration of the question whether the application of a meaning would be determinable with theoretical certainty. But we did not observe the reason for such possible doubt. As we now see, the sense meaning of assertion that a thing is square or white or hard, must be in terms of the terminating judgments implied in attribution of these properties. It is only such terminating judgments which express the meaning of objective attributions directly in terms of sense. And by the same token, a sense meaning must have a kind of complexity not previously noted. The criterion of objective squareness, for example, cannot be expressed as a criterion of sense determination by specification of a single test which could be carried out with completely decisive result. Because no actual test would be thus theoretically decisive. Rather,

a sense meaning is a criterion of possible *confirmations,* and would be exhibited *in extenso* by the totality of terminating judgments implied or included in objective attribution of the property or character to be tested.

However, this fact that a sense meaning represents a criterion of confirmations and not of any decisive verification which is possible, does not prejudice the possibility of comparing sense meanings amongst themselves with a result which is decisive. (It was this which was in point in Book I.) It is still possible in these terms to compare, for example, square and rectangle, or square and round, with results which will be certain; because while we cannot perhaps determine beyond peradventure that a thing is absolutely square or is rectangular, we can nevertheless determine *a priori* that *if* it is square it is rectangular. We can determine this through comparison of these sense meanings as criteria of confirmation: through observing that whatever confirms squareness must *ipso facto* confirm rectangularity in like degree; and that what disconfirms rectangularity must in like measure disconfirm squareness. Similarly we may observe from inspection of the criteria of possible confirmations, that whatever confirms the applicability of 'square' will disconfirm the applicability of 'round'; and hence determine *a priori* that nothing can be both square and round.

There are further complicating considerations which must later be remarked. But already we may observe that the set of possible confirmations, verification of which would together constitute verification of an objective statement, also exhibit discursively the sense meaning which this objective empirical statement has. Perhaps that is as clear a way as any of indicating what the phrase 'sense meaning' would signify, as applied to a statement of objective empirical fact: the sense meaning of such a statement coincides with what it would mean, in terms of experience, to determine fully that it is true. This will very likely be met by the objection that in such terms the meaning of any objective statement could not be specified: exhaustive recital of all that the truth of it would imply in terms of possible experience cannot finitely be accomplished. But is not that exactly the fact? I cannot tell you precisely and completely and in all detail what it signifies that there is a piece of white paper on this desk. Yet if I did not know what that means, in just those terms, I could not find out whether it is the case—could not verify it. I can tell you this 'well

enough' for all practical purposes; can indicate a few critical tests whose positive result would suffice for practical certainty. But if one substitute this limited 'practical' significance for the full force and import of the objective belief, even the practical mind will soon point out the inadequacy of such a 'practical' delimitation of an objective empirical meaning. It would be quite plausible to say that all the remote and exquisite consequences which would 'theoretically' be involved are never really included in what one means to affirm in making ordinary empirical judgments. So be it. Our ordinary meanings are more or less rough and ready, and correspondingly limited in their actually implied and testable consequences. Thus—it may be —they are finitely statable in terms of sense verification. But where, then, do such 'practical' meanings leave off? They leave off in their significance precisely at that point at which we can say, "Beyond this, nothing that experience can present to us could make any difference to the truth of what we *mean*." When that can truly be said, such limitation of meaning is genuinely to be accepted. But clearly one sets such a limit to empirical meanings at some risk: statements for which this would be possible are 'rough and ready', 'inexact', 'slipshod', as measured against what may at any moment and in some connection be demanded of statement of objective empirical fact. Clearly we should do ill to take *all* objective statements as of such limited meaning: an adequate account of empirical knowledge must at least leave room for meaning beyond any particular such limitation that could be set. If acceptance of meanings as in sense terms not exhaustively statable, is uncomfortable, it would seem to be a discomfort we shall do best to put up with. The alternative likewise is uncomfortable and, as a generalization, would seem to have the further defect of being false.

However, if it appears to constitute a difficulty that, as here conceived, what an objective statement means in terms of experience is not finitely statable, then let us not forget that "There is a piece of white paper here on my desk" precisely is the required verbally simple way of stating all these interminable consequences of it in terms of sense. This statement, in relation to explication of its sense meaning, in terms of all the terminating judgments it implies, is like a universal proposition in relation to all the particulars of fact it subsumes; like, for example, the statement "All men have noses" in relation to "Soc-

rates had a nose, and Plato had a nose, and this man has a nose, and that man has a nose—and I can't tell you how many other men have lived or are alive or will live, but each of them severally has a nose." (Or like "All the natural numbers can be counted" in relation to "1 can be counted; 2 can be counted; 3 can be counted; . . .") When I say "All men have noses," I *mean* something about each and every particular man; and I know that now, and know what I mean about each. That I can't tell it to you, naming each, should not be thought a difficulty: I tell it to you in saying "All men have noses." And when I tell you (or myself) "There is a piece of white paper here on my desk," I tell more detailed consequences, testable in possible confirming experience, than I could recite exhaustively, or explicitly remind myself of, one after another; particularly because most, or perhaps all, of them depend on *conditions* of verification which it is a trouble to think of. But I now mean all of them by my statement; and if conditions should arise making test of any one of them the practically indicated test of what I say, then I could explicitly remind myself of it—if genuinely it is contained in what I now mean to assert. The answer to the difficulty would appear to be that it is not a difficulty but a fact. That seems to be the kind of empirical meanings which we entertain, and we seem to have the kind of minds capable of entertaining them.

If there is a moral to be drawn, perhaps it is that we would best not confuse the analysis of meaning with formal logical analysis. The implication, by a statement of objective fact, of the terminating judgments which represent its particular possible confirmations, is not a formal implication (in the old fashioned sense of 'formal'), which can be derived by rules of logic. Rather it is like the implication of "Today is Friday" by "Yesterday was Thursday," or the implications which one might discover through consulting a dictionary—implications which can only be determined by *knowing a meaning* and which, without that, cannot be discovered by any application merely of logical rules.

9. Another kind of objection which we might encounter, and which would relate to the same question whether the statement of objective fact is non-terminating in its testable consequences, is one which could be raised by reference to the operational conception of meaning. That conception may appear to explicate meaning in terms

of verification, but of a verification which can be decisive and complete. On examination, however, this difference from the present view will turn out to be unreal, or else of doubtful validity. If the operationist, for example, defines "*A* has hardness *m*" by "If a certain pointed instrument falls on *A* from height *h*, it will make a dent of depth *n*," this does not indicate that the test consequences in experience which would establish the objective fact tested are a single one, or even finitely recitable.

In the first place, though hardness *m* is here defined by a 'standard test', it is *not* defined by anything which a single *trial* will establish with theoretical finality. This test itself, as stated, is in terms of other objective facts—that the test instrument is in proper working order and the depth to which it penetrates the material tested is really so and so. Such defining test operations are carefully regulated so as to be determinable as easily and as surely as possible in a single trial. But no physicist will maintain that any observer's single test observation of the test conditions and test result is theoretically beyond all question as determination of the objective fact tested. The 'standard test' must also, in order to define satisfactorily what is in question, be an operation which is repeatable. And if repetition gives a different result, then the earlier determination will be subject to revision. It is not theoretically certain as a result determined by one trial. Thus if an operational definition be expressed, not in terms of test results as objective fact, but of test results *observed*, any such result of a single test is not decisive verification but merely a confirmation—though perhaps sufficient, in many cases, for 'practical certainty'.

In the second place, even if the objective property be 'defined' by test operations of a certain kind, this property will have *other implications*, and hence *other confirmations* than those mentioned in its operational definition. For example, the test of hardness mentioned would have implication of the behavior of the material tested under many other conditions than the test conditions. And if that were not the case, this definitive test of it would be a relatively useless one to perform. The operationist merely picks out a kind of test the result of which is relatively simple to determine with a high degree of assurance and *is widely indicative of other testable consequences* which, as a scientist, he demands of what has the property tested. The opera-

tionist merely selects, with some degree of arbitrariness, a certain *objective* test result, and says that *that alone* is what he will mean by, for example, 'hardness *m*'. But as a matter of fact he doesn't mean that *only* by predication of the objective property tested. He is merely cutting the Gordian knot of a difficult problem of meaning by a little harmless dogmatism.

Thus when the operational conception of meaning is examined with care, it may be seen to have no different consequences, which can be made to stand up, from the view we present.

10. A different kind of objection which has been raised against views like the one here put forward, is that interpretation of objective statements as meaning what would verify them does violence to our knowledge of the past. By depicting the meaning of "Caesar died" as consisting in what would verify it to us in future possible experience, this conception may be charged with translating what is past into something which is exclusively future. The force of this objection is something which will be felt as obvious. But just what this obvious point is, it is a matter of some difficulty to elicit. In fact, the one who raises it lays himself open to equally 'obvious' objections. Does he wish to maintain that what is really essential in past fact is independent of all possible verification? If so, what is his, or anybody's, interest in knowing it? Is it merely sentimental attachment to an indeterminable property of a thing in itself?

The real point of the objection is the patent one, neverthless. It is felt to be an unacceptable paradox that what "Caesar died" means, should be interpreted in terms of what you and I might find by initiating a historical investigation, because when we say "Caesar died" we are pointing back to an irrecoverable past event. The past just can't be identified with the present or future, or with anything that anybody can any longer experience. But one who advances such an interpretation of empirical meaning as is here put forward will not —if he knows what he is about—have any such intention. The trouble is that the objector—quite naturally, perhaps—understands us to be affirming that the past event of Caesar's death really is something belonging, in piecemeal fashion, to future time, as certain events of verification. But we intend no such patent absurdity: we are speaking of meaning in the sense of intension, for which two empirical statements have the same meaning if each is deducible from the other.

For example, if anyone ask us, "What does it mean that it was Monday yesterday?", we might reply, "It means that it will be Wednesday tomorrow." That would not be a good explanation of meaning because it would be unlikely to clarify anything not already understood: those who fail to understand the statement "Yesterday was Monday" are not any more likely to grasp what is meant by "Tomorrow will be Wednesday." Nevertheless it would meet the requirement that the statement offered as explanatory genuinely has the same intensional meaning as the one to be explained. And one who thus said that "It was Monday yesterday" and "It will be Wednesday tomorrow" have the same meaning—have the same logical consequences and are each deducible from the other—would not be asserting that yesterday is tomorrow or Monday is the same day as Wednesday or that the event of yesterday's falling on a Monday is the same event as tomorrow's falling on a Wednesday.

There is really more to this kind of objection than meets the eye; and further examination of it will reveal that several different issues are involved at one and the same time. Some of these only are well illustrated by the example offered above. But first let us confine attention to those for which it will be sufficient.

It is conceivable that there might be objection to presuming that "Yesterday was Monday" and "Tomorrow will be Wednesday" are genuinely equivalent in meaning. But if so, then the points which could be in question have already been discussed in Book I. Either of them is deducible from the other. For a deduction by formal rules of logic, definitions of 'Monday' and 'Wednesday', 'yesterday' and 'tomorrow' would be requisite; but these definitions will be granted, and also they would be explicative statements which, as analytic, are implicitly given when any premise like "Yesterday was Monday" is assumed.

Since each of these statements is thus deducible from the other and they have the same intensional meaning, they have also the same meaning in every mode of meaning except that of analytic meaning. With respect to analytic meaning, however, they are different. The one of them speaks of yesterday as subject and asserts that it is a member of the class of Mondays; the other speaks of tomorrow and asserts that it is a member of the class of Wednesdays; and the constituents 'yesterday' and 'Monday' in the one of them find no equivalent in the

other. It is in this sense of analytic meaning that they refer to different things or events: the one of them refers to yesterday and the other to tomorrow, but taken as whole statements each of them asserts, by implication, the truth of the other also.

Since they have the same logical consequences and the same intension, they must also signify the *same state of affairs*. And it is here, perhaps, that what strikes the objector as unacceptable begins to appear. He will, perhaps, demur that yesterday being Monday is *not* the same fact or event as tomorrow being Wednesday. But we have already granted everything which that objection could be intended to assert without falling into errors which are demonstrable. Yesterday isn't tomorrow and a Monday isn't a Wednesday; and we have identified the sense in which "Yesterday was Monday" speaks of something to which "Tomorrow will be Wednesday" does not refer. But either of these two statements does refer to what the other refers to in the sense of implying whatever the other implies. Each of them thus signifies the *same state of affairs*: what either of them requires to be the case in order to be true is exactly and completely the same as what the other requires to be the case; anything which decisively verified the one would decisively verify the other, and whatever confirms the one must in equal measure confirm the other also. But we have also pointed out that the state of affairs signified by a statement is not an event in the sense of a space-time slab or chunk of reality. In so identifying the state of affairs asserted by a statement with an event, in the sense of such a space-time slab, one would commit what Whitehead has called the fallacy of simple location.

In terms of these conceptions, it would seem that we can express the only point which any objector could consistently have in mind in saying, for example, that yesterday being Monday is not the same event as tomorrow being Wednesday, and that one who translated the past event of yesterday being Monday into terms of the future event of tomorrow being Wednesday would be doing violence to something or other. The space-time slab or chunk of reality correctly denoted by 'yesterday' and by 'Monday' is not the same chunk of reality denoted by 'tomorrow' and 'Wednesday'. But the objector will have to grant that any verification or confirmation of tomorrow being Wednesday is an equal verification or confirmation of yesterday being Monday; and that whoever knows beyond peradventure that tomorrow will be Wednesday can fail to know that yesterday was

Monday only by failing to observe something which what he believes commits him to and implies. If he still feels that there is some further kind of fact not here noted with respect to which this kind of analysis is defective, it would appear in order to ask that he elicit the remaining issue and characterize the alleged defect more sharply than seems as yet to have been done.

It is an important consideration with respect to empirical knowledge that *no* theoretically sufficient verification of any past fact can ever be hoped for. In that respect our example above—or our discussion of it—fails to bring out a point which is pertinent. Not only is the past event of Caesar's death a different chunk of reality from any space-time slab belonging to the future, but nothing that any human knower can ever determine in future with theoretical certainty will be quite equivalent to the fact that Caesar died at a certain past time. In saying that "Caesar died (at such and such a time)" means what would verify it, we also recognize that possession of such theoretically sufficient knowledge is as impossible as it is to turn time backward and find ourselves presented in experience with the occurrence of Caesar's death. The 'equation' of past fact with possible verification, or 'translation' of the one into terms of the other expresses a limit or ideal of empirical knowledge which never can be fully realized.

11. It is much the same issues which are involved in another kind of criticism often made of the view of empirical knowledge here advanced; the charge, namely, that it is subjectivistic or phenomenalistic.[5] And it is to be feared that those who hold a pragmatic or 'verification' conception of meaning have never adequately explained why this particular criticism leaves them unmoved—though they would not admit to an idealistic metaphysics. To those who raise this objection, the present view appears to belong to the same family with Berkeleian empiricism, which might be thought of as asserting that the fact or event of there being a tree out there before me means that I have a certain content of perception now in my mind. Any account of knowledge which seems to say that what a certain believed-in state of affairs *means* is such and such *in terms of experience,* strikes these

[5] This objection has been urged by R. W. Sellars, *The Philosophy of Physical Realism,* pp. 145 *ff.* See also, J. B. Pratt, "Logical Positivism and Professor Lewis," *Journal of Philosophy,* vol. XXXI, p. 701.

objectors as being subjectivistic. It *would be* thus subjectivistic if the sense of meaning in question were that of identifying the content of experience which evidences what is believed with the existence and character of the external reality of which it is accepted as being evidence. And the objection fails of its point precisely because *no* such sense of meaning as that is here intended.

Berkeley was an idealist because he *did* intend what may be suggested by saying, " 'There is a tree out there' refers to the same event or chunk of reality as does the statement 'I have a percept of a tree'." If he had intended to assert only that the existence of the tree was inferrable from the occurrence of the percept; and the occurrence of the percept under certain conditions from the fact of the tree; and hence that there was an equivalence of intension between the two kinds of statement; then he would not have committed himself—so far—to either idealism or realism. That would have remained another question, over and above his empiricistic account of knowledge. To be sure, Berkeley fails to do justice to the further point which we have observed—that no single experience of sense can be adequate to insure beyond possible doubt an objective existence believed in on the basis of it. The possibility of illusion and of mistakes of perception is, by itself, sufficient to preclude the genuine equivalence of intensional meaning between two statements "I have such and such a given content of perception" and "The objective facts of reality are so and so." But passing this point, it should be observed that two statements may have such equivalence of intension though the terms in which they are expressed may have quite different reference. The equivalence asserted is simply that of consequences implied. And if it were true—as it is not—that "I have such and such a percept" is a sufficient premise for exactly the same inferences as "So and so objectively exists," there would still be no implication whatever, contained in that fact, that what 'percept of a tree' denotes is the same thing which is denoted by 'tree'—any more than the logical equivalence of "Yesterday was Monday" with "Tomorrow will be Wednesday" implies identity of the existent or event named by 'yesterday' with that named by 'tomorrow'. Such equivalence of intension, and hence coincidence of what may verify or confirm one statement with what will verify or confirm another, argues no identity whatever between items mentioned in the one and in the other affirmation.

These may be as various and incomparable in other respects as the quite different kinds of events in which we may nevertheless find evidence of the same fact or from which we may draw the same conclusion.

There are serious difficulties which the kind of analysis of empirical knowledge here advanced will have to meet, if it can. But the objections mentioned above are not of them, because such objections spring from erroneous assumption that logical equivalence of statements argues existential identity of things referred to in them, and that what evidences an objective reality or verifies it must somehow be included in a metaphysical nature of it. As we shall see in the next chapter, the conceptions here put forward do not fail to have a bearing on the metaphysical question of realism versus idealism. But these critics have mislocated the issues which are most pertinent.

Chapter VIII

Terminating Judgments and Objective Beliefs

1. The existence of a thing, the occurrence of an objective event, or any other objective state of affairs, is knowable only as it is verifiable or confirmable. And such objective facts can be verified, or confirmed as probable, only by presentations of sense. Thus all empirical knowledge is vested, ultimately, in the awareness of what is given and the prediction of certain passages of further experience as something which will be given or could be given. It is such predictions of possible direct experience which we have called terminating judgments; and the central importance of these for all empirical knowledge will be obvious.

The general character of terminating judgments has been indicated in discussion of the first example in the preceding chapter. They are phrased in terms of direct experience, not of the objective facts which such experience may signalize or confirm; and for this reason they are statable only in expressive language, the terms of which denote appearances as such. It may well be that no language is available to us, for such expressive use, except language which in its more usual signification would refer to objective things and states of affairs. Thus the statement "If I step forward and down, I shall come safely to rest on the step below," would, in its ordinary meaning, predict a physical event involving my body and the environment. This physical event, in case it should occur, would become an ingredient in the world's history, thereafter confirmable to the end of time. At the moment of my stepping, it would not become a complete theoretical certainty: on the contrary, it would be no more certain than the reality of the granite steps whose existence the truth of it is supposed to confirm. It is not this physical event which, in my terminating judgment, I intend to predict, but merely the passage of experience itself. And this prediction of experience is something which at the

moment of stepping will become completely certain or certainly false. In making this judgment I assert nothing of objective reality but only, for example, what could still be tested if I should be a paralytic with the delusion that he still walked; and tested with positive result if that delusion were sufficiently systematic. Only by confining statements to an intent thus formulatable in expressive terms can anything be proved conclusively by single experiences: and only if *something* is conclusively true by virtue of *experience,* can any existence or fact of reality be rendered even probable. If a particular experience be delusive—that is, if the objective belief which is the interpretation put upon it be invalid—that itself, if demonstrable at all, can be demonstrated only through other *experiences.*

If it be denied that such predictions, confined to passages of experience as such, are or can be formulated—a denial which has some plausibility—still it would remain true that in such passages of experience something, whether linguistically expressible or not, becomes entirely certain; and it is only through such certainties of sense that even partial verification of objective fact can be afforded. If there be no genuinely expressive language, still there would be those direct apprehensions of sense and those terminating judgments which could only be so formulated; and any account of knowledge would need to observe them. The impossibility of their accurate expression in language would, then, merely constitute a comment upon the inessential character of language in its relation to the cognitive process; and upon the errors which lie in wait for those who substitute linguistic analysis for the examination of knowledge.

There are other questions also which the suggested manner of formulating terminating judgments will have raised in the reader's mind: why such predictions of future possible experience should require a hypothesis of action; whether if any such hypothesis is necessary there are not other conditions also; just what relation it is which is expressed by 'if-then' in such terminating judgments; and how, precisely, a terminating judgment stands related to a judgment of objective fact which it is supposed to verify or confirm. The last of these questions is the most important and the most troublesome one; and the question of other conditions than merely that supplied by a mode of action, has connection with it. We shall postpone those two until last.

The other two questions, concerning the hypothesis of action and the relation of this condition to the expected consequence, have importance for topics which lie beyond the analysis of knowledge itself. The first of them bears upon the practical significance of cognition for the guidance of action, and upon those questions of evaluation and of morals which are implicit in such practical significance. And the other, concerning the precise meaning of the kind of if-then statement which terminating judgments exemplify, has essential connection with just those metaphysical issues which were raised in the concluding section of the last chapter. In fact, it concerns precisely those fundamental questions which have been common to epistemology and metaphysics ever since the time of Hume. However, in giving attention to these two features of terminating judgments, we shall not be turning aside from our main purpose of the analysis of knowledge: the examination of them would lie directly before us in any case.

2. It has been suggested that terminating judgments are of the form "If *A* then *E*," or "*S* being given, if *A* then *E*," where '*A*' indicates some possible mode of action and '*E*' an expected empirical sequent.

The main reason why such predictions must be thus conditional, instead of categorical, is the simple one that, broadly speaking, there is nothing in the way of human experience which is predictable entirely without reference to conditions which action supplies and may alter.

It would be easy to fall into confusion here and raise a kind of objection which would be pointless. We have all of us been brought up in the tradition of scientific or physical determinism, according to which everything which is to be is intrinsically predictable. And even though science now finds that this determinism is not, as it was previously thought to be, an indispensable presupposition of the possibility of scientific knowledge, we shall not easily be persuaded that such exceptions to categorical predictability as must now be granted are matters which affect the practicalities. It is not the subatomic phenomena, to which the physical Principle of Indetermination applies, but molar phenomena, which affect common experience and our decisions of action. Even if laws of the macroscopic are merely statistical generalizations based upon chance distributions in the realm

of the microscopic, that fact could have no considerable weight for predicting matters of practical concern. Those phenomena with which empirical knowledge must mainly deal would still be categorically predictable.

These abstruse questions about physical determinism need not concern us at all. The point is that such supposedly categorical predictabilities of the physical concern objective facts, while the predictions of terminating judgments concern direct experience. The thrown ball, for example, categorically will describe a certain trajectory and fall at a certain point with a certain terminal velocity. But what *experience,* and of whom, follows from that? Certain definite experiences, supposing one places one's hands at the right point in proper position, or that one's head be in the line of flight. But the categorical predictability of the ball's behavior does not, of itself, include any categorical prediction of an experience of someone. In general, predictions of experience which might be drawn from it, are of experience conditional upon and alterable by some mode of action.

In fact the usefulness of scientific knowledge depends upon this consideration. The practical value of foreseeing what inevitably will happen, is in order to make sure that it does not happen to *us;* or that it does; according as the happening means a grievous or a gratifying experience. The use of making *categorical* prediction of *objective fact,* is in order to translate this fact into *hypothetical* predictions of *experience,* the hypothesis in question being one concerning some possible way of acting.

If it should be observed that the crux of the matter of scientific determinism is that my action as well as the objective fact is antecedently determined and intrinsically predictable, then again we can avoid this ancient and honorable problem, as one with which we have no concern. It is in fact a pseudo-problem, because it refers to a situation in which no one engaged in knowing anything which it is of any conceivable use for him to know could ever find himself. No one is ever engaged in deciding an action or an active attitude which is, for him, foreseeable. Because an act which should be foreseeable with certainty would be already decided; the question, to do or not to do, would be entirely fictitious; and the behavior, thus certainly predictable for us, would not be in any proper sense an act but something which happens to us willy-nilly. If anyone ever finds himself fore-

seeing an experience which is entirely inevitable—and we shall raise that question shortly—at least it will be granted that to anticipate such absolutely unavoidable experience is useless, since *ex hypothesi* nothing can be done about it.

Many things are—speaking within the limits of the practicalities—categorically predictable: the moon will be eclipsed; the day will be rainy; the course of the porjectile will be thus and so. And *ipso facto,* nothing we can do will affect or alter what is thus categorically predictable. But it still remains true here that the function of our knowledge is to ameliorate our experience through guidance of our behavior. Through foreseeing rain, we may carry an umbrella and avoid finding ourselves wet and uncomfortable. The value of knowing the inevitable future fact lies precisely in the consideration that by such foreknowledge the incidence of what is predicted upon our experience may be altered by decisions open to us.

3. The point with which particularly we are concerned here is that what is thus categorically predictable is an objective state of affairs. And it is still the case that absolute determination of such objective fact does not, in like fashion, categorically determine the *experience* of anyone; does not rule out alternatives of experience which are conditional upon some decision of action. Anything which should be categorically predictable has implications for experience: it implies, for example, all those experiences in which it could be verified or disclosed as fact. But it does not imply these experiences as categorical future fact: the predictions *of experience* into which the predictable objective fact can be translated are *hypothetical;* are contingent upon the verifier's way of acting. Certain empirical findings will be disclosed *if* he makes the appropriate tests; and presumably not otherwise. An unalterable objective fact, or an inevitable future event, does *not* imply any unalterable or unavoidable experience whatever; what it implies in terms of experience is certain eventualities contingent upon action; that *if* we behave thus and so, then inevitably, what we shall find in experience will be such and such.

There is no need to strain too far the reader's ordinary sense of objective reality, or his customary modes of formulating it. But it is necessary to draw attention to two general considerations which are of fundamental importance about our knowledge. First, that in a sense which will be obvious, a supposed objective fact, when consid-

ered apart from all disclosures in experience which bear witness to it, is in the nature of the case, lacking in human significance. The formulation of it in terms of our possible experience contains everything which could lend the notion of it significance of the sort which actually we give to it in practical life. And second, that no assigned significance in terms of experience would be genuinely practical and true to the facts of life if it were significance of an inevitable experience no action could affect. The translation of objective fact into terminating judgments, in terms of possible experience, represents its actual and vital cognitive significance. And these terminating judgments, representing the possible confirmations of objective fact, are not categorical predictions of experience but predictions of possibilities dependent for their realization upon some chosen mode of action. Only so could our knowledge of the objective fact be of any practical value or such that we should be likely to have an interest in it. Both the theoretical and the moral significance of knowledge can be justly phrased by saying that what an objective fact *means* is certain possibilities of experience which are open to realization through our action. Or if this smacks of subjectivity, then let us put it the other way about: what is signified by the possibilities of experience which we find open to our action, is the world of objective fact, whose existence and nature is in general beyond our power to affect or alter. But knowledge would not be something to be won, or valuable when obtained, if the objective fact implied categorically the experiences in which it may be verified or confirmed.

It would seem, indeed, that there is nothing in the way of experience which is predictable apart from some condition to be supplied by our active attitude. Or more precisely; no experience which, taken as a whole and in all its parts and aspects, is inevitable. What may be called inevitable experiences are not altogether such but represent some ingredient of an experience or some narrowly restricted range of alternative possibilities open to us. Some of the characteristic examples of 'experiences which are foreseeable but unavoidable', which are likely to be adduced by way of objection to this statement, are not even cases where the objective state of affairs which is categorically predictable is specific and excludes alternatives. For instance, it may be said that death is predictable with certainty; and that surely is a matter of one's further experience. But 'my death'

is a highly abstract designation: the certainty of it leaves open all sorts of alternatives of time, place and manner which are still undetermined in its categorical predictability. Even when the prediction is of a highly specific state of affairs affecting us, it is still the case that the specific experience to be expected has features dependent on our decision. That the so called 'inevitable experience' is not altogether so, is evidenced by the fact that we may have a preference about anticipating or not anticipating it. Some of us wish to know just when the tooth is to be pulled; some of us definitely do not wish to know. There is still one thing we can always do about an 'inevitable experience', which is to 'be prepared for it'. 'Being prepared' somewhat alters the quality which the experience would otherwise have when it comes. And if any be inclined to set aside this kind of difference our attitude can make as trivial, we may remind him of Stoicism and the ethics of Spinoza: a whole creed of the proper way of life may be based upon this point.

Whatever may be the case about physical things and objective states of affairs, anticipatable *experience* is subject to a sort of indeterminacy principle: foreknowledge itself and our active attitude can alter the quality of it. That is one reason why the old-fashioned free-will-or-determinism controversy relates to an issue which, in terms of actual life, is mythical. There is nothing which can be anticipated which it may not be of use to know: and whatever it is of conceivable use to foresee, is such only because *something* still can be done about it; the experience with which it may affect us is still open to qualification by ourselves. Tenuous as this kind of consideration may be thought to be, still it points to a universal feature of our empirical knowledge: whatever the fact may be upon which our knowledge is directed, if we render the significance of that fact in terms of the experiences which will give evidence of it, we shall find that what thus portends is something which it is *valuable* to know because in some part or aspect it is conditional upon our decisions of action.

Admittedly some experiences—or more accurately, some generic characters of some experiences—may be predictable with practical certainty and without any possibility of avoidance. When we see the lightning, we know that we shall hear the thunder. We may tense our muscles or not; stop our ears or not; and these activities somewhat affect the quality with which what is predicted will be experi-

enced; but the generic character of heard thunder may be unqualifiedly inevitable. Such examples are, it will be admitted, exceptional, and represent a kind of limiting case. But even here, we see that alternatives of action are not wholly eliminated; they are only severely restricted. And in that sense, what is here exemplified differs only in degree from the more general case. In fact, it may lead us precisely to the justifiable and well-considered generalization: *any* objective event which may be categorically predictable, and any objective state of affairs which may be known, will mean, when translated into terms of confirming experience, a restriction of the possibilities contingent on our action, but *never* a restriction reducing these alternatives to a single one. Even where—as in the more general case—the alternatives left open to us, in view of the objective fact in question, are too numerous to mention, still the state of affairs believed in or asserted would be reflected in the elimination of equally many *other* alternatives of experience, contingent upon chosen ways of acting, which might be open to us if this objective fact were *not* the case. That is the general nature of objective fact, when taken in terms of the experience which would verify or confirm it: it means that by nothing we can do would certain experiences be possible for us; but that there are other alternatives of experience any one of which may ensue if a suitable mode of action be adopted. That a sheet of white paper is now before me, means that in no possible way can I now proceed directly to presentation of something green and circular here in front of me, as well as meaning that certain other presentations are predictable, contingent upon appropriate decisions of action. How narrowly the alternatives of possible experience may be restricted, or how wide the range of possibilities left open, depends upon the particular objective fact or event which is in question. But in no case will it fail to eliminate certain possibilities of experience which might otherwise obtain; and in no case will it completely exclude all possibilities but one, and leave nothing whatever which is contingent upon our decision of action. It is in this fact that the universal possibilitiy of a practical value in empirical knowledge lies: there is nothing which could be known, the knowledge of which might not enable us to avoid efforts which are fruitless, and enable us also to ameliorate our lot and improve the quality with which future experience might otherwise affect us, by choosing between alternatives of action which still are open.

This being so, it will be seen that our general formula for terminating judgments is correct on the point in question, and universally applies. The sense meaning of any verifiable statement of objective fact, is exhibitable in some set of terminating judgments each of which is hypothetical in form; it is a judgment that a certain empirical eventuation will ensue if a certain mode of action be adopted. Such judgments may be decisively verified or found false by adopting the mode of action in question and putting them to the test. And it is by such conclusive verification of terminating judgments, constituent in the meaning of it, that the objective belief—the non-terminating judgment—receives its confirmation as more or less highly probable.

4. As has been suggested, we must take this account of terminating judgments, and of their inclusion in the judgment of objective fact, as in some measure provisional until we reach the two questions which have been postponed and which are to be considered in the concluding part of this chapter. But at least we see that they will be hypothetical in form. And the general question what the if-then relation is which they assert between hypothesis and predicted consequence, is sure to be involved. It is this question of the *kind of connection* between the mode of action A and the expected experience E which is believed to hold in believing "If A then E," which will turn out upon examination to have a bearing on those issues which lie between subjectivism or phenomenalism and realism, as well as between skepticism and belief in the possibility of knowing an independently real world.

The crux of this matter lies in the question what it means for a statement of this form, "If A then E," to be true when the hypothesis 'A' is false—when the mode of action A is *not* adopted, and the test of what is believed is not made.

This is the sort of question the answer to which we know quite well so long as no one asks us for it; but when we are asked, we do not know what to say. It is indeed a matter to be determined, not by elucidation of world-shaking mysteries, but simply by careful examination of a meaning which implicitly we all intend and grasp in making assertions of this type. But to elicit that meaning is particularly troublesome. It will, unfortunately, require close attention and a somewhat involved and lengthy discussion. Also we shall find that contemporary logical studies, to which we might naturally turn for

elucidation and precise formulation of the meaning of hypothetical statements, do not in fact afford the required answer. Indeed they throw no light upon it whatever, except that of eliminating various meanings of 'if-then' which might be supposed to be the one in question. What such logical studies offer us, as possible interpretations of hypothetical statements, are precisely those which are *not* possible interpretations of the intended significance of a terminating judgment or of any connection which could be asserted between a hypothesis of action and its consequence. The relation of *'A'* to *'E'* in "If *A* then *E*" is *not* justly interpreted as the relation of material implication which many current developments of logic take as fundamental; it is *not* what is called in *Principia Mathematica* a formal implication; and it is *not* a strict implication or entailment such that *'E'* is, assertedly, deducible from *'A'*. It *is* generically the same kind of relation which Hume had in mind when he spoke of 'necessary connections of matters of fact'. And Hume, as we remember, affirmed that no such relation can be established as holding: though, as we also remember, he made no doubt that it is such a relation which is *asserted* as often as any objective fact or anything going beyond presentations of sense is taken to be empirically known. And whatever objections may be raised against Hume's analysis on other points, on this point of meaning he was exactly right.

5. That the if-then relation intended in the terminating judgment "If *A* then *E*" is not a relation of the deducibility of *'E'* from *'A'*—not a strict implication or logical entailment—is sufficiently evident from the consideration that this judgment itself is one of *empirical* fact and cannot be attested by mere logic. The situation which would prove it false is logically thinkable; the contrary statement, "*A* but not *E*" is not self-contradictory, though it is believed to be false. We must be careful here not to confuse the question precisely at issue with others which are related. As we have conceived the matter, the terminating judgment itself *is* deducible from the objective judgment in which it is a constituent: from "There is a piece of white paper before me," it is deducible that "If I turn my eyes right, this seen appearance will be displaced to the left." This relation of deducibility holds because the terminating judgment is contained in the meaning of the objective statement. But our present question does not concern this relation between the objective belief and the terminating

judgment: it concerns the relation between the antecedent *'A'* and the consequent *'E'* in the terminating judgment itself. The question is not, "If it be true that a piece of white paper is before me, is it deducible that if I turn my eyes right, the seen appearance will be displaced to the left?": the question is, "What do I mean when I assert 'If I turn my eyes right, this seen appearance will be displaced to the left'?" And the present point is that I do *not* mean to assert that "The seen appearance will be displaced to the left" is *logically deducible* from the hypothesis "I turn my eyes right." I could assert that only if it were entirely unthinkable, logically, that the given presentation should be illusory, or my judgment of the objective fact subject to error. And that is not the case; nor do I take it to be so, unless unthinkingly or by some crude mistake in the analysis of empirical knowledge of objective matters of fact.

That the relation between a way of acting and the result of it, which a terminating judgment expresses, is not a relation of logical deducibility, may also be attested in another way: it is relation of a sort which could only be learned from past experience. When I see what looks like a piece of white paper, my ability to predict the experience which will result from turning my eyes is something that previous like occasions have taught me. But if *'E'* were deducible from *'A'*, I should not have needed so to learn it; the truth of "If *A* then *E*" could in that case be determined without reference to any experience, merely by reflection.[1]

6. That the relation of hypothesis to consequent in a terminating judgment is not of the sort called 'material implication', will be evi-

[1] It might be objected that the sense meaning of "I turn my eyes right" includes the consequence "This seen thing is displaced to the left"; and that this is indicated by the account here given: hence that if-then propositions of the type in question will be found to state a relation of deducibility when the sense meaning of the antecedent and consequent is properly taken into account. This would be plausible if the hypothesis of action, such as "I turn my eyes right," were here a supposition of objective fact: one of the ways of confirming that my eyes turn right is this displacement of things seen to the left. But we must not confuse the *objective* statement "I turn my eyes right," with the corresponding hypothesis of a terminating judgment: in the terminating judgment, both hypothesis of action and consequent expected experience must be in expressive terms; they refer, not to objective dispositions of my body, etc., but to a direct content of felt experience. The connection between that experience, so difficult to describe, which is the expressive intent of "I turn my eyes right," and the presentation formulated as "This seen thing is displaced to the left," is a connection the reliability of which has been learned from experience and could not have been learned without it.

dent by the fact that "If *A* then *E*" intends an assertion whose truth or falsity is not affected by the truth or falsity of the hypothesis '*A*'.

A material implication, "If *P* then *Q*," is commonly symbolized by '$P \supset Q$': it will be convenient to use this abbreviation. This relation '$P \supset Q$' is one which holds when and only when at least one of the two, "*P* is false" and "*Q* is true," is a true statement. Now the terminating judgment "If *A* then *E*" *does* imply that at least one of the two, "*A* is false" and "*E* is true" is or will be the case. This judgment would be taken to be proved false if '*A*' should be true (if the mode of action be adopted) and '*E*' false (the expected result fails to follow). Hence the truth of the terminating judgment "If *A* then *E*" includes and requires the truth of the material implication '$A \supset E$'. But it also intends and requires as essential something more, which the truth of '$A \supset E$' does not require. Supposing that '*A*' is in fact false, it still requires that if '*A*' *were* or *should be* true, '*E*' *would be* true. For instance, in believing that a piece of real paper is before me, I believe that if I turn my eyes right, the seen paper will be displaced left. But I do not now turn my eyes: I do not make this test of my objective belief. Nevertheless I believe that if I *should* turn my eyes the predicted consequence *would* follow: and *it is only because I believe the validity of such untested predictions that my belief is taken to be significant of objective fact.*

This point is verbally difficult: it takes a lot of talk to make it clear. But it is quite essential. My belief that if I should turn my eyes right (though I do not do so at present), the thing seen would be displaced to the left, is part of my belief in the objective reality of what I am looking at. I believe the terminating judgment "If *A* then *E*" to be true when I do not act in manner *A*, just as I believe a real thing is still there when I do not look to see. This point is fundamentally important for the distinction between 'objective reality' and 'subjective experience'. And an if-then relation of this sort, which we may express by recourse to the subjunctive mood (should —— would ——) *cannot* be expressed in terms of material implication. Because when the hypothesis '*A*' is contrary to fact, '$A \supset E$' holds regardless of the truth or falsity of '*E*', and regardless of the question whether '*E*' *would be* true if '*A*' *were* true.[2] For example, since I do not at

[2] The objection is possible here that when '*A*' is false, and known to be false, the judgment "If *A* then *E*," if it means more than '$A \supset E$', is non-significant because untestable. This objection would beg the very point at issue; but also

present turn my eyes, it holds that "I now turn my eyes" materially implies "The thing seen is displaced." But also and for the same reason—namely, that the antecedent in the relation is false—"I turn my eyes" materially implies "The thing seen is *not* visually displaced"; and also materially implies "A loud explosion is heard," or anything else you please to mention as consequent. When '*A*' is *false,* the material implication '$A \supset X$' holds, *no matter what* statement '*X*' is. Thus the consequences of a contrary to fact statement—*in any sense in which some things are such consequences and others are not* —cannot be expressed in terms of material implication.

Let us put the matter in another way which has no reference to the particular fashion in which we have analyzed empirical objective judgments but only to the fact that a significant objective belief must be, in some sense or other, testable. Empirical test of an objective belief can only be made by setting up or seeking out the appropriate conditions and observing the result. Most frequently we make assertions of objective fact without performing those tests the results of which we should accept as verification, or partial verification, of them. In fact it is obvious that our sense of reality is a kind of continuous belief in innumerable objective facts which, at any given moment, we do not test at all. Alternatively, we may say that this belief in a real world is belief in innumerable specific consequences of innumerable possible ways of acting which, at any given moment, we find no reason to adopt. This belief in objective reality is only as strong as the correlative belief that although certain hypotheses are now false, they have certain consequences (which *would* be found true if the tests *were* made) *and not others.*

Incidentally, the alternative to this is not idealism but skepticism, just as Hume thought. A good Berkeleian believes that given presentations are 'signs of' others; and he could hardly confine such significances to those tested. The issue is not one between belief in material substance and belief in spiritual substances and modes of mind only: it is between belief in knowable reality, beyond the presentationally given (in whatever terms), and belief in none.

It is also to the point that if such tests as we make, verified or con-

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its invalidity may be observed from the fact that it confuses 'untestable' and 'untested': when '*A*' is false, the truth of the terminating judgment "If *A* then *E*" is *untested,* but since '*A*' could be or might be made true, it is not untestable.

firmed the objective facts we believe in, but only for the moment when the test is performed, we should not care to make such tests, and they would have no cognitive import. The point of such verifications is that they assure what is presently tested as something more or less to be relied upon when *not* tested. If what is proved by such trials were not proved true or rendered probable for other times and occasions than those on which the trial is made, we should have no cognitive interest in experiment, nor think it a test of anything or its result a verification of anything. If we did not believe that if something *were* tested, at times when in fact it is *not* tested, certain specifiable results *would* accrue and not others, we should not believe in objective reality or facts which obtain independently of being experienced. Where nothing specifically statable is verifi*able* though unverifi*ed,* there could be no knowledge and no world of things and events which knowledge could grasp. It is no extravagance of analysis but simple fact that no conception of reality or of knowledge is possible without acknowledgment that contrary to fact hypotheses have significant consequences. And the kind of if-then relation thus believed in, is one which cannot be expressed in terms of material implication, for which any hypothesis which is false in fact has every conceivable (and inconceivable) consequence.

As has been said, this point has no dependence on our conception that the confirmation of objective beliefs is by way of terminating judgments which must be in terms of direct experience and can be formulated only in expressive language. It would hold for any plausible theory—any theory which regarded empirical knowledge as testable by experiment and observation. But if our conception of the nature of terminating judgments, and of objective judgments as being confirmed by finding these true, should be correct, then it will be obvious that the above considerations apply. The material implication '$A \supset E$' is a logically *necessary* condition of what the terminating judgment "If A then E" intends to assert: '$A \supset E$' must be true when "If A then E" is true. But it is not a logically *sufficient* condition: the meaning of the terminating judgment requires also that if 'A' be false still it holds that if 'A' *were* true, 'E' *would be* true, and certain other things (what is contradictory of 'E' for example) *would not* be true. This further intended meaning cannot be stated in terms of material implication, because if 'A' be false, then

'$A \supset E$', '$A \supset E$-false', '$A \supset X$' (whatever statement 'X' may be) all hold equally.

7. However, although the if-then relation of terminating judgments cannot be expressed in terms of material implication, it may be thought to be expressible in terms of another if-then relation which modern logic has made familiar; the relation called, in *Principia Mathematica,* formal implication. Before we can discuss this possibility, it will be well to explain this relation briefly; and it will be necessary to examine one question concerning the correct interpretation of it. Also the manner in which it might be supposed to apply to terminating judgments must be considered.

Formal implication is usually represented by symbolization such as '$(x) \,.\, \varphi x \supset \psi x$,' which may be read, "For all values of 'x', φx (materially) implies ψx." If the values of the variable, 'x', in 'φx' and 'ψx,' be 'x_1', 'x_2', 'x_3', etc., then '$(x) \,.\, \varphi x \supset \psi x$' will be true if and only if it is *not* the case that 'φx_1' is true and 'ψx_1' false, *not* the case that 'φx_2' is true and 'ψx_2' false, etc.; *not* the case for any (some) value by 'x', 'x_n', that 'φx_n' is true but 'ψx_n' is false. That is, 'φx' formally implies 'ψx' if and only if, whatever value of 'x', 'x_n', be chosen, 'φx_n' materially implies 'ψx_n'.

However, this leaves it still doubtful which of two possible interpretations of expressions having the form '$(x) \,.\, \varphi x \supset \psi x$' is to be taken as correct. In *Principia* and in more recent logical studies, this point has been surrounded with various complications of theory, but the question which remains over, and must remain over, after all such complications, is a simple one which admits of illustration by familiar examples, and one which cannot be avoided.[3] It means one

[3] Amongst the complications of theory referred to are the questions (1) what is to be taken as a 'value of the variable' in a propositional function; whether it is the *man* John Jones or the *term* 'John Jones' which is a value of 'x' in "x lives on Main Street"; (2) whether non-existent individuals can be 'named', as contrasted with being 'described'; (3) whether when a description describes no existent, every singular statement having that description as subject-term becomes thereby false; (4) whether every statement about entities of 'higher type' can be analyzed into a statement or statements about those of the 'lowest type', 'individuals'. In my opinion, none of these questions is significant epistemologically. Any answer to (1), (2), or (3), is a verbal convention, and has no effect upon any logical or empirical fact but only on our manner of expressing these. The answer to (4) is in the affirmative; but that fact lacks the importance it might be supposed to have, since 'individuals' themselves are of different 'types'.

thing to say, "Every *existent* having the property φ (or of which φ is truly predicable) has also the property ψ." And it means a different thing to say, "Every *thinkable* thing which should have the property φ must also have the property ψ." The second of these holds only when having the property φ logically entails having the property ψ; when 'ψx' is *deducible* from 'φx'; as, e.g., "x is an animal" is deducible from "x is a man." The first of these, however, holds not only in such cases where one property or character logically entails another but also in every case where, amongst *existent* things, one property or character is *universally accompanied by* another. Thus in the first of the above senses it would hold that "x laughs" formally implies "x is human"; that "x has horns and divided hoofs" formally implies "x chews a cud"; and (since no centaurs exist) that "x is a centaur" formally implies "x has yellow wings."

We are not, of course, concerned here with any question of the correct interpretation of *Principia Mathematica,* or the intention of its authors; nor with similar question concerning more recent developments. We need only remark the consequences, for the questions with which we *are* concerned, of taking formal implication in the one or the other of these two ways. If '$(x) \,.\, \varphi x \supset \psi x$' be interpreted to mean "For all *thinkable* things, if φx then ψx," then the relation holds only when 'ψx' is logically deducible from 'φx.' The reasons why the relation between '*A*' and '*E*', expressed by the terminating judgment "If *A* then *E*," cannot be interpreted as a relation of logical entailment or deducibility, have already been pointed out. It is thus clear, without further discussion, that if formal implication expresses such a relation of logical entailment, then the if-then relation asserted in terminating judgments cannot be expressed in terms of formal implication. It is on the other interpretation only, for which '$(x) \,.\, \varphi x \supset \psi x$' holds if and only if there is *no existent* having the property φ but lacking the property ψ, that the question whether terminating judgments are expressible in terms of formal implication, calls for further examination. We shall, accordingly, confine our further attention to this interpretation of formal implication, and speak as if it were undoubtedly the correct one.[4]

[4] There is, in fact, little doubt that, amongst those who grasp the distinction, this is the interpretation generally adopted—though some logicians try, with desperate ingenuity, to avoid the issue altogether.

8. The reason it is plausible that terminating judgments might be expressible in terms of formal implication, is that a terminating judgment is implicitly general. The prediction "If *A* then *E*" which we make on the occasion of a given presentation *S*, is something we believe only because we also hold a more general belief in a connection between the mode of action *A* and the sequent experience *E* on occasions like this one. It is only as applied to this, or some other, single occasion that such prediction is decisively verifiable and has thus the character of a terminating judgment strictly so called. But for convenience we may refer to the underlying belief as the 'general form' of this terminating judgment. In order that this may be clear, let us continue with the simple example we have been using. I hold the objective belief that a real piece of paper is before me and not an illusory presentation, because of certain characters of this presentation; because this looks real and feels real. But if asked for the reasons for my belief I should have to refer to more than this single occasion in my justification. I should have to include the fact that what has looked and felt, in pertinent respects, as this does now, has turned out generally (though not universally) to be a real object of a certain kind. So far, we are concerned only with the relation between a given presentation *S*, and an objective belief—call it *R*—which is the interpretation put upon it. But in passing, we may observe that although this judgment may refer explicitly to the present occasion only, it is, by virtue of its ground, implicitly general. Any reason I have for making it, would apply equally to any occasion when a presentation having the pertinent characters of *S* should be given. That is, I believe '*R*' because I judge that for *any* occasion *o*, if *So* (if *S* is given on occasion *o*), then probably *Ro* (probably a real thing of a certain kind is present on occasion *o*).

Believing '*R*' (a real thing of a certain kind is before me), I make the terminating judgment "If *A* then *E*" ("If I turn my eyes the visual presentation will be displaced"). And finding this true, upon test, would constitute a further confirmation of '*R*'. But again, this terminating judgment is implicitly general; it represents a confirmation taken to be possible not merely at the present instant but so long as '*R*' holds true. Or more accurately; so long as '*R*' holds true and the essential conditions of testing signalized by the given presentation are satisfied. That is, if I wish, as I now do, to express the terminating judgment in its general form as holding whenever the objective

belief it confirms holds true, then I must reintroduce, as hypothesis, reference to some given presentation indicating applicability of the test.[5] (For example, I cannot make the suggested visual test of a real thing in the dark.) Thus what I judge is: "For every occasion *o*, when *Ro*, if *So* and *Ao*, then *Eo*." (On any occasion when a certain kind of real object is before me, if a presentation like this is given and I turn my eyes, this visual presentation will be displaced.) Taking the objective belief as premise, I infer the terminating judgment in the general form—as holding if and when the objective belief holds: 'For every occasion *o*, if *So* and *Ao* then *Eo*."

9. We can now examine the point which is presently of interest to us; whether this terminating judgment represents an if-then relation expressible in terms of formal implication. And the question is, whether the real intent of such a judgment, "(Presuming the objective judgment which is to be confirmed) for every occasion *o*, if *So* and *Ao* then *Eo*," will be satisfied if for every *existent or actual occasion* when *So* and *Ao* hold, *Eo* holds also. As has been said, the plausibility of this rests upon the implicitly general character of the terminating judgment, now made explicit. However, this initial plausibility disappears on further examination; and for reasons of the same sort which we have already noted in the case of material implication. A generalization whose significance is confined to *actual cases* cannot cover the intended meaning of a terminating judgment, because that meaning requires that a hypothesis should still have significant consequences (and not every conceivable consequence) when it is contrary to fact.

Here again, the point may be brought out in ways which do not depend on the conception of terminating judgments here adopted but would be pertinent to any plausible conception of empirical knowledge and the tests of it. For example, it is a practically important truth that if I should jump from a second story window I should hurt myself. As I stand before the window, the presentation given and my belief in the objective facts of gravitation lead me to make a personal prediction, "For any occasion *o*, if C. L. jumps out a window like this on occasion *o*, C. L. will be hurt on occasion *o*." Whether

[5] This consideration requires to be introduced here only in order to avoid gross inaccuracy. We must return to it later: for the present, it may be provisionally clear from the example.

one take this as an objective statement about my body and the environment, or as intended to be a terminating judgment in expressive language, and referring only to passages of immediate experience on occasions like this one, will make no essential difference to the present point. Taking this statement as a formal implication which is satisfied provided every actual occasion when C. L. jumps from a second story window is an occasion when C. L. is hurt, fails to express the important cognitive and practical intent of it. It so fails because it signifies nothing as to what *would* happen if I *should* jump, on this or any other occasion. And that significance is of the essence. As a fact, I never jump from second story windows. And that fact of itself assures the truth of the formal implication in question; because that formal implication says only, "There is no actual occasion on which C. L. jumps from a second story window and is not hurt." My significant *reason* for not jumping, which has to do with supposed consequences of the contrary-to-fact hypothesis "If I should jump," is here omitted altogether and incapable of expression in terms of such formal implication.

For the same reason—namely, that I never jump from second story windows—the following formal implications are likewise satisfied: "For every occasion *o*, 'C. L. jumps from a second story window on occasion *o*' implies 'There is an eclipse of the moon on occasion *o*'"; and "For every occasion *o*, 'C. L. jumps from a second story window on occasion *o*' implies 'After occasion *o* all rivers run uphill'." It is also a fact that I never carry a handkerchief in my sleeve. And since that is so, the formal implication likewise holds: "For every occasion *o*, C. L. puts a handkerchief in his sleeve on occasion *o*' implies 'C. L. is hurt on occasion *o*'." However, in the sense of 'if-then' which is pertinent to terminating judgment, or to any consequence of action derivative from objective belief, I profoundly disbelieve in practically serious consequences of carrying a handkerchief in my sleeve; and similarly disbelieve in any effect of my jumping out of windows upon eclipses of the moon or the course of rivers. The predictions which represent my knowledge of objective facts and govern my conduct are not expressible as formal implications. Attempt so to formulate them, leaves out what is precisely the kernel of the whole matter.

It might be objected that we have not, in this example, stated the cognitive and practical situation properly. The basis of my belief—it may be said—is *not* one which concerns an empty class of cases: if no one had ever jumped from a second story window, and no similar weight had dropped from a similar height with a measureable terminal velocity, I should have no ground for believing what I do. My prediction is based on a different and wider hypothesis, which is true in many instances, and has, in all observed cases, certain pertinent consequences. Furthermore, the relation between this wider hypothesis and its consequences—it may be said—is one which *is* statable as a formal implication.

A part of this objection is correct. But the conclusion drawn concerning formal implication and this example—or any case of predicting, from our knowledge, the consequences of action—is one which does not follow and is false. It is true that the ground of my practical judgment is the conviction that if a weight of 150 pounds falls 25 feet, it will strike with sufficient force to injure a human body. And true that this conviction is based on actual instances. But precisely what makes this practical belief practical, makes it impossible to *confine the significance* of it to actual cases, and thus prevents its being accurately expressible as a formal implication. The statement, "'x weighs 150 pounds and falls 25 feet' formally implies, 'x acquires a momentum sufficient to injure a human body upon impact'," still says nothing as to what would happen if I (weighing 150 pounds) should jump from a second story window (25 feet above the ground). What it says is only that the class of *actual* cases of 150-pound weights falling 25 feet is included in the class of actual cases in which momentum is acquired sufficient to injure a human body. No formal implication says anything about the holding of any consequence in cases in which the hypothesis is contrary to fact. Or rather; what it says in such cases is that *every* conceivable and inconceivable consequence holds, and hence none is significant. What *would* happen *if* such a weight fell such a distance, in any instance in which the weight does not in fact fall, it does not tell us; just as the formal implication, "'x laughs' implies 'x is human'," does not tell us what would be the case if evolution had produced certain animals which do not in fact exist.

At least the objector will admit that on *this* occasion no weight of 150 pounds—whether my body or anything else—drops 25 feet. That being so, the formal implication, "If x, weighing 150 pounds, drops 25 feet, it acquires sufficient force to injure a human body" could *still* be true even if it were *false* that if I should now jump out this window I should hurt myself. This could be the case for the same reason that the formal implication, "If x laughs, x is human," is true, although "If the horse War Admiral should laugh, he would be human," is false. It is easy to suppose, by a confusion of thought, that if we should know the formal implication "In all actual cases of *'A'*-true, *'E'* is also true," we should, in knowing that, know also that *if* in any case *'A' should be* true, *'E' would be* true. But as the last example indicates, so to interpret formal implication, is simply to misunderstand what actually it asserts, and read into it something more important which no formal implication can ever state.

10. We have dwelt upon this matter at length, not from any desire to investigate logical niceties, or to insist upon verbal accuracy in interpretation, but because the issue here is a troublesome one to locate and also fundamental. No assertion of or knowledge of or belief in objective reality or fact can be understood without understanding that it has, as its practically significant and testable consequences, hypothetical propositions having the following characteristics: (1) The consequent in this hypothetical statement is not logically deducible from the antecedent. (2) Nevertheless the truth of the hypothetical statement itself—like that of one which states a relation of logical entailment or deducibility—is independent of the truth or falsity of the antecedent or hypothesis: for the if-then relation which such a hypothetical statement asserts as holding, the hypothesis has the same consequences whether it is true or false. (3) Hence this hypothetical statement may be significantly asserted when the hypothesis of it is contrary to fact and is known to be so.

Let us proceed to the kind of example which instances this issue in a form which is critical for the theory of knowledge. As long ago as Hume, it was suggested that there is no difference between the common-sense supposition of a real world (when the significance of this supposition is validly interpreted) and the summary statement that at certain times we have certain specific sense impressions. All the significance of 'order' and 'connection' of things, *so far as such*

orderliness of things and events is verified, or actually will be verified in future, will be comprehended in this summary statement of actual sense-content of experience. The common-sense man regards this Humian suggestion as equivalent to the supposition that objective reality may 'go out' when unobserved but always 'come back' when observed; and considers this a kind of harmless philosophic joke. Very likely he is unable to give his instinctive repudiation of it any clear formulation. But one can be given: the difference between such fantastic subjectivism and our belief in a world which is knowable and verifiable but exists independently of being observed, is the difference between supposing on the one hand that empirical generalizations which are justified have no valid significance beyond that of formal implication, and supposing on the other hand that the verifiability of such empirical generalizations includes reference to hypothetical statements about possible experience, and that these hypothetical statements have the characteristics summarized in the preceding paragraph.

For example, I believe that there is a room next door with a desk and blackboard in it, although no one is now observing it, and although at times no one is even thinking of it. My belief in this objective reality is distinguished from the subjectivistic conception that it exists only when and as perceived, by the fact that my belief includes the following items:

(1) If at any time (while this room continues to exist), a normal observer, A. B., should put himself in position to observe this room, A. B. would have the kind of experience meant by 'observing a room with a desk and a blackboard'.

(2) "A. B. now puts himself in position to observe this room" is false: no one is now observing it.

(3) "A. B. observes a desk and blackboard" is not logically deducible from "A. B. puts himself in position to observe this room in question."

(4) It is false that "If A. B. now puts himself in position to observe this room, A. B. will see a pink elephant."

Understanding these statements in their obvious intention, the following may be noted: (1), above, is to be construed as a hypothetical statement which is general; holding for any normal observer and for any time (so long as the reality to be verified continues to exist).

Statement (2) asserts that for some observer and some time, or in fact for any observer and some time (now), the antecedent in this hypothetical statement (1) is false. Statement (3), above, expresses the fact that the consequent in this hypothetical statement is not logically deducible from the antecedent or hypothesis. Statements (2) and (4) together indicate that, for the intended sense of this hypothetical assertion—of the if-then relation which it asserts—it is true for some observer and some time (A. B. now) for which its hypothesis is false; but it is *not* true that this contrary-to-fact hypothesis has any and every consequence—e.g., not true that it has the consequence "A. B. will see a pink elephant."

Taken together, these features characterize the meaning of belief in an objective reality which is verifiable but is independent of being verified or experienced. And they likewise indicate, as clearly as it seems possible to indicate it, the familiar and intended meaning of 'if-then' in statements of possible confirmations of empirical knowledge.

If this is a fair illustration of our belief in the reality of a thing when not observed, then one way of expressing such belief is in the form of a hypothetical statement about the experience of a normal observer who should act in a manner appropriate to testing what is in question under conditions permitting such test. But the meaning intended by 'if-then' in such hypothetical statements is of the essence of the matter and must be carefully regarded. It is not expressible in terms of logical deducibility nor in terms of material implication or of formal implication. An if-then relation of hypothesis to logically deducible consequence, is one which can be certified by reflection alone and does not need to be verified by experience. The if-then of material implication is such that a contrary to fact hypothesis has any and every consequence: when a thing is not being observed, the material implication, "If this thing is observed, then ——," will be true, however the blank here may be filled. And the if-then of formal implication (supposing it distinct from that of logical deducibility) is such that, in terms of it, the statement, "For any normal observer at any time, if the observer acts appropriately to verification of this thing, then a positively verifying experience results" will be satisfied if every *actually made* observation has a positive result, and without

any supposition as to what *would* result in the case of confirmations not in fact attempted.[6]

This whole matter may be summarily put as follows: For any conception which takes reality to be knowable and verifiable, to believe that this or that is real means believing certain statements of the form "If such and such experiments be made, so and so will be experienced." And the further and crucial question here concerns interpretation of the if-then relation in such hypothetical statements. To take this as expressing relation of a premise to a logically deducible consequence, is out of the question: that would represent a conception difficult to identify with any historical theory, and hardly worth discussing. To take this if-then relation as one expressible in terms of material or of formal implication would be precisely equivalent to that extreme subjectivism—easily reduced to skepticism—which maintains that to be is to be perceived; which holds that there is no valid difference between the existence of the reality believed in and the mere fact that on certain occasions certain actual perceivers actually have certain perceptions. The realistic conception that the believed-in and verifiable realities are independent of being so known or experienced, must interpret this if-then relation as one for which such hypothetical statements are true or false independently of the truth or falsity of their antecedent clauses; one for which the hypothesis has the *same* consequences whether the observation is made and the hypothesis is true, or the observation is not made and the hypothesis is contrary to fact. Thus it is a relation most clearly expressible in the form "If such and such observation *should be* made, so and so *would* be experienced."

11. This last-mentioned meaning of 'if-then', requisite to expression of any realistic conception of objective fact, is one which has

[6] This point concerns not only the issues between subjectivism and realism but also the question, now beginning to be raised, whether such metaphysical issues are meaningful. But too commonly in current discussion the genuineness of these issues is prejudiced by failure to formulate them correctly in logical terms. Perhaps it is not altogether an accident that those who repudiate metaphysics as meaningless also tend to deny any significance of hypothetical statements beyond what is expressible in terms of material or of formal implication. (There would be some exceptions to this generalization, however.) That would be a way of begging the question at issue by apparently rigorous but actually specious logical analysis. It would argue away the issue by refusing to state it; by refusing logical standing to that meaning of 'if-then' in terms of which alone the actual significance of common-sense assertions of objective belief can be expressed.

no name, and one which logical analysis has largely neglected. But it is familiar to common thought and discourse. We might refer to the connections so statable as 'matter-of-fact connections' or 'natural connections' or 'real connections.' And the consequences of a hypothesis, in this sense of 'consequence', might be called its 'natural consequences' or 'real consequences'. These names would be appropriate because this sense of 'if-then' is the one connoted in any assertion of causal relationship or of connection according to natural law. It is the kind of connection we believe in when we believe that the consequences of any hypothesis are such and such because of 'the way reality is' or because the facts of nature are thus and so. It is the kind of connection which we rely upon, and implicitly assert, when we anticipate that the consequences of a certain action under certain conditions will be so and so, and cannot be otherwise. Because whoever believes in predictable consequences of action, believes that although we make our own decisions, what is to ensue once we commit ourselves is fixed and out of our hands. Only by the 'reality' of this connection, independently of the decision itself, could there by any such thing as 'foreseeable consequences' of action. Whoever contemplates a possible way of acting but discards it as unwise, believes "If I should do so and so, the results would be such and such"; and believes this connection holds independently of the decision itself. And whoever regrets a decision believes "If I had done that, such and such would have come about." And he does not believe this to be true merely because the hypothesis is false; if he did, the regret would be spurious.

Without something determined independently of the decision to verify, there would be nothing for the verifying experience to disclose—except itself: it would verify nothing because there would be no independent fact to be evidenced. Whoever believes in independent reality, believes in such real connections which may be disclosed in experience; and whoever believes in such connections, verifiable in experience, believes in knowable but independent reality. And whoever *dis*believes in such real connections—if he is not merely confused and inconsistent—not only disbelieves the possibility of empirical knowledge; he disbelieves that there is anything to be so known which it is possible to state.

As will be obvious, such connections are what Hume referred to as 'necessary connections of matters of fact'. These are to be distinguished from 'necessary connections of ideas'—from logical connections. A correlative point of terminology is to be noted with respect to the frequent phrase 'possible experience'. The verifiable import of any matter of (objective) fact is that certain experiences are 'possible' and certain other experiences 'not possible'. But what is in this sense 'not possible experience', may still be—and presumably will be—entirely possible to imagine. Neither such 'possibilities' of experience nor such real ('necessary') connections are logical; determinable *a priori* by reflection. They are discoverable only in that manner in which empirical knowledge is acquired.[7]

As Hume correctly maintained, the only alternative to admission that such real connections genuinely obtain, is skepticism. And that jejune character of consistent skepticism which Hume himself finally admitted, is indicated by the implication of it for action which has been remarked. Without 'necessary connections' there could be no foreseeable consequences of any active attitude; and without such determinable consequences action could not be genuine—the very idea of it would be empty. The skeptic who does not, like the ancient Cynic, refuse to turn out for a wagon, is only play-acting. Consistently he can take no active attitude; not even the attitude of not taking attitudes. And whoever can thus divest himself of his active nature—and without trying—must arouse our wonder if not excite our admiration. At least he will not take his skepticism seriously, or ask us to, since he takes *nothing* seriously.

There is, however, one fundamental difference between what we should intend by 'real connection' and what Hume meant by 'necessary connection of matters of fact'. In common with philosophers generally up to his time, Hume tends to regard the word 'knowledge' as strictly applicable only to what may be certain, and fails to give sufficient consideration to the question of probability. Hence for

[7] Kant also uses the word 'necessary' (*notwendig*) in this sense, particularly in his discussion of the Analogies of Experience. And he indicates the correlative sense of 'possible' in his discussion of the categories of modality. He also uses the phrase 'according to a rule' (*nach einer Regel*) as equivalent to 'necessary' in this sense. According to his conception the particular rule of connection is not necessary in the sense of *a priori*, but he believes it assured that there must *be* such rules if the objective order of fact is to be distinguished from the subjective connection of mere association of ideas, and from the merely temporal order of experience as given.

him the alternatives are (1) that there should be universal connections which can be established as holding between matters of fact, or (2) that no conjunction of facts can be known to be other than sheer coincidence. Without entering upon all the difficult questions which surround this matter and must be considered later, we may say at once that the idea of real connection does not require the supposition of 100 percent correlation by which, A being given, B can be predicted with certainty. It is also satisfied if the occurrence of A genuinely affects the occurrence of B: if the objective frequency of B when A is present is reliably different than when A is absent, so that the occurrence of A is a probability-index of the occurrence of B. If such correlation can be established, then when A is given there arises a valid probability of B; e.g., if a person jumps out a second-story window he will *probably* be hurt. Such a probability-connection would be inappropriately spoken of as 'necessary', but it has the essential character mentioned above; it is significantly assertable when the hypothesis is contrary to fact and in cases where the factuality of the hypothesis is undetermined. The importance of this point concerning probability will appear shortly.

As was noted in the preceding chapter, it has often been charged by critics of pragmatism that, in identifying the meaning of empirical statements with what would verify them, one reduces the significance of objective facts believed in to a signification of experience merely; and hence that such a 'verification-theory' of meaning is really 'idealistic' or 'subjectivistic' or 'phenomenalistic'. But we now arrive at a point where the difference of this view from any subjectivistic conception can be made precise and clear.

It is here maintained that there is no significance in objective belief nor in any statement of objective fact beyond what would be expressible in terms of some theoretically possible confirmation of it. But there is in that no implication of subjectivism; it implies denial only that there is any objective thing or fact which is intrinsically unknowable—which could not be empirically evidenced to any actual or even any supposititious observer. The critic has mislocated the issue between subjectivism and the affirmation of a reality which is independent of being known, and commits an *ignoratio elenchi.*

The denial of unknowable reality does not—let us hope—imply that there is no reality which is unknown and unverified. That there can

be no reality outside *actual* experience is what the subjectivist asserts. It is not here maintained, however, that reference to the totality of *actual* verifying experiences (verifications actually made or actually to be made in future) exhausts the significance of objective fact. On the contrary that is denied. As has been pointed out, an objective belief implies not only such terminating judgments as are put to the test but also assertion of those which are untested. As we have emphasized; such terminating judgments assert an if-then relation which must still hold when the hypothesis is false and the indicated verification is not made; and are thus most clearly expressible in the form "If such and such observation should be made, so and so would be observed."

It lies in the nature of the case that there must be such terminating judgments, taken to be true, which will remain untested. It is not possible to make all possible tests, for the same reasons that it is impossible to act in all possible ways or adopt all possible decisions. Our commitment to objective reality, independent of being experienced, is signalized by our commitment to terminating judgments—implicitly affirmed in affirming what implies them—which, in the case of any objective belief, remain untested; in our assertion of the observability of what is not observed; of the verifiability of what remains unverified; or possibilities of experience which never become actual.

It is by such departure from subjectivism that we find it necessary to insist that the terminating judgments, in which the verifiable meaning of objective empirical assertion is to be found, must express a real connection—independent of being found to hold by actual test—between a mode of action and a sequent eventuation of experience. The question how statements with such meaning may be assured, is the question how empirical knowledge of an objective reality is possible.

12. We may now turn to the two questions mentioned earlier but postponed. When a terminating judgment represents a possible test of an objective statement believed, finding this terminating judgment, upon trial, to be decisively true does not decisively verify the objective belief but confirms it only and shows it probable. But suppose that upon trial the terminating judgment is found false: the mode of action is adopted, but the predicted eventuation in experience fails

to follow. Is the objective belief of which this is a pertinent test thereby decisively proved false? And second: we have seen that any test of an objective statement in direct experience requires an hypothesis of action; the predicted eventuation of experience is conditional upon performance of the test. But are there not other conditions also which must be satisfied if the accrual or non-accrual of the expected empirical sequent is to have a bearing on the objective belief and constitute a test of it? These two questions are connected with one another.

We have so far spoken as if the various terminating judgments representing possible confirmations of an objective belief were simply implied in the statement of that belief; and if that should be unqualifiedly correct, then the failure of such a terminating judgment to prove true upon trial would be decisive disproof of the objective statement implying it. We noted, in passing, a doubt whether this is in fact the case, but we did not there pursue the matter.

That an objective statement is not decisively verifiable by any single test, rather naturally suggests that likewise it will not be decisively falsifiable. But that is merely an easy association of ideas and without cogency. If a statement, 'P' has numerous implications, 'Q_1', 'Q_2', 'Q_3', etc., but none of these is equivalent to 'P' itself, then the finding that any one of these implied statements, 'Q_n', is true will afford confirmation only of the truth of 'P', but finding any one of them, 'Q_n', to be false will prove decisively the falsity of 'P'. And this consideration is in point here, because no terminating judgment could be equivalent to any objective statement: if it were, then the objective statement could be proved with the same certainty which attaches to the terminating judgment when tested.

The ground, then, on which it may be doubted that objective statements are decisively falsifiable is not this one of expected symmetry in the relation to verification and to falsification. It is, rather, the direct inspection of cognitive experience itself which will suggest this doubt. For example; what I see arouses belief in a real doorknob in a certain position before me. And when I put out my hand to grasp it, the eventuation of the expected feeling of contact will constitute a confirmation of this belief as highly probable. But suppose I fail to locate and turn the knob with my hand: shall I be convinced forthwith that my belief in a doorknob where I seemed to

see it is false? As a fact, no. If such failure occurs, I shall be puzzled; but perhaps as much inclined to doubt my sense of touch as my sense of sight, and rather more disposed to doubt the accuracy of my coordination than either of these. The test in question is the most usual and practical one which could readily be suggested for the belief in question, and as nearly decisive as any. And at a rough estimate, we shall think that failure of it is a somewhat less decisive proof of falsity of the belief than success would be of the truth of it. Other examples might disclose a different comparison between the degree of confirmation of the objective belief in question which positive result of putting some pertinent terminating judgment to the test would give and the assurance of its falsity which would be indicated by a negative result. And we should find many cases where decisive disproof of the terminating judgment would make us practically certain that the objective belief so tested was false. But should we find any instance in which failure would give rise to such degree of assurance that one would hazard his life and hope of future happiness on it without a second thought? That is hardly plausible: we do not feel that degree of assurance in *any* sense perception: too many other possibilities of explanation—other than truth or falsity of the objective belief—will suggest themselves, whatever the result of any single test. Off hand, one is disposed to think that if we choose the most nearly decisive of possible tests by direct experience, a positive result is about as nearly decisive of truth as a negative one will be of falsity. And we cannot well suppose that *any* test in direct experience will either prove or disprove an objective belief with absolute certainty.

This result may seem disconcerting; because it obliges a complicating qualification of the account of empirical determination of truth and falsity in general; and hence also, of the account of the meaning of objective statements and beliefs, in that sense of meaning in which it coincides with the criterion of applicability and truth.

Unless objective empirical statements say something about experience, they are meaningless. We might grant that analytic statements can have significance independently of anything which experience will test. But certainly not empirical statements. Unless these say something which experience will determine, directly or indirectly, they say nothing at all. And no statement can say anything about experience unless, by implication at least, it says something about

particular experiences, actual or possible. But if we ask ourselves whether what we mean when we make a statement of objective fact, is something which any single experience can show with absolute finality to be true or false, then candor compels us to answer in the negative. Practical certainty; yes, in some cases: but complete theoretical certainty; no. The most that we can claim is that for objective beliefs in general, or for most of them, there are tests in direct experience a positive result of which will indicate a high degree of probability, and similarly, tests a negative result of which will indicate a high probability of falsity. Often it will be the same test which will answer to both these requirements: a positive result of it will assure high probability of the belief, and a negative result will indicate extreme improbability. Where such is the case, we may call the test in question a *ruling test.* But for some objective beliefs —particularly those which are comprehensive, like a generalization of science—some single experience might give a nearly decisive disproof, but no single test would afford an equally trustworthy confirmation. And perhaps for some objective beliefs practical certainty might be assured by some crucial test, but no equally certain disproof could be found in any single experience. That might be the case when satisfactory test-conditions are difficult to achieve.

13. In consequence, we shall be obliged to qualify our previous statement of the relation between the non-terminating judgment of objective belief and any terminating judgment which constitutes a test of it. If the terminating judgment be decisively found true, then the objective belief is thereby confirmed as probable. And if the terminating judgment is found false, then the objective statement is thereby proved improbable; is disconfirmed. It is the latter consideration which obliges the qualification; the former one has all along been explicitly recognized. We can no longer say that *if* the objective belief is true, then the terminating judgment will certainly be true; we can only say it will be probable—in most cases in some high degree, perhaps amounting to practical certainty.

However, within the bounds of such a manner of approach, could we not have avoided the kind of complications which now threaten us by adopting the type of formulation which a scientific operationist would be likely to give of his scientific meanings: by saying, for example, that the concept of length or hardness is to be defined by some

crucial test of it? Thus we might say "*X* has hardness *m*" means "The standard test-apparatus operated under standard conditions will make a dent of depth *k* in *X*." This provides a genuinely equivalent formulation, simply expressible and indicative of the test of truth of which we are in search. And if it be objected that there are other tests which would be pertinent and other modes of confirmation, that point too may be taken care of in such terms. The *definitive* test is as indicated; but on grounds more or less obvious, we shall recognize the fact of a high, or perhaps a 100 percent correlation between results of this test and results of others. Such other results will *confirm* hardness *m;* but it is the specified test which is to be accepted as the decisive proof.

As has been indicated, the trouble with this type of operationist conception is merely that it does not go far enough to reach the general and final problems of validity and truth; because the criterion as so formulated is not genuinely in terms of sense—even though it may readily suggest what further calls for formulation. It is not in terms of direct experience, as is witnessed by the fact that whether a standard apparatus in good order has been properly operated, and has penetrated the material precisely to depth *k,* can be and often is a question. This is a complex matter concerning which mistakes are frequently made: it pertains to objective facts offering the same general kind of problems of their assurance as does the original question about the hardness of the material tested. Hence we are called upon to say, similarly, what the test of the *test* is, and how the results reported are to be assured as trustworthy.

The physicist or biologist or psychologist may quite properly feel that he is not called upon to pursue such problems further; just as also he is not called upon for any account of the humbler and more general kind of knowledge such as one's assurance that there is a doorknob in a certain position before him. An operational definition of the usual sort meets his every requirement—so long as he does not become entangled in epistemological snarls in his own scientific methodology. (There may be something to be said on that point, but we need not pause to say it here.) But for those whose concern is with the epistemological problems, such a definition represents a starting point rather than a solution. It leaves us with three questions; What is the criterion of determination that a test apparatus is in a certain

condition called 'good order'?, How are we assured that a prescribed test routine is properly carried out?, and How is the fact that the material has been penetrated to a specified depth to be assured? And from the epistemological point of view, these questions are no simpler than the original one, how we may know that the material in question has a certain degree of hardness, nor are they essentially different in kind.

For any further progress we must make connection between *any* such matter of objective fact and something directly in terms of sense, where alone we can find an *ultimate* determinant of truth or validity of an empirical belief. We can make such direct contact only in terms of what may be given in sense experience; only in terms of what appears. Sense appearances may be difficult, or even impossible, to formulate, but they are the matters of which we may be certain. And unless something is certain in terms of experience, then nothing of empirical import is even probable. Here again, we would seem not to have discarded any alternative of conception unnecessarily, but merely to have followed the compulsions of the problem and of the facts.

The complicating considerations which now confront us are two: first, that even those consequences of an objective belief which are statable in terms of the directly sense-verifiable are not such that the finding of any one of them true will prove beyond peradventure the truth of the belief, and not such that finding one of them false will be decisive proof that the belief is false. And second, that we have not yet taken account of the possible conditions, other than a condition of action, which may be essential in order that certain findings of direct experience should be pertinent to an objective belief in question.

14. Let us consider the first of these two matters. A part of the consequences of this have already been sufficiently discussed: the fact that no single terminating judgment will, upon being found true, assure the objective belief with certainty, means that objective beliefs are not decisively verifiable but confirmable only. A crucial or 'ruling' test may give assurance amounting to practical certainty, but theoretical certainty of objective fact is not attainable. And where no test can assure certainty, there is no good ground for singling out any one such possible confirmation as peculiarly exhibiting the

sense significance of an objective statement: all findings which will confirm it are alike to be recognized as consequences implicit in what it means, in terms of direct experience, for that statement to be true.

It may be objected that connection between an objective statement believed and empirical findings which will confirm it should, rather, be viewed as something learned from past experience, and not as implied or contained in the objective statement itself which is believed. It is quite true, and even obvious, that without something learned from past experience no such connections as terminating judgments assert could be understood or known. We must return to that fact at a later point. But recognition of it contains nothing contrary to the conception that such connections are contained in the objective belief itself: it is *these meanings themselves* which we learn to entertain and to understand from past experience.

Such learning historically arises by association of ideas and the formation of habits. But if in any instance a belief so arising be challenged, the only justification which can be offered for it is by way of some multiplicity of inductively corroborated real connections in experience. If you move your eyes, things seen will be displaced in the field of vision—unless illusory. If you reach for what has certain recognizable but indescribable visual characters, you will feel it with your hand—if the apprehension is veridical. It is by learning such real connections in experience that we establish the actuality of things seen; learn that real objects exist having certain properties signalized by certain visual and other clues. Explicit formulation of such inductively established real connections gives us, at one and the same time, the sense meaning (experiential criteria) of our customary beliefs which we express by affirming matters of objective fact, and the basic probabilities by which an experienceable world of objects is recognized to exist.

What further remains to be weighed, is what follows from the fact that finding a predictable consequence of an objective statement to be false will disconfirm it but will not prove it certainly false. There is nothing disconcerting from the practical point of view in this discovery that objective beliefs are as difficult to disprove conclusively as they are to prove. We shall merely choose those 'ruling' tests whose results will be as nearly decisive as possible—of truth in case the result is positive, and of falsity in case they fail. The considera-

tion which should give us pause here is the fact that we can no longer regard any terminating judgment, "When S is given, if A then E," as strictly implied by an objective statement, 'P', which is believed. We can only say, "If P, then when presentation S is given and act A is performed, it is more or less highly probable that E will be observed to follow." Thus if we now ask how, precisely, the sense meaning of an objective belief is to be understood, we find that it is to be thought of as some set of direct empirical findings it implies as *probable* under appropriate conditions of presentation and of action.

This does not, however, impose any difficulty, either practical or theoretical, for the confirmation or disconfirmation of objective fact. It remains true that such confirmation or disconfirmation may be found in some certainty of sense, determined by putting some terminating judgment to the test; and that a corresponding probability of the belief tested may be definitely assured. For any objective statement, 'P', we shall have some set of possible tests of it, each expressible by some terminating judgment:

If P, then when S_1 and A_1, there is a probability H that E_1;

If P, then when S_2 and A_2, there is a probability K that E_2;

And so on. Also there will be a probability which can be judged that if the objective statement is false, the predicted consequences of it will not be found when test is made:

If not-P, then when S_1 and A_1, there is a probability M that not-E_1;

If not-P, then when S_2 and A_2, there is a probability N that not-E_2;

And so on. Such hypothetical probabilities would have to be adjudged directly: there are no probability-formulas which would have much bearing upon them, and none which would allow numerically precise estimates in the ordinary examples of cognition where the pertinent data hardly admit of mathematical or statistical formulation. Further, the degree in which an objective statement is confirmed by a positive result of test, or found improbable when the result is negative, are appropriately to be assessed by a common-sense estimate of their order of magnitude, rather than calculated out. The useful generalizations in this connection are merely that the degree of confirmation, when test result is positive, is the higher according as this positive result is the more *im*probable if the statement tested be *false;* and that when the test result is negative, the statement tested is the more improbable according as this negative result is the more im-

probable if the statement should be true. When the probability that if *'P'* be false, *'E'* also will be false, approximates to certainty, the assurance of *'P'* itself will approximate to certainy when *'E'* is found true. And when the probability of *'E'* if *'P'* be true, approximates to certainty, there is assurance approximating to certainty that *'P'* is false when *'E'* is found false.[8]

It is to be observed here that confirmation of an objective belief, in a degree approaching certainty, is derivative from high probability that the expected test result, *'E'*, will be found *false* in case the belief *'P'* is in fact not true; and not from the direct relation between *'P'* and *'E'* which would be stated by a terminating judgment of the form "If *P*, then (assuming *S* and *A*) *E*." Thus it makes no difference to the possibility of a confirmation of *'P'* approaching to certainty, that we are obliged to abandon the supposition that terminating judgments express an unqualified deducibility of the finding *'E'* from *'P'* (and *'S'* and *'A'*).

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[8] The degree of probability established by a test is also relative to the antecedent probability of *'P'*; the probability of *'P'* before the test is made. The above generalizations are nevertheless unqualifiedly correct.

The truth of *'P'*, which is tested, is one 'cause' or explanation of *'E'* when found. And we may bracket together all other possible circumstances which could explain this finding under the head 'not-*P*'. The principle of Inverse Probability will then apply as follows:

Let the antecedent probability of *'P'* $= W$.
The antecedent probability of 'not-*P*' $= 1 - W$.
Let the probability of *'E'* if *'P'* is true $= K$.
Let the probability of 'not-*E*' if *'P'* is false $= N$.
The probability of *'E'* if *'P'* is false $= 1 - N$.

Then when *'E'* is found true by test, the probability of *'P'* is given by

$$\frac{WK}{WK + (1-W)(1-N)}$$

This fraction will be nearer to unity according as W is nearer to unity or N is nearer to unity. Thus *'P'* will be assured with a probability approximating to certainty if the probability N that *'E'* will *not* be found unless *'P'* is true, approximates to certainty.

The degree of disconfirmation of *'P'* (the probability of 'not-*P*') when *'E'* is found false, is given by

$$\frac{(1-W)N}{(1-W)N + W(1-K)}$$

This fraction will be nearer to unity according as W, the antecedent probability of *'P'*, is nearer to zero, or K, the probability of *"E if P"* is nearer to unity. Thus the disconfirmation of *'P'* when *'E'* is found false, will approximate to certain falsity if the assurance of *'E'* if *'P'* is true, approximates to certainty.

Application of the principle of Inverse Probability here is not affected by the omission from the hypothesis above, of the conditions *S* and *A*, since when test is made these conditions are assured with certainty, and their probability-coefficients would each be unity.

There are two further facts of importance which should also be noted, about the relation between an objective belief and the test results which may serve to confirm or disconfirm it. First, that a positive result of any one such test increases the antecedent probability of a positive result of other tests not yet made; because it increases the antecedent probability of the objective belief itself, and hence increases the probability of any further consequences of it. This assures the practically important point that, even though the predictions, in terms of direct experience, which are warranted in case an objective belief is true, are not predictions with theoretical certainty but with probability only, nevertheless anything which confirms this belief adds to the assurance with which the sense-predictable consequences of it can be expected in further experience. Second, we should observe that while the objective statement believed gives only some more or less high degree of probability of any one predictdictable sense consequence of it, the relation of it to the whole set of such consequences, expressible by pertinent terminating judgments, or to any considerable class of such consequences, will be somewhat different. If 'E_1', 'E_2', 'E_3', etc., are each such that finding it true assures some probability of 'P', then the finding true of 'E_1' and 'E_2' and 'E_3' will quickly assure a high degree of probability, according to a principle which will be fairly obvious. This finding that n such consequences, each more or less improbable in case 'P' is false, are *all* of them true, will represent a striking coincidence, highly improbable if 'P' is in fact false. The principle in question may be illustrated by the example of a number of witnesses, each of them not especially trustworthy as individual reporters, who independently tell the same circumstantial story. In case of such concurrence, one must quickly be convinced that what they tell is practically certain. In similar fashion, the probability of an objective belief, and with it of the pertinent terminating judgments as yet untested, may come to have very high probability, even on the basis of confirmations which, taken separately, might not warrant a particularly high degree of assurance.

We cannot here explain the precise meaning which should be assigned to 'probability' in the above: that must be a separate and later topic. But the appropriate sense is the same as that suggested by the commonplace expression that something is to be expected in 99 cases out of 100 (or some other fraction). And this illustration is the

more apt in that the fraction mentioned is to an extent a figurative expression: no such precision as it might suggest is taken to be genuinely possible in estimating the degree of probability in question, but it is nevertheless intended as roughly accurate.

Let us apply the results of this discussion to the case of seeing the doorknob and attempting to confirm the belief thus induced by grasping. If there really is a doorknob in a certain position before me where I seem to see one, then when such visual presentation as I now have is given, if I initiate a certain not easily describable but immediately recognizable activity of grasping, a similarly indescribable but recognizable feeling of contact is to be expected in 99 cases out of 100. But if there is *no* doorknob, when such presentation is given, then in 999 cases out of 1000 if I initiate such activity the expected feeling of contact will not ensue. (Whether the probabilities are plausibly estimated here, even roughly, makes no matter for the illustration; but note that the two probabilities assigned—one for truth of the objective belief and the other if it is false—are different.) It should be remembered that while what is believed about the doorknob is stated in the language of objective fact, the content of presentation, the action adopted, and the empirical sequent, are all to be described in expressive language, as items of which we may be immediately certain. That is:

Let '*P*' = "There really is a doorknob in front of me and to the left."

Let '*S*' = "I seem to see such a doorknob."

Let '*A*' = "I seem to myself to be initiating a certain grasping motion."

Let '*E*' = "The feeling of contacting the doorknob follows." Then the two judgments made are:

(1) When *P* and *S* and *A* then, with a probability measured by 0.99, *E*.

(2) When *S* and *A* but it is false that *P* then, with a probability measured by 0.999, it will be false that *E*.

As a result of (2), if when the appearance is given and the action initiated, the expected result actually follows, then the objective belief is thereby assured with a probability which is of the same order of magnitude as 0.999. Because by the general principle of Inverse Probability, the probability of a hypothesis which is assured by find-

ing a consequence of that hypothesis to be true, will approach to certainty when the *im*probability of that consequence if the hypothesis be *false* approaches to certainty. And by the same general principle, applied to (1) above: if the belief about the doorknob is put to the test in question and the feeling of contact with the doorknob does *not* follow, this belief will be disconfirmed, and there will be a probability having the same order of magnitude as 0.99 that it is false.

Various questions will suggest themselves here, some of them to be dealt with in the conclusion of this chapter, and others which must wait upon a more detailed discussion of probability. But provisionally; if we ask what statement of an objective belief means in terms of sense determination, the answer can now be suggested from this illustration. That there really is a doorknob where one seems to see it, means that an endless number of confirmations of this belief will be possible, one example of which would be reaching for this doorknob and finding it with one's hand as expected. It has to be recognized, however, that success of one such test will not amount to 100 percent proof of the fact believed; and that likewise a single failure will not constitute 100 percent disproof of it. If a number of tests be made by reference to such predictable sense consequences of the belief—whether repetitions of the 'same' test or tests of different such consequences—then the cumulative result of coincident success will determine a probability of the belief which will be of an even higher order of magnitude than the probability established by any single confirmation alone.[9] In this way the confirmation of the belief can, in favorable cases, approach quite close to certainty on the basis of a finite number of tests; even though theoretical certainty is not attainable. However, truth of the belief does not require unexceptionable success of attempted confirmations. (If *all* the witnesses tell exactly the same story with no discrepancy of detail, perhaps that confirmation will be 'too good to be true'.) In our attempted confirmations, we shall reasonably expect that eventually some failure may occur, even supposing the belief to be true; such exception 'having some other explanation'. For example, we sometimes fail to grasp a door-

[9] For reasons which are commonplaces of induction, and could be stated in terms of principles of probability, a coincidence in the success of 'different' tests will warrant a higher degree of assurance than will be given by repetitions of the 'same' test.

knob which really is where we seem to see it, by a failure of coordination. Consonantly, it is required for theoretical precision that the terminating judgments which are consequences of an objective fact believed, should be stated in terms of probability: if there really is a doorknob where I seem to see one, then, with a probability of about 0.99, if I try to grasp it I shall feel it with my hand.

Perhaps the question is, however, of a different sort; How do we know that the belief, or statement of it, has some certain set of terminating judgments as its consequences and not others? The only answer which can be given is that we know this in knowing what we mean by our affirmation of objective fact; that we must know it insofar as we know what the truth of our belief involves in any fashion in which experience can give evidence of that truth. Because such terminating judgments express the only possible determinations of objective fact which experience can afford, and hence constitute the only usable criterion of empirical objective truth. We might formulate what we mean in terms of some *decisive* test of truth, expressed in objective language, as the scientific operationist usually does. But if so, then it will be only in this same fashion of confirmation and of probability that we can assure the fact that this specified *objective* test is actually satisfied. In terms of what can be found directly in experience, and hence of that which alone is empirically determinable with certainty, confirmation only is possible for an objective belief.

15. The same considerations involved in the preceding section, have direct bearing on the other of the two questions to be investigated: Are there not other conditions of any expected result of a test of objective belief besides merely the condition of an initiation of action? And if so, must not these further conditions be introduced in the hypothesis of any terminating judgment, if it is to be fully and accurately expressed?

The example of determining hardness by use of a standard test apparatus, would make it appear that frequently there will be such further conditions of any test. And it suggests itself that in this respect that example is typical of the generality of possible confirmations of an objective belief or statement. We must assure that the apparatus is in working order; we must assure that it actually conforms to the recognized standard; we must assure that the manner of orienting the apparatus and the material is as prescribed. If these

conditions be ignored, the pertinence of the result to the objective fact believed and tested, will be dubious. Thus it suggests itself that the really correct way of formulating a possible confirmation of objective fact will be such as, "If C_1 and C_2 and C_3, and A, then E"; or, combining these several conditions under one head, *'C'*, and putting the matter more precisely, "When S is given, if C and A, then there is a probability K that E."

However, we have seen why what *'A'* and *'E'* here represent must be phrased in expressive language, stating something immediately determinable as specific content of experience. Also that these same considerations compel the probability qualification of the predicted eventuality *'E'*. The similar question must at once be observed as pertinent to any further condition or conditions, represented by *'C'*. Are these conditions to be stated in terms of objective fact—e.g., that the apparatus actually is in good working order—or are they conditions which should be stated in terms of something which given experience itself may decisively assure? It would be the common-sense procedure, which any physicist would be pretty sure to follow, to phrase the whole matter in objective terms: the conditions, the experimental activity, and the result to be looked for, would all be expressed in terms of physical fact. He will mention separately certain safeguards to be taken in order to minimize the possibility that the test and its results may be vitiated by experimental or observational errors. But he will probably not incorporate any allowance for such possible error in the statement of the test itself. All that is perhaps as it should be. But in being so phrased in objective terms, the statement of test procedure and results will omit the questions centrally important for the epistemological problem of our possible assurance of objective physical facts. For any resolution of that kind of problem, we are obliged to inquire how, and in what measure, assurance of *any* physical fact—including not only the test performance and its physical result but also any other physical conditions of a satisfactory test—may arise from *data which can be completely assured in terms of experience.*

Observing this necessity, we see that if the test apparatus must be standard in order to make the results a genuine confirmation of physical fact; and if the apparatus must likewise be in good working condition, and so on; then the next question is: "Can we be *certain*

of these test conditions?" And the answer must obviously be in the negative: we might have reasonable assurance or even practical certainty, but the possibility of doubt could not be genuinely precluded. That being the case, the test results will have to be weighed in the light of what we *can* genuinely assure at the time of test. And this will be what we can assure by some direct observation, formulatable in terms of what can be actually given. The appropriate hypothesis of the test, as actually carried out, is *not,* then, a physical condition of the apparatus but only such assurance of this as direct observation can give.

Thus if there are conditions of objective fact for the carrying out of any test, result of which will confirm or disconfirm an objective belief, still the *determinable* conditions, which should qualify the resultant confirmation or disconfirmation, are not those of objective fact but only those which may be directly given and ascertained and which may be *indicative* of the objective and 'ideal' conditions of test. What we may fully determine, for example, is that the apparatus *appears to be* a standard test apparatus in good working order.

Furthermore, this necessity of phrasing any conditions of test in expressive terms, instead of objective terms, does not impede the possibility of any confirmation. If the degree of confirmation or disconfirmation afforded by certain observable test results, on condition of certain *physical* matters of fact, can be stated, then also it can be stated in terms of what is immediately ascertainable, provided the given appearances indicate a determinable probability that these physical conditions are satisfied. If 'so far as we can see' this is a standard test apparatus in good working order, and if there is a determinable probability that if the apparatus were *not* thus satisfactory we should see some evidence of that, then there is a calculable degree of confirmation or disconfirmation on the basis of the *appearances,* if there is any statable degree of confirmation or disconfirmation on condition of the physical facts of which these appearances afford some probbility. And if there are *no* appearances at the time of test which are indicative of any objective conditions essential for a test and give a certain degree of confirmation or disconfirmation, then it can never be determined that there *is* such confirmation or disconfirmation, because we should never know as even probable that a test having this result was actually carried out.

Suppose then that C be some objective matter of fact which is condition of a test, and SC be what is directly observable as evidence of C. More specifically, let us say that if SC is given, there is a probability K that C is objectively the fact. And suppose that we know

(1) If the objective belief 'P' is true, then when S is given and C is satisfied and act A is initiated, it is probable in degree M that E will be observed.

(2) If 'P' is *not* true, then when S is given and condition C is satisfied and act A is initiated, it is probable in degree N that E will *not* be observed.

Then if we substitute 'SC' for 'C' in (1) and (2), these formulations will still hold provided the probabilities, M in (1) and N in (2), be qualified by the probability K, which is that of C when SC is observed.[10] That is, (1) and (2) above, together with the consideration that when SC is observed there is a probability K that C is objectively the fact, give us the following:

(1′) If the objective belief 'P' is true, then when S is given and SC is observed and act A is initiated, it is probable in degree KM that E will be observed.

(2′) If 'P' is *not* true, then when S is given and SC is observed and act A is initiated, it is probable in degree KN that E will *not* be observed.

And in (1′) and (2′) the whole of what is to be determined, in making this single test of the truth or falsity of 'P', is stated in terms exclusively of what experience at the time of test may make completely certain.

Thus it is never necessary to include any condition of objective fact in the hypothesis of a terminating judgment, expressing the test conditions of a possible confirmation. It would be natural to express any conditions, other than that of the test activity, in objective terms. Particularly so when we think of possible confirmations under conditions which do not presently obtain or those pertinent to tests which we have no present intention of making. But the actual cognitive validity determinable by any test cannot be so expressed. Any confirmation

[10] Because by the Multiplication Rule for probabilities, if the probability of C is K, and there is a probability M that if C then E, the probability of C and E both is KM. And when the probability coefficient of S and of A is 1, their inclusion in the hypothesis does not alter application of this rule.

which actually accrues when a test is carried out, has a weight which depends, not upon the factuality of objective test conditions, of whose satisfaction we cannot be certain at the time of test, but upon our *degree of assurance* of those objective conditions which is afforded by some directly observable evidence of them. Thus those conditions which are directly pertinent to a confirmation and genuinely ascertainable are not objective facts but must be included amongst the given appearances at the time of test. They must be items of direct presentation; and we might think of them as already covered by '*S*' in our paradigm, "*S* being given, if *A* then, with probability *M*, *E*."

16. However, if we thus think of the sense presentation which is condition of a confirmation as including *all* directly observable evidence which is pertinent, then it will be drawn to our attention that such presentational evidence is not confined to appearance of the thing which is object of the belief to be confirmed but will include various other circumstances of presentation. For example, in the case of seeing the doorknob and testing the belief based on it by grasping, it will not be merely the appearance of the doorknob which is a pertinent sense condition: if it is a consideration affecting the weight attaching to this confirmation that one's coordination of eye and hand should be normal, then one's feeling fit or feeling a little dizzy at the time will also be such a pertinent item of presentation. And this is in accord with our common-sense weighing of the matter in case our first attempt at grasping should fail of its expected result. How extensive and various the presentational items pertinent to a confirmation of objective fact may be, is something which will again be drawn to our attention at a later point.

Our general conclusion concerning objective beliefs and our possible knowledge of their truth will, therefore, be as follows. The theoretical as well as the practical significance of such belief is to be found in what we should accept as confirmations of it; in those testable consequences taken as implied in the belief itself. No limited number of tests would completely exhaust this significant content of any empirical objective belief. And by the same token no complete and decisive verification of them is theoretically possible, bringing our conviction to such a pitch that no conceivable further evidence could possibly weigh against it. They are never better than probable,

though the degree of probability which can be assured may, in favorable cases, amount to what is commonly called practical certainty. And even where the degree of assurance validated by a single test is relatively low, the coincidence of positive results in a few such tests may quickly give rise to a very high degree of assurance. Further, there is no directly observable result of any single test which we should demand as an absolute certainty in case the belief is true, and the failure of which we should take to be disproof of the belief beyond all possible doubt. Though here again, the degree of probability that the belief is false which arises from such disconfirmation may sometimes amount to practical certainty.

This still allows, however, that the *probability* of a belief, assured by a test or tests, may be determined with finality. Because there is no requisite condition of any such test which cannot be phrased in terms of what is immediately ascertainable, and the expected result can likewise be expressed in terms of sense presentation which may be a matter of complete certainty. The fact that terminating judgments must themselves be phrased in terms of probability, has no consequence which is incompatible with that. Empirical knowledge of objective fact cannot be theoretically certain; but it can be certain that it is genuinely probable, and in auspicious cases that it is probable in high degree. There are, to be sure, further complicating considerations, not so far mentioned; in particular, the data requisite to establishment of an empirical belief as genuinely probable are more complex than is commonly recognized, and more extensive than what are usually called 'the data' in the case of such problems. Before we can come to that topic, however, we must first give attention to the more general and more fundamental question of the nature of empirical knowledge as probable, and particularly to what, precisely, it is which would be asserted in calling it probable. It is to this fundamental question that we turn in the next two chapters.

17. In view of the manner in which this chapter has been written, it will be well to append a kind of summary with special reference to logical aspects of the analysis so far. We began with a relatively simple depiction of terminating judgments, in relation to non-terminating judgments of objective fact, from which they follow, and

then found it necessary to complicate this initial account. Any other manner of presentation would have run the danger of introducing so many problems at the same time that understanding of any one of them would have been prejudiced.

Let us now formulate statements made, as they would finally appear, using the example of a piece of paper before me as our paradigm. And for once let us make use of symbols, both for brevity and in order to suggest certain critical considerations of the analysis. The manner of symbolization to be adopted will not be wholly precise but will be sufficiently clear in connection with the notes to follow. Those who are interested in symbolic precision will see how that might be achieved but they will also observe that much greater complexity would be involved.

Let P = A sheet of real paper lies before me.
S_1 = A visual sheet-of-paper presentation is given.
A_1 = I move my eyes.
E_1 = A seen displacement of this presentation follows.
S_2 = I seem to feel paper with my fingers.
A_2 = I act to pick up and tear.
E_2 = A torn-paper presentation follows.

As symbolic abbreviations, let
$XY = X$ and Y.
$\sim X$ = It is false that X.
$X < Y = X$ implies Y; X has the analytic consequence Y.
$X \rightarrow Y$ = If X then in result Y.
$(h)X$ = In all probability, X.
Xo = It is the case that X on occasion o.
$(o) . Xo$ = For any occasion o, Xo.

The dot-punctuation to be used is that commonly appearing in formulas of symbolic logic. It should be understood, however, that the following are not formulas and cannot be manipulated according to the usual rules of the logical calculus. They are forms of statement which hold for the example chosen and, with certain exceptions to be mentioned, for such examples generally.

(1) $P.<:S_1A_1.\rightarrow.(h)E_1$

(2) $P.<:S_1A_2.\rightarrow.(h)E_2$

(3) $P.< :S_2A_1.\rightarrow.(h)E_1$

(4) $P.< :S_2A_2.\rightarrow.(h)E_2$

(5) $(o) :. Po.< :S_1o\ A_1o.\rightarrow.(h)E_1o$

(6) $\sim P.< :S_1A_1.\rightarrow.(h)\sim E_1$

(7) $PS_1A_1.<.(h)E_1$

(8) $\sim PS_1A_1.<.(h)\sim E_1$

(9) $S_1A_1E_1.<.(h)P$

(10) $S_1A_1\sim E_1.<.(h)\sim P$

(11) $S_1A_1E_1.< :S_2A_2.\rightarrow.(h)E_2$

NOTE 1: Let us suppose that 'S_1', or 'S_2', includes not only what it is stated above to represent but, in accordance with the discussion of 'C_1', 'C_2', 'SC', etc., in Section 15, all immediately observable conditions of whatever confirmation of 'P' is in question.

NOTE 2: It will be observed in statement (1) above that two meanings of 'if-then' are involved, symbolized respectively by '$<$' and by '$\rightarrow$'. The first of these is the relation of implication or analytic consequence which (1) asserts to hold between 'P' and '$S_1A_1.\rightarrow.(h)E_1$'. This relation, '$<$', covers not only that of any premise to a conclusion derivable from it by rules of deductive logic but also, for example, that of "T is red" to "T is colored," which cannot be certified by logical rules alone but only through knowing the meaning of 'red' and of 'colored' and understanding the relation of these two meanings to one another. Thus '$X<Y$', when true, is certifiable *a priori*, either by reference to logical rules or by reference to meanings involved or by both together. (As was made clear in Book I, whatever is certifiable by logical rules is also certifiable by reference to meanings of 'logical constants' and syntax, so that we could say more briefly that any relation '$<$' which holds is certifiable *a priori* by reference to meanings.)

The specific mode of meaning here in question is that called 'sense meaning' in Book I. The sense meaning of a statement consists in the experiential criteria of its application to reality. To understand what a statement means, in this mode of meaning, is to be able to recognize what would assure the truth of it. Hence the meaning of 'P' includes what would confirm it as holding; and any such confirmation is an analytic consequence of 'P'.

NOTE 3: In statement (1), 'P' is said to have the analytic consequence

$$'S_1A_1.\rightarrow.(h)E_1';$$

"When a visual sheet-of-paper presentation is given and I move my eyes, then in all probability a seen displacement of this presentation follows." Believing that a real piece of paper lies before me, I make the terminating judgment that, this presentation being given, if I move my eyes the seen displacement will supervene. And a positive result of putting this to the test will confirm my belief in the reality of the paper. But as we have observed, a negative result of the test would not decisively disprove the belief. We could not, therefore, express this analytic consequence of 'P' in the simpler form, '$S_1A_1.\rightarrow.E_1$'; and this terminating judgment does not occur unqualified in the analysis.

The relation here represented by '$\rightarrow$' depends on what we have spoken of as a 'real connection'; an inductively established correlation by virtue of which one observable item in experience is a probability-index of another. Without such real connections no belief in, or statement of, any matter of objective fact could have any content of meaning whatever. It is a relation holding by virtue of such real connection which is symbolized by '$\rightarrow$' in conjunction with the prefix '(h)'. The truth of 'P' requires that if S_1A_1, then in all probability E_1.

The reader may for a moment question whether this analyic consequence of 'P' should not be written

$$'(h)(S_1A_1.\rightarrow.E_1)';$$

"In all probability, if a sheet-of-paper presentation is given and I turn my eyes, a seen displacement will follow." But this difficulty will be removed if we observe that it arises merely from the customary but inaccurate manner of expressing hypothetical probabilities in general. When we speak of a probability, h, that if A then B, what we intend to refer to is a probability, h, of B if or when A is the case. The analytic consequence of 'P' which we wish here to express is not the probability of a relation, '$\rightarrow$', between 'S_1A_1' and 'E_1', but a *relation of probability* between them.

NOTE 4: We have suggested for '$(h)X$' the idiomatic reading, "In all probability, X," instead of "It is highly probable that X," in

order to obviate in some measure a difficulty which cannot be dealt with satisfactorily in advance of the discussion of probability and the logic of probable belief. One point involved may, however, be suggested here. If, for example, one looks at the sky and predicts rain, one does not intend to assert merely that there is a probability connection between the appearance of the sky and the later occurrence of rain: that assertion would remain equally true whether in fact rain follows or not. The prediction hazarded (as probable) is that *it will rain*: an assertion which the sequel will decisively prove true or prove false. The expression "In all probability it will rain" carries some sense at least of such decisively verifiable or falsifiable prediction.

Considerations of this sort further emphasize the necessity of remarking that the terminating judgment, which expresses a prediction, does not itself occur as an unqualified constituent in the belief to be confirmed.

NOTE 5: We set down (2), (3), and (4), in addition to (1), as reminder that for a single objective belief, '*P*', there may be different confirmations in which—comparing (1) with (2) or (3) with (4) —the same sense datum is cue to different tests with correspondingly different confirming results. And that—comparing (1) with (3) or (2) with (4)—different sense data may be cue to the same test and result.

It is further obvious that there may be repetition of a test; i.e., confirmations by reference to the same sense datum, test, and result on different occasions: this is indicated by the generalization of (1) in (5). Where the sense datum and the test-activity are the same, the confirming result will generally be the same. Most exceptions to this would be apparent only and due to faulty formulation of the case or failure to observe that the different confirming results have a common part which alone is essential. The infrequent real exceptions are to be explained by alternative and unobservable conditions of the test and its results; and such tests would not commonly afford a high degree of confirmation.

NOTE 6: Statement (5) expresses (1) in its general form: "For any occasion *o*, if '*P*' holds, then if datum 'S_1' is given and test by 'A_1' is performed, result according to 'E_1' will in all probability ensue."

For (1) itself, 'S_1', 'A_1', and 'E_1' are statements, by reason of understood reference to a particular occasion: (5) expresses the fact that the given datum, the test-activity, and the confirming result on this occasion are instances, respectively, of a recognizable *kind* of datum, activity, and result, in terms of which a corresponding statement holds for *any* occasion—so long as 'P' is true. Thus in (5) 'S_1', 'A_1', and 'E_1' are allowed to represent statement functions, of which the corresponding constituents in (1) are particular values.

It may be objected that (5) is erroneously symbolized because 'P' at least is still a statement and not a function. This would be true if 'P' should itself contain reference to a particular occasion, or occasions, on which a piece of real paper lies before me. But in that case, 'S_1', 'A_1', and 'E_1' must be restricted to the same occasion or occasions, since a test of past or future fact must in general differ from a test of present fact. We do not, for example, intend to assert, "If a piece of real paper lay before me on May 16, 1945, at 10 a.m., then on any occasion when a sheet-of-paper presentation is given and I move my eyes, a seen displacement of this presentation in all probability follows." This would be true but is not what (5) intends to assert. The probability in question would in that case be the antecedent probability of the consequent merely; truth of the hypothesis would be irrelevant; and a positive result of test would afford no confirmation of this hypothesis of a real piece of paper before me on an occasion now past. The formulation of (5) is therefore correct as given. It makes assertion concerning any occasion which is the same in 'Po', 'S_1o', 'A_1o', and 'E_1o', and no assertion concerning any occasion not implicitly referred to in some statement, 'P', which is a value of 'Po'.

Other statements on the list could be similarly generalized.

NOTE 7: The confirmation of 'P' by reference to 'S_1', 'A_1', and 'E_1', depends more directly upon (6) than upon (1); the degree of confirmation afforded by positive result of a test is relative to the *im*probability of 'E_1' in case 'P' should be false, rather than to the probability of 'E_1' and 'P' is true. (See Section 14 and footnote 7.)

It cannot be assumed that 'h' in (6) represents the *same* degree of high probability as in (1): this would seldom be the case. Where, as in our example, 'h', in (1) and (6) both, would represent a high

degree of probability—whether the same or not—the test in question would be of the sort we have called a 'ruling test'.

NOTE 8: (7) follows from (1). Whether it is also equivalent to (1), depends on questions we shall not enter upon here. For example, their equivalence would require that the following also hold:

'$S_1.< :P\ A_1.\rightarrow.(h)E_1$',

and '$S_1A_1.< :P.\rightarrow.(h)E_1$'.

Likewise, (8) follows from (6).

NOTE 9: The most direct formulation of the confirmation of '*P*' is given by (9); of the disconfirmation of '*P*', by (10). As has been noted, the value of '*h*' in (9) is relative to its value in (6) and in (8); and the value of '*h*' in (10), to its value in (1) and in (7).

NOTE 10: We include (11) as reminder that one confirmation of an objective statement, '*P*', renders probable a positive result of any further test, by establishing probability of '*P*' itself. It cannot be assumed, however, that the probability of '*P*' established by the finding '$S_1A_1E_1$', will be identically the probability, '*h*', so established for 'E_2', according to (11). That would depend on antecedent probabilities also, and upon the relation of the tests to one another.

Chapter IX

The Justification of Empirical Beliefs

1. The validation of empirical belief has two dimensions or directions of its import; its verification and its justification; the determination of it as true and the determination of it as rationally credible. Cognitive evaluation of an assertion, or an assertive state of mind, looks to the *truth* of what is asserted; but also it looks to the warrant or *ground* of the belief. What is affirmed may happen to be true, but if the one who affirms it lacks a justifying ground of his assertion, then his commitment may be a fortunate one but is nevertheless without validity and is not knowledge.

In the case of *a priori* knowledge, there is no distinction of these two dimensions: its validity and its truth coincide. Its truth can be assured only by finding for it an adequate rational ground; and the disclosure of such ground completely determines it as true. But this is the case only because the criterion of *a priori* truth is contained in our meanings. It calls for no other kind of assurance than one which is secure if what we affirm correctly explicates and is true to our own intensions.

Also in the case of statements of what is directly given (which are not here classed as knowledge but are, on any account, pertinent to knowledge), there is no distinction of what determines truth from any justifying ground of the affirmation. The only such ground they have or need, is that immediate experience which also determines them as true.

In the case of empirical judgment, however, the two dimensions are distinct: such a judgment may be true without being justified; and it may be justified—as well justified as many other accepted beliefs—without being true. Its truth includes reference to the future and looks to its verification; but its justification looks only to the grounds of its credibility which lie in the present and past.

The necessity of this distinction in the case of empirical beliefs follows from two simple and obvious considerations: first that the vital function of empirical cognition concerns future eventualities; and second that, at the moment of judgment, such eventualities are incapable of being assured with complete certainty.

Oftentimes the essentially temporal character of empirical cognition is obscured because we confuse the proposition expressing what is known with our knowing it. That which is known may be, for example, a scientific generalization whose truth extends over past, present and future alike, and is timeless. And in an obvious sense, anything known is timelessly true if true at all. But there is no such thing as empirical knowledge except in the form of judgments made at some particular moment; and whatever has for such judgment the status of datum, is no part of what is *judged,* but that in the *light of which* it is judged. And with a little exaggeration, we may say that no one can have the same empirical knowledge twice, because new and pertinent experience is always flowing in upon his apprehension. Thus even if the proposition believed is—like our scientific generalization—timeless, and the truth of it depends on what is past and what is future alike, it is still the case that, at any moment when that generalization is entertained, past verifications, so far as these are supposedly assured, are no part of the cognitive import of the judgment made, but belong to the ground of it; and future confirmations, by which it is to be progressively better assured as true, play no part in the present assurance of it but constitute that hazard of truth which the belief assumes in its cognitive affirmation. Hence if we—so to say—name our knowledge after the proposition known, we must not allow this to obscure the fact that belief in what this proposition states is, at different times, a different belief with a different ground and a different hazard of truth. And for every empirical belief at all times, the distinction between the presently assured warrant of it and the verification which presently it calls for, is absolute.

It is also an essential characteristic of empirical belief, not a merely accidental and regrettable limitation of it, that at the moment when it functions as a cognitive apprehension, the ground of it is insufficient to assure it with complete certainty. If it were not for this feature of it, no separate category labelled 'empirical knowledge' would be needed. If at some moment while a belief still had predic-

tive significance, all further confirmations requisite to its truth were to become wholly certain, then at that moment the judgment made would be literally *a priori*. The fact that the connection between the data which are its ground and the further experiences requisite to its verification, is not such a logical connection, deductively assurable, goes along with the less than certain character of it. That it has this character of being less than certain, is not of course proved by the prevalent distinction of empirical knowledge from the *a priori*. Rather it is the other way about: the separate classification is dictated by the fact that we find such cognitive apprehensions which require confirmations the future accrual of which is not deducible and certain from the ground of the belief. But if the ground on which the judgment is made should assure all subsequent verifications of it, then empirical knowledge would be distinguishable only—as rationalists have sometimes asserted—by having particular experiences amongst its premises, and not by any different relation of the judgment to what is judged, or any different character of its content of assertion.

2. There is also a connection worth noting between these distinctive features of empirical knowledge and the characteristic interests from which it is pursued. These distinctive features reflect the fact that the value ascribed to such knowledge is not its value for its own sake, but its value for the achievement of what is desirable and the avoidance of what is undesirable. If our dominant interest of knowledge were an interest in knowing—in being right; possessing the truth—then in the case of what is presently affected by some uncertainty but is verifiable, we should always proceed to verification, whenever possible, meantime suspending judgment. That we are not thus preoccupied with verification, reflects the fact that the function of empirical judgment is for the guidance of action. This practical value of knowledge is its value as foresight, and depends upon some assurance of it which is possible antecedently to verification: the hindsight of *ex post facto* cognition is practically worthless. It might be quicker and easier to verify that the stove is hot than it is to marshall and weigh the grounds for believing it hot. But the point of the belief is in order that this particular corroboration may be avoided. And the point of empirical belief in general is in order that, amongst all the confirmations which this belief implies as possible,

those and those only should be realized which satisfy our other-than-cognitive interests.

A knower who genuinely valued knowledge for its own sake exclusively, would not—as tradition has it—take the contemplative attitude. Instead he would be the busiest of bees, buzzing from one verification to another, not bothering to assess any notion that popped into his head by its antecedent justification, but putting them all to the test. But this is precisely *not* the characteristic motivation of empirical cognition; its interest is pragmatic, and the value of it is extrinsic and utilitarian. The concern of empirical knowledge is with those verifications which have not yet been made, and which may never be made if it does not suit our purposes to allow the realization of the eventualities judged possible. It is the function of empirical judgment to save us the hazards of action without foresight. And in this fact lies the significance of the justification of knowledge as distinguished from the verification of it.

3. Empirical knowledge, at the time when it functions as such practical judgment, is never certifiable as true; at best it is certifiable only as more or less well justified; as having grounds which warrant the degree of assurance with which it is held. That this is the case for those objective beliefs called non-terminating judgments, is implicit in the consideration that they have a predictive significance which is inexhaustible and the verification of them is never complete. But this picture is not altered by inclusion of what we have called terminating judgments, which concern some single empirical eventuality and hence may be decisively verified. These too are judgments made antecedent to their verification. And when such belief is found true (or found false) by putting it to the test, it ceases to be a judgment made and is displaced by the apprehension of an immediate certainty. The *fact of experience* which verifies the judgment continues to be significant—as ground of some *other* judgment perhaps. And the fact *that this prediction has been verified* continues to be significant; it becomes, perhaps, a premise for some generalization concerning past experience. But the hypothetical and predictive terminating judgment as such, lapses when verified. It has no further cognitive import; if it had, it would concern something still future and *ipso facto* would not now be decisively found true.

Thus empirical knowledge exists only in the form of judgments

which, whether terminating and singular or non-terminating and general, are made at a particular juncture of experience and on grounds of data then given. But the truth of what they assert is not made certain by these given data, nor by logic, nor by the two together. This truth they concern could only be certified by verification; but at the moment when the belief is entertained, it is not verified; and if or when it is later found true by verifying it, then precisely in that part or to that extent in which it is thus verified, its cognitive significance—its reference beyond the presently given—lapses. It lapses because its cognitive intent has now been fulfilled; the credit attaching to it has been turned into immediate cash.

Thus it lies in the nature of empirical knowledge that what we say we know, we are not sure of; and what we are sure of, does not function as cognition. The truth of empirical affirmation cannot be certified to the judgment which affirms it; it can only be assured as rationally credible. In a sense it may be said that our interest in the belief as cognitive still remains an interest in the truth of it. Because the success or failure of acting upon it depends upon its truth; and if the belief be false, then action based upon it is equally liable to disaster, whether it was justified or not. Thus our interest in the warrant of the belief as credible is a sort of indirect interest in the truth of it. Still, since this truth *per se* is not disclosed to the judgment, we can only assess its validity as credible on the given grounds.

4. Historic conceptions have sometimes neglected these rather obvious facts which require the distinction of justification from verification and of rational credibility from certainty of truth; and have proceeded as if empirical knowledge could be certain, and as if, short of theoretical certainty, it should not be called knowledge. Thus we have theories, of the rationalistic sort, which comprise exclusively considerations bearing upon the justification of empirical knowledge and omit any examination of verification. Such theories may be put forward as theories of *truth,* but only on the mistaken supposition that empirical knowledge has a ground, in given data and logic, sufficient to assure its certainty. And on the other hand we have empiricistic theories—and most unfortunately, pragmatic theories also—which, forgetting that verification of empirical belief is always *ex post facto* to the judgment, put forward an account of verification as if it were the whole story of knowledge, and omit to consider the

validation of it by reference to its ground. Thus they ignore the essential difference between beliefs which are unjustified, however lucky they may prove in action, and those which are justified in high degree, even though they should prove unfortunate.

The skeptic too has often omitted this necessary distinction, and by so doing has mislocated his issue. This has happened whenever considerations proving that empirical knowledge is never certain, have been put forward as if they proved that such knowledge is not genuine. Such argument has force as against those who conceive that knowledge, to be such, must be certain. But that conception of empirical cognition merely gives away any possible case for knowledge by being so framed that it is never quite applicable to any real phenomenon of human life. And if the skeptic merely assumes—as sometimes he does—that where certainty is not possible, the distinction of rational from irrational belief must also fail, then he commits an *ignoratio elenchi* and fails to discuss the only serious issue which his skepticism concerns; the question, namely, whether amongst beliefs that are less than certain, there is still a valid distinction between those which are rationally credible and justified and those which are not.

5. The fundamental matters affecting the verification or confirmation of empirical belief have already been discussed. We turn now to matters affecting the justification of belief. First, we shall attempt to outline in its most general character the nature of the ground of empirical judgments; second, the kind of warrant or assurance which such a ground provides for judgment; and third, the sense in which a ground sufficient for the judgment may be supposed to be presented to the maker of the judgment. The questions here to be met are numerous and difficult; and some of them are discouragingly complex. Also some of them have been neglected or avoided, historically, to a degree which is surprising. Those issues which are most fundamental and critical, will appear from this preliminary discussion. And such attempt as we can make to meet them, will then be pursued in the chapters which follow.

It is obvious that, in general, the important ground of empirical belief is past experience of like cases. Whatever the problems which attend upon this commonplace conception that empirical knowledge depends on generalization from past experience, it is sufficiently evi-

dent that there is no plausible alternative to it. The issue remains, broadly speaking, that which Hume posed: either such generalization validly supports belief about the future or the presently unobserved, or empirical beliefs have no validity. This character of them is evident even in that most primitive sort of empirical cognition which we have called terminating judgment. Such attitudes of belief—we can hardly avoid supposing—represent the earliest cognitions of a mind like ours, and are continuous with those modes of animal behavior which foreshadow explicit knowledge. Animal behavior finds its signals in direct presentation. Response to such signals is determined by two factors; the directly apprehended qualitative character of the signal, and the character of those passages of experience—particularly the value-quality of them—which, in the past, have followed upon the response in question when taken in the face of presentations like the one now given. It requires no reference to questions peculiar to the theory of knowledge to recognize two things here: First, that as a fact, the building up of such animal modes of behavior is determined by the manner in which, in the past experience of the organism, there has been association between the signal on the one hand and the character of the experience sequent to the mode of response in question on the other. Whatever complicating or qualifying considerations might need to be added, they will still not erase or render dubious this broad outline of the picture of behavior in general, so far as such behavior is in any sense modifiable or controllable by the organism itself. And second, whether we think of it as connected with questions of the validity of knowledge or not, it is to be observed that for any value or significance imputable to this general character of animal behavior—its value in preserving the individual, or the species, or its significance as a conditioning which serves any other vital function—such ascribable importance of modes of behavior depends upon supposing that a connection established by past experience between the character of a stimulus or apprehended signal on the one hand and the result of a mode of behavior on the other, is significant for future like occasions. Even 'animal faith' would be a completely unintelligible fact, and a cosmic joke for the gods to laugh at, in a world in which generalizations drawn from past experience should lack reliability for future occasions. Whatever it might be that we feel called upon to think about under the head of 'validity of knowl-

edge', it will remain a fact that the human attitudes called cognitive are taken in the light of past experience; and this being so, any 'validity of empirical knowledge' must require and turn upon the validity of thus extending to the future what past experience has taught. No amount of epistemological ingenuity could displace that commonplace understanding of the issue.

6. The kind of generalization from past experience here in question is, however, hardly such as are commonly so called but is something much more primitive. The signals of animal behavior are not 'objects' or 'events' in the ordinary sense but transient appearances, presentations, sensa, qualia of the given. And what is anticipated in further experience, has a like character. Apprehension of an object, or of an objective property even, presumes these more primitive generalizations and, further, presumes validity of them. As has been pointed out, objective 'things' are apprehensible at an instant only in the sense of being signalized by such and such sensory clues. The supposition that what is signalized is a thing of the sort it is taken to be, or is *any* kind of objective thing or fact, presumes the validity of such sense predictions from sense presentations. And the same is true for the apprehension of objective size, shape, color, or any other objective property. The apprehension of objects, objective events, and properties, is built upon and presumes as valid antecedent generalizations, in terms of direct experience, which are the only conceivable basis of our terminating judgments. When we generalize in terms of objective things and events, we are adding another story to our structure of knowledge, but built on the same foundation. And if in turn, we utilize such general facts about objects as premises of further induction; and conclusions so reached, perhaps, as basis for still higher generalization; our whole edifice still rests at bottom on these primitive generalizations which we make in terms of direct experience.

The extreme complexity, the many-storied character, of our cognition of those items we are most likely to recite if called on for examples of empirical knowledge, should receive at least some passing attention. Ordinarily this escapes our notice because, if challenged as to the validity of what we say we know, we usually satisfy ourselves by adducing proximate premises which validate it; and though these premises are themselves items of empirical knowledge, which

in turn must have their justification, we do not feel called upon to pursue the matter to any final and incontestable grounds. Hence the remoteness of our everyday knowledge from its ultimate basis in actual experience, may easily pass unremarked. Yet however staggering by its mere complexity the business of going back to such initial premises might be, it is obvious that only in the light of such eventual grounding in actual experiences has anything the character of empirical knowledge; and only as the entire regress of such grounds should be valid throughout, could what we say we know be valid empirical knowledge.

7. However, if in view of such considerations, the structure of our knowledge begins to look like the task of erecting an Empire State Building out of toothpicks, we may remark in passing that the whole complexity of such construction is frequently inessential for the use we make of our knowledge. Our eventual cognitive interest, like our ultimate grounds of judgment, is in simple items of the possible content of experience: what we shall be presented with; what the quality of experience will be; if certain modes of action are adopted. And for the assurance of this, reference to the complex structure of our objective knowledge, in terms of which we are likely to express our grounds of belief, may be largely inessential. Something mentioned earlier may serve as an example: we do not need to study physiology to walk down stairs. If when called upon to justify our prediction of safe descent, we reply in terms of objective facts of our physical environment and the disposition of our organism, and the laws of physics and physiology, then we must—or should—be struck with the enormous complexity of the task of justification thus undertaken. But also we may note that this complication is avoidable; we have a more direct and briefer justification of our present practical cognition by reference to past like occasions of experience in 'walking down stairs'.

Thus for the eventual practical point to be assured, the journey from the ground of direct experience up through the various stories of objective fact and generalization and then back again finally to the kind of terms from which we start, may often be an unnecessarily roundabout way of arriving at our cognitive destination. And it suggests itself that the usual and implicitly complex expression of our knowledge may, so far, be more for the purpose of compendious and

economical formulation than for the eventual use of it. But even so, we should not be absolved by such considerations from the task of validating characteristic formulations of our knowledge such as those of science. And also those cognitions which are most distinctively human, even if less frequent, are such as could not be thus validated by simple reference to past experience without complex intermediate generalizations. It is in such complication of our knowing that we are most intelligent and our behavior departs farthest from that of the other animals.

8. There are also two further considerations, equally obvious and inescapable, which contribute to the complexities and difficulties to be met in justification of our knowledge: the only experience which finally we can appeal to is our own; and the validity of memory is involved.

Ordinarily in citing the bases of what we say we know, we not only let ourselves off with mention of proximate premises, taken for granted, but also we avail ourselves of any handy and pertinent information, whether from our own experience or from other sources. And the extent to which we learn from others, is a distinctive feature marking the superiority of the human mentality. But obviously, what we thus learn must, in becoming knowledge for us, be credited; and credited by reference to grounds which are, eventually, those of first-person experience. It can have such credibility only by reference to our own past experience of receiving such reports and our subsequent experience of finding true or finding false what was reported. Receiving information from others and observing their behavior is—so experience has taught us—a relatively painless and a particularly fruitful mode of acquiring knowledge. But it is merely a complex way of learning from certain experiences of our own. And apart from a certain complexity which characterizes the interpretation of verbal signals, it is not particularly different from other ways of being advised of objective fact—not particularly different, for example, from learning by the reading of recording instruments. All knowledge is knowledge of someone; and ultimately no one can have any ground for his beliefs which does not lie within his own experience.

This consideration accentuates the importance of questions concerning the validity of memory. Because when we say that the ground of empirical judgment is past experience, it cannot escape

us that past experience as such cannot be literally repossessed. And there is here the particular difficulty that such evidence as we have for crediting what is remembered, includes evidence that memory is not universally reliable; and that therefore to remember a thing is not to be certain of it but at best to have a warrant for crediting it as probable. Past experience on the basis of which we say that we generalize is not an ultimate datum for generalization from experience. It is only the memory of such past experience which is the actually given datum. And when this fact is taken into account, it may seem that, in order actually to validate the kind of beliefs we commonly hold and express, we are required not only to build an Empire State Building out of toothpicks but to build it out of toothpicks most of which we haven't got and cannot be given.

These difficulties are plainly unavoidable to a candid examination of the supposition that empirical knowledge can actually find any sufficient ground at all. They are in no sense peculiar to the particular conceptions of empirical knowledge here put forward, but must be encountered by any which supposes that such knowledge actually finds its basis in experience—which supposes that genuinely there is any such thing as empirical knowledge. They are also involved with certain questions arising from the character of empirical knowledge as less than certain. Before we can envisage this problem of the ground of empirical knowledge as a whole, we must consider in more detail the nature of it as characterized by probability instead of certainty.

Chapter X

Probability

1. It is obvious that in speaking of empirical beliefs as justified or warranted but less than certain, we mean to allude to a character of them commonly expressed by saying that they are probable—though it may well be that the word 'probable' has other and narrower meanings also. That empirical knowledge has universally this character of some degree of probability, instead of complete theoretical certainty, indicates that no genuinely adequate analysis of knowledge is possible without attention to this topic of probability. That fact begins to be appreciated at the present time; and we have such studies as those of Keynes and Reichenbach, which address themselves to probability theory as a branch of epistemology and not merely as a technique for dealing with certain problems permitting of statistical treatment.[1] It also becomes apparent that the large and important topic labelled 'inductive logic' is inseparably connected with probability theory; and that the obscurity attaching to many issues of induction is due in part to the failure to envisage them definitely as questions about probability inference.

But it is also clear that no sufficient account of probability and induction could be included in a general analysis of empirical knowledge: those topics are too extended, too complex, and present too many difficulties of detail to admit of that. Nor is any attempt at such comprehensive summary necessary or desirable. Just as it is inessential for an analysis of *a priori* knowledge to include investigation and development of the laws of deductive inference or inference with certainty; so here, too, the details of probability inference would be out of place. What is essential is, rather, to elicit those fundamental considerations which delimit the problem, and to arrive at

[1] J. M. Keynes, *A Treatise of Probability;* Hans Reichenbach, *Wahrscheinlichkeitslehre;* see also *Experience and Prediction,* Ch. V.

understanding of what it means to affirm that so and so is probable, and of the manner in which and extent to which such affirmations of probability can genuinely be assured.

We shall, accordingly, omit discussion of any but the basic principles of probability determination, and limit ourselves to underlying considerations which can be weighed without entering upon any systematic development. We may thus avoid entanglement of the fundamental and epistemological issues with various other moot points which, however important in themselves, would be of subordinate interest only for our present study.

Our first concern here must be to determine what general character of belief or judgment it is which is intended by calling it probable. When we turn to the literature addressed to this topic, we are met at once by a fundamental divergence of conception: by theories of the type called *a priori* which assign one kind of meaning to any statement of the general form "'*P*' has probability *a/b*," and by theories of the type called empirical which assign to any such statement a quite different kind of meaning. These two present themselves as alternative conceptions of the same thing, and each is put forward as being a complete account of probability. Certainly initial presumption should favor this supposition that there is one single basic meaning of 'probable', of which one or the other type of view may be the correct explication. We must not, however, neglect the possibility that protagonists of these opposed interpretations may merely be using the same word for different properties, either or both of which a judgment or belief may have.

2. According to a theory of the *a priori* type, to say that '*P*' has probability *a/b* means that certain premises or data, '*D*', give this determination '*a/b*' of the probability of '*P*' according to certain rules called the rules of probability. One might think that this would be a correct though unilluminating description of probability on *any* theory. But as we shall see, that is not the case. It is characteristic of *a priori* theories to include amongst such rules, and make use of as fundamental, the Rule of Equiprobability or Principle of Indifference, which may be stated as follows: If two alternatives, '*P*' and '*Q*', are symmetrically related to the whole body of the given data, then '*P*' and '*Q*' are, on those data, equiprobable. Use of this rule is in fact general amongst apriorists, and it is commonly repudiated by

empiricists; so that it is frequently taken as the point of distinction of the *a priori* from the empiricist conception. That is unfortunate, however, because an apriorist may—he will if he is wise—admit that application of this principle is subject to restrictions. And an empiricist may—he will if he is wise—admit that within certain limitations and for a certain type of problem it is a perfectly valid rule.

The more fundamental and really distinctive feature of an *a priori* theory of probability is the one mentioned earlier; the thesis that probability is a kind of logical or *a-priori*-determinable relation of what is called probable to the data or premises of the judgment. And it is entirely possible and consistent to hold this thesis without reference to the Principle of Indifference.

On this *a priori* conception, a probability determination resembles an ordinary deductive conclusion in that the validity of it, on the data given, is a question solely of the relation to these premises according to some correct rule or mode of derivation. There are, of course, two differences to be recognized between a probability conclusion and the type of deductive conclusion ordinarily so called. First, the obvious one that the rules of inference here are not the general rules of ordinary deductive inference but the specific rules of probability inference, and that the conclusion is one of probability and not an affirmation of something as unqualifiedly assured. And second, that in the ordinary deductive conclusion no reference to the premises of it would be retained, but in a probability conclusion a retained reference to the data on which it is judged is strictly essential —though often tacit. That is; in the case of ordinary deductive conclusion, if the premises are known to be true or are asserted as true, the conclusion '*P*' is assured as true or as assertable in whatever sense the premises are assertable. But in the case of a probability conclusion, if the premises are known true, still the strictly warranted conclusion is not '*P*' or even "'*P*' has probability *a/b*" but "'*P*' has probability *a/b relative to data 'D'*."

This second-mentioned difference arises because there is no such thing as *the* probability of a state of affairs, or of a statement asserting one, but different probabilities on different data. A commonplace example would be the probability, on a given deal at cards, of two aces in some one hand. This will be correctly determined with a different result by (*a*) a person who inspects none of the hands

dealt, (*b*) a player who finds no aces in his own hand, (*c*) a player who holds one ace only, and (*d*) a player holding two or more aces. Thus the conclusion in the case of a probability inference must, in order to be completely stated, mention the ground of judgment to which it is relative.

It is a little more troublesome than might appear, to formulate sharply this distinctive and essential feature of an *a priori* theory of probability. This is the case because it can become entangled with the different matter that a probability conclusion is sometimes asserted categorically and sometimes is to be taken hypothetically only, as the consequence of data which are doubtful or merely supposititious. For example, if the arithmetic problem be "John has two apples and Mary gives him three; how many apples does John then have?," we do not, in response, assert "John has five apples" as a statement of fact; we assert this hypothetically only, as following from the indicated premises. If however, these premises should not be merely supposititious but assured as factual, we then assert this conclusion categorically. The distinction here is that between conclusions which are merely *valid,* being correctly drawn from the premises, and those which, the premises being factual, are also asserted as *true.* And the connection of these two may be stated: A conclusion which is valid is true when the premises of it are true.

Exactly this same distinction and this same connection holds in the case of probability conclusions. But because the apriorist recognizes that a probability conclusion is relative to its premises, and the full statement of it must be of the form, *"On data 'D', 'P'* has probability *a/b,"* he does not find it necessary to remark this difference between merely valid and hypothetically justified conclusions and those which, the premises of them being factual, are categorical and asserted as true. *"If* data *'D'* hold, *then* on data *'D' 'P'* has probability *a/b"* would be a pleonasm: the hypothesis here is superfluous, and "On data *'D', 'P'* has probability *a/b"* tells the whole story. It is necessary to insist, however, that the distinction still holds. If one assert, "Judging by the barometer, tomorrow will probably be fair," one does not mean merely *"If* the barometer is high, then tomorrow will probably be fair." The intention is to assert the premise as factual, and the conclusion "On the barometer data, tomorrow will probably be fair" is meant as a categorical probability statement. One has still to retain

reference to the ground of judgment because, for example, it could also be simultaneously true that judging from radio reports from the west, it will probably rain tomorrow, and there is no such thing as *the* probability of tomorrow's weather except relative to the data on which it is judged.

There is thus the same distinction amongst probability conclusions as amongst ordinary deductive ones between those to be taken merely as valid and derivable from hypothetical or doubtful premises and those which are categorically asserted as also true *because the premises of them are asserted as true.* And at a later point, this apparently trivial consideration will become vitally important. But bearing in mind this distinction as well as the relativity which every probability determination has to the ground of judgment, we can still formulate the distinctive thesis of an *a priori* theory of probability quite simply: *A probability determination which follows from its premised data according to correct rules of probability inference is valid; and a valid determination is true when the premises of it are true.*

It follows from this conception of probability as a certain kind of logical relation between the probability determination and the grounds on which it is judged, that to speak of anything as *verifying* or *confirming* a probability statement, would be to talk nonsense—unless this should be meant in the unusual sense of verifying the data or of checking the operations of deriving the conclusion according to the rules. The statement *'P'* whose probability is now a/b on data *'D'*, may have a different probability later on, in the light of new evidence. But this fact that on data *'D* and *D''*, *'P'* has probability $a/b \pm N$, neither verifies nor falsifies the earlier judgment, "On data *'D'*, *'P'* has probability a/b." If that judgment was correctly drawn, no new observation nor anything which can later happen could in any wise affect the validity of it.

We shall have occasion later on to consider the Principle of Indifference. But for purposes of comparison, it is this fact that an *a priori* theory asserts a probability statement as true if validly derived from true premises, which is the important point.

3. In contrast with this, a probability theory of the empirical type takes its point of departure from the fact that our concern in making probability determinations is an interest in predicting something presently uncertain, and that the expectation which accords with the state-

ment " 'P' has probability a/b" is one which will be satisfied if, in the long run, instances of the sort of thing which 'P' asserts occur with the frequency measured by 'a/b'. Thus as the holders of a theory of this type conceive, to make any statement of the form " 'P' has probability a/b" is to say something which may be partially corroborated by the frequency with which the sort of thing expressed by 'P' has been found true in the past (amongst instances in which it has been found true or found false) and something which will be further confirmed or disconfirmed when further such cases are examined and found to occur with a frequency close to a/b or one which diverges from and is incompatible with that determination. That is; the judgment " 'P' has probability a/b" is taken to be true if and only if, in the total classification of all pertinent cases (including those already observed and those not yet observed), the kind of expectation expressed by 'P' will be satisfied with a frequency measured by 'a/b'.

However, to express accurately this intended empirical significance of probability statements is a matter of some difficulty. A first such difficulty lies in the fact that anything of which probability is predicated will be an event or state of affairs; something expressible by a statement—say, "Tomorrow will be fair"—and there will be only one instance of it, positive or negative. But this difficulty is easily removed: the probability of this event or state of affairs is judged by considering it as one instance in a classification of cases which are like the case in question in specified or specifiable respects: where the probability is well judged, those which are like the case in question in all known respects which are likely to affect occurrence of the predicted property; e.g., the class of 'tomorrows' following days when the weather conditions are like those observed today.

Thus on the empirical interpretation, 'P' ("Tomorrow will be fair"), whose probability is to be judged, is taken as a statement of the form, "c has the property φ," which is an instance of some statement function 'φx' ("x will be a fair day"). This property φ (being a fair day) may be called the *quaesitum property.* The probability is judged by reference to the fact that this instance c (tomorrow) which is in question, belongs also to another class, distinguished by having the property ψ (the class of days following one when the weather conditions are like those observed today). This property ψ may be called the *reference property,* and the class of things having

it may be called the *reference class*. Thus the probability of 'P', or 'φc', is said to be the frequency of members of the quaesitum class, having the property φ, amongst members of the reference class, having the property ψ: the probability that tomorrow will be fair is identified with the frequency of fair days amongst days following one when weather conditions are like those today.

It is more in accord with this empirical or frequency theory to take our paradigm in the form "'φc' has the probability a/b" rather than "'P' has the probability a/b." But this does not indicate any necessary limitation of probability determinations or of probability statements on this theory as compared with the *a priori* conception. The difference between 'P' and 'φc' is non-significant, since for any statement 'P' which could be said to be probable, there will be some term 'c' and some property φ such that 'P' and 'φc' are merely two notations for the same thing. Also while a frequency is, in the nature of the case, a ratio or fraction, this does not preclude, on the empirical theory, determinations and statements of the less definite type such as "'φc' is more probable than not" or "'φc' is highly probable." Obviously, the empiricist, like the holder of any other conception, will recognize that there are problems the data of which do not allow precise determination of the fraction measuring the frequency in question, and will allow himself the privilege of statements of the form "'φc' has a probability greater than 1/2," or "φc has a probability near to 1."

We should also observe that the empiricist manner of interpreting probability recognizes that same relativity of it to given data—or at least a similar one—which the apriorist must insist upon. On the empirical theory this relativity appears in the fact that, the quaesitum property being fixed, it is still possible to specify the reference class in different ways. For example, tomorrow will be a Wednesday, a day in May, and one, perhaps, when certain weather conditions have been earlier reported from the west, as well as one following a day when directly observed weather conditions are like those today. The quaesitum property is fixed by the problem: in our example it is being a fair day which is in question. But we might judge the probability that tomorrow will have this property—if we lacked any better evidence or were sufficiently naive—merely on the basis of tomorrow being a Wednesday or of its being a day in May; that is, as

the frequency of fair days amongst Wednesdays, or the frequency of fair days amongst days in May. Or we could, with better reason, judge it as the frequency of fair days amongst those following report of certain weather conditions west of us, as well as by reference to the frequency of fair days amongst those following upon directly observed weather conditions like those today. Presumably, we should arrive at different determinations of the probability in question by each of these different choices of the reference class. And even though some of these choices would be poorly taken, the empiricist can say, as does the apriorist, "*On those data*—that is, as the frequency of the quaesitum property in just that reference class—the probability (frequency) is as stated, regardless of the fact that on different data (for a different reference class) the correct determination for the same quaesitum would be a different one." Empiricists commonly acknowledge this relativity by the dictum that there is no probability of an event or matter of fact apart from the classification of it in a specific reference class.

A second difficulty to be met in stating accurately the empirical significance of "'*P*' (or 'φc') has the probability a/b" is that the total class of pertinent instances—the reference class—will in no case be one which has already been exhaustively examined; and typically will be one which *cannot* be exhaustively examined. Our example may serve as illustration: the number of times when we have observed weather like today's and have noted whether the following day was fair, is limited; and the total class of such pertinent instances, in which the frequency of fair days is to be determined, is a class to which no finite number can be assigned. Presumably what we want to say is, "*In the long run,* the frequency of instances of φ (fair days) amongst instances of ψ (days following one when the weather is like today's) is a/b."

The empirical conception of probability is suggested by practices which have been found safe in dealing with large classes by statistical methods. Such practices are complex, but a basic rule to which they adhere might be expressed as follows: *When the frequency of instances of* φ *amongst examined instances of* ψ *has been found, up to a certain point, to be* m/n, *and when for a period thereafter, progressive determinations of this frequency, as more and more instances of* ψ *are observed and the cumulative results tabulated, at no point di-*

verge from m/n by more than some small amount e, the probability that an unexamined or unspecified instance of ψ *will be an instance of* φ*, may be said to be m/n, within an approximation indicated by e, and with a degree of assurance which is relative to the length of the examination for which the frequency found has remained within this limit of divergence.* There would of course be other pertinent canons of investigation, and in all favorable cases rules would be applied giving a closer determination of the probability. But the principle to be expressed is merely that a relative frequency established as holding in past experience may, with a certain degree of assurance, be extended to the future; and it is our intention here to state this principle in a form which is wide enough to be justified in the case of *any* set of data to which this procedure could validly be applied at all.

There is much which might be said in favor of characterizing correct probability judgments simply in such terms descriptive of accepted practice; and it would also have initial plausibility that this rule formulates the actually operative principle of inductive generalizations altogether; the presumption, namely, that the incidence of any property in a well-defined class, as found for a sufficiently large number of past observed cases, will be approximately indicative of the incidence of that property amongst instances of that class in general. We shall hereafter refer to this principle, as stated above, as the *Rule of Induction.*

However, this rule as stated, may appear to lack a desirable kind of precision: it speaks of approximations, and includes no indication of the magnitude of *e* which is compatible with application of it, or of the minimum length of examination which constitutes a safe basis for prediction as to unexamined instances. The empirical frequency theory may appropriately be regarded as an attempt to remedy these defects by a kind of theoretical extrapolation. The simple supposition that future experience will tend to resemble the past, where past cases themselves show a tendency to a fixed measure of the frequency in question, suggests the possibility of such more precise formulation. If we should attempt to give that supposition itself any more precise form, or to suggest a ground of it, we should be drawn into matters of much difficulty, and also our attempted explanation would, as a basis for probability formulations, be circular, since it could not itself be justly expressed except in terms of *probability.* Nevertheless it

may be worth while to indicate this kind of underlying consideration, even in ways for which no final cogency as proof or even as explanation could be claimed.

Common-sense recognizes that luck tends to even out. This might be put as a generalization from experience; though on careful examination, the question at issue would be found to be begged; the notion of 'luck' itself assuming what needs to be proved about reasonable or calculable expectation, to which good or bad luck is the exception. Or a kind of *a priori* basis of it can be suggested. If in fact a class has a certain property in a certain proportion of cases, and we sample the class and collate our findings as to presence or absence of this property, then our cumulative experience 'ought' progressively to approximate to the objective character of the class in the respect examined. Because there are more samples to be selected which are closely representative of the class as a whole than there are samples which will be less closely representative. For example, there are more different combinations of six cards, three red and three black, which could be drawn from a full pack, than there are combinations of four red and two black, or of four black and two red; and there are still fewer combinations of five red and one black, or of five black and one red. Also, amongst such different samples which could be drawn, those which misrepresent the constitution of the pack itself, misrepresent it in opposite ways in equal numbers. With obvious qualifications about the number of things taken as a sample, the same thing holds generally. Thus if our collated findings should fail to be eventually representative of the class itself, then we shall have been consistently unlucky, and unlucky to a degree which is the more surprising according as our investigation has been more lengthy, and also the more surprising as the divergence of our findings from the representative character is the greater.

Or we can put this matter in another way which avoids initial assumption about the objective constitution of the class investigated. The presumption of the Rule of Induction, that earlier experience will be indicative of later experience, has the consequence that longer and longer experience should show closer and closer approximation to uniformity in the cumulative results. To take an example; suppose that 1000 throws of a coin are made, the ratio of heads to total throws so far made being set down after each throw. Suppose that

the mean value of all these ratios found is close to 0.5, and at no time in this series of throws is the excess of heads over tails, or tails over heads, greater than 17; the maximum divergence from 0.5 of any ratio after the first 500 throws being 0.02. Suppose that a second series of 1000 throws gives closely similar results; the mean of frequency ratios being again close to 0.5, and the excess of heads over tails, or tails over heads, being never greater than 17 in this second series. And suppose that a third series of 1000 throws once more gives closely similar findings. Then if we collate the results of the whole 3000 throws, in the order made, into one single series of cumulative findings of the frequency, we shall get smaller values of the maximum divergence from the mean after later points in the series. The maximum divergence at any point after the first 1500 throws cannot well exceed 0.016 (it 'should be' somewhat smaller); and after the first 2500 throws, it could hardly be greater than 0.013. If still further series of 1000 throws should each conform closely to results of the first one, then the cumulative findings will show still smaller and smaller values of the maximum divergence of the frequencies found from the mean, after still later and later points in the cumulative series.

To put the same thing in another way: the only chance that the maximum divergence from the mean of the frequency ratios found will *fail* to be progressively smaller and smaller after later and later points in the series, is the chance that such departures from the mean will be consistently in the same direction—a consistent excess of heads or a consistent excess of tails; which would be incompatible with the mean frequency itself remaining close to 0.5—or that the excess of heads or of tails found in later and later series of 1000 throws should be progressively larger and larger.

Thus in general; if the Rule of Induction validly applies to progressive investigation of the frequency of instances of φ amongst instances of ψ, then the cumulative collation of the findings will show progressively smaller and smaller values of the maximum divergence, e, from the mean frequency m/n after later and later points in the series of cumulative frequency ratios found.

Thus the simple assumption, some form of which seems essential to the validity of induction, that when a sufficiently large number of cases of any property ψ have been found to present a certain uni-

formity in the occurrence of another property φ, within relatively small limits of divergence, there arises presumption that this uniformity will characterize cases of ψ in general, suggests the possibility of a highly precise formulation of the probability that an instance of ψ will have the property φ; the formulation, namely, that *the probability that an unobserved or undetermined instance of ψ will be an instance of φ, is m/n if and only if, as more and more instances of ψ are observed and the values of the ratio of instances of φ amongst observed instances of ψ are progressively determined, the series of such values will approach m/n as the number of instances observed approaches infinity.*[2]

4. It should never be forgotten, if we are to be judicious about problems involved, that so long as we deal with empirical matters of fact (and a probability of anything else is nonsense), the series of frequency ratios with which we have to do is *not* one which can be mathematically generated from any rule, by which later values can be determined from earlier ones: *later members of the series are determinable only by later collated empirical findings.* We may formulate mathematically in advance our *expectations* based on past experience, but obviously any finding of frequency ratios is uncertain until the empirical facts it collates are determined.

The consequences of this simple and patent fact are of first importance. It is a persistent fallacy which besets discussion of the empirical conception of probability that, at some point in the exposition or the argument, a mathematically constructible series, for which there can be *deductive inference* from earlier to later segments, becomes substituted for the actual series of frequency ratios, determinable only from empirical findings. Also, when we think of a series approaching a limit, we are prone to do so in terms of mathematical examples which are here inappropriate. Nevertheless, an empirically determinable series may truly be said to converge to a limit, *m/n,* provided that for later and later points in the series there are smaller and smaller values of the maximum divergence *e,* from *m/n,* beyond that point; and provided that for every number *e,* however small,

[2] When the order in which instances are to be taken is subject to choice, there are difficulties about a rule of ordering; but while these difficulties are considerable, the point to be assured is simple and obvious: any order which could itself affect the frequency found, is to be avoided.

there is *some* point in the series beyond which the divergence (positive or negative) from m/n of every later member is less than e.

However, the different sense in which, or manner in which, a mathematical and an empirically determined series may approach a limit, should be observed. Let us briefly illustrate this point. Consider the mathematical series,

$$1, \frac{3}{4}, \frac{5}{8}, \frac{9}{16}, \frac{17}{32}, \frac{33}{64}, \ldots\ldots$$

Since this series is constructed according to an obvious rule, we can say with certainty that it approaches 1/2 as a limit. Any term of this series being reached, the next term is predictable with certainty, and all further terms in order. Not only can we say that for any number e, however small, there will be some point after which no term of the series will differ from 1/2 by more than e, but we can also say, for any assigned value of e, after *what* term of the series this will be the case. Because the nth term of the series, for any value of n, will be

$$\frac{2^{n-1}+1}{2^n}.$$

Now consider the different series of fractions which might express the empirically found frequency of heads amongst total throws of a coin, 100 throws having already been made and recorded. This may be such as,

$$\frac{52}{101}, \frac{53}{102}, \frac{53}{103}, \frac{54}{104}, \frac{54}{105}, \frac{54}{106}, \frac{54}{107}, \frac{55}{108}, \frac{56}{109}, \ldots\ldots$$

We may be reasonably sure with respect to this series also, that if it be continued indefinitely by making further throws and collating the results, then for any value of e, however small, there will be some point after which no member of the series will differ from 1/2 by more than e. But we cannot predict, from observation of the series up to any given point, what the next term will be; and in general, no specific value of any term is antecedently predictable. We cannot say after *what* point in the series it will be the case that no later term will differ from 1/2 by more than a certain specified small amount e. That is, we cannot say this with certainty; though we may make predictions on the point which are *probable*.

It is to be observed that for the empirical meaning of "'*P*' (or 'φc') has probability *a/b*," *this statement has always predictive significance;* it predicts the further behavior of an empirically determined series of frequency ratios, which series is never complete but is always to be continued by collation of further empirical findings. At most, this assigned probability, *a/b,* could be taken as an evaluation which is more or less well confirmed, by data already collated and the behavior of the resultant series up to the present point, and as further confirmable without limit. But it can never become certain in any actual case that "'φc' has probability *a/b*" is precisely true. Because, in the first place, for a series which is thus to be determined empirically and not mathematically, the fact that it tends to converge up to a certain point can never make it *certain* that it will continue to converge for all future findings. And in the second place, supposing that such an empirically controlled series *will* continue to converge indefinitely, it can never be argued with certainty from its behavior up to a given point, just *what* the limit is to which it will converge. Thus, on the empirical conception, it is always a presently uncertain prognostication to say that 'φc' has *any* probability; and it is a further uncertainty, supposing that it has a probability, just what the value of that probability is.

Empirical theorists sometimes acknowledge the first point by admitting that their conception requires the postulate that such series as are in question converge to a limit. That postulate is perhaps no better and no worse than the general assumption that future experience can be judged from the past: it can, in fact, be represented as expressing in precise form just that assumption without which induction has no validity. But the second point cannot be so well disposed of: it requires admission that any estimate of a probability must itself be uncertain and call for a substantiation which only future empirical findings can give.

On the *a priori* theory, what is called a probability is something which can be completely assured at the time of judgment: if the probability determination is validly arrived at from given data, it has the same assurance as the data themselves. But on the empirical theory, what is called a probability is a frequency ratio (the limit of a series of such) to be determined from empirical facts some of which remain always future to the judgment. At the time of judgment,

this limiting value of the frequency can be predicted or estimated only; and any estimate made may later turn out to be inaccurate or quite false. Any *judgment* of probability is, thus, on the empirical theory, a particularly clear case of what we have called a non-terminating judgment: at any given time it requires something for its truth which only future experience can determine, and at no given time can it be assured with complete finality.

5. This difference in the meaning attached to the word 'probable' is the fundamental one which lies between the two different types of conception. Other differences, not dependent on that, are less radical than is commonly supposed; particularly so if we consider the effect of those maxims which, on either theory, must be respected in the application of probability principles if the results are to be accounted well-judged. It is also this basic difference of meaning which is important for us here. But light may be thrown on that issue if first we give attention to certain subordinate features of the empirical theory having to do with the specification of the reference class.

It follows from the empirical manner of defining probability that the reference class cannot be one which has been or indeed could be exhaustively examined. Those who hold the empirical theory do not always observe this requirement, but failure to do so must convict them of inconsistency. Not only does it make no sense to speak of any corresponding series of frequency-ratios with a finite number of members as approaching a limit, but any specification of the reference class as one which is finite will always show some subtle confusion as to the class of things which are to be observed in determining the frequency of the quaesitum property. The point can be illustrated by any of the typical elementary problems; e.g., the probability that one card drawn from a full pack will be a king. One might judge this probability to be 1/13 on the ground that the frequency of kings in the pack is 1/13. The empiricist presumably has no objection to this evaluation of the probability, but if he accepts it for the reason assigned, then he falls into the arms of the *a priori* theory, by appealing to the fact that the card drawn is as likely to be any one of the fifty-two in the pack—four of them kings—as any other; which would depend on the Principle of Indifference which he repudiates. Consistently with his conception, the probability is to be identified not with the frequency of *kings* in the *pack,* but with the frequency of

drawings of a king amongst *drawings* of one card from the pack: with the limit to which the frequency ratios representing drawings of a king amongst drawings of one card will converge. And while the class of cards in the pack is finite and can be exhaustively examined, the proper reference class of *drawings of one card* from the pack is inexhaustible.

The empiricist may have no objection to supposing that, if the proportion of A's amongst the B's is a/b, then random selections of one B at a time—or any other method of sampling the B's fairly—would give rise to a series of frequency ratios which will converge to the fraction a/b. He may remark that experience in general gives support, in the class of cases of which cards and dice are examples, to this correlation between the fraction of B's which are A's and the frequency with which a B taken at random will be found to be an A. And he may even make use of this general fact in particular problems. But if so, still he must insist, as an empiricist, that the *ground* of the probability determination is one of *experience*—one of drawing single cards from full packs—and not the ground of an 'equal distribution of our ignorance' as between the fifty-two alternatives which drawing of one card from the pack presents.

Thus the empirical theory requires that the reference class must not be one which is finitely exhaustible, for the double reason that the empirical manner of defining 'probability' can find no application in the case of a finite class, and that specification of the reference class as 'cards in the pack', 'faces of the die', 'samples which could be drawn' or as 'combinations' must always result in substituting a ground of ignorance and *a priori* counting of alternatives for the positive ground of experience and the class of empirical findings in which the frequency of a positive result is to be determined.

A slightly different aspect of this same matter may be brought out by considering another kind of example. The illustration to be chosen may be so obvious as to be silly, but the point to be illustrated is not. Suppose we are throwing a coin, the question being the probability of heads. This coin falls first head, then tail, then tail, and on the fourth throw it falls down a drain and cannot be recovered. Suppose one of us is an apriorist and the other an empiricist in probability theory; and the apriorist now argues that if the empiricist were consistent he would assess the probability of this coin falling

head as 1/3. In all the world there are never going to be more than three throws of it, two of them tails. The empiricist should reply—should he not?— that 'throws of this coin' is an improper choice of the reference class. First, accepting the presumption that there are only three members of this class, choice of it is estopped by the fact that there is then no member of it whose probability remains to be determined. The completed throws having been observed, the probability of a head on any one of them is either zero or unity on the data given. And so in general; the case in point must always belong to the reference class, and that being so, no reference class all members of which have already been observed can be properly chosen. Second, the suggested choice 'throws of this coin' is inadmissible in this example because it does not contain that class of phenomena our experience of which is the basis of the probability judgment. Our experience of this coin being necessarily too meager to represent the genuinely pertinent data, our reasonable ground of judgment in this case is throws of other coins like this one, or throws of coins in general. Thus the frequency in question is not the frequency of heads amongst throws of *this* coin, but the frequency of heads amongst all throws of pennies, or amongst all throws of coins in general. So here again, any properly chosen reference class will be one which is inexhaustibly large.

This example calls to our attention three further points, each having some importance. First, the case inquired about—the instance c whose having the quaesitum property φ is in question—must belong to the reference class; and any apparent exception to this is a sure indication of faulty formulation of the problem. Second, the quaesitum class cannot be finite: if it should be, then since the reference class is not finitely exhaustible, the probability in question becomes zero, since the long run frequency must eventually become smaller than any assignable fraction. Third, the *data* must be instances in the reference class: that is, the *proximate* data which are the direct ground of judgment must be so, although for many or even most problems there would be information classed as data which are relevant because *indicative* of a frequency of the quaesitum property in the reference class in past experience, rather than representing statistical collation of past instances.

Thus it is a corollary of the empirical mode of defining probability that both the quaesitum class and the reference class must be so specified as not to be finitely exhaustible; and the frequency of the quaesitum property *can never be determined by an exhaustive counting of cases* in the reference class as a whole. We also observe that where the problem is so formulated as seemingly to escape this requirement, the statement of it must be faulty; and a correct reformulation will not only remove the difficulty in question but also will be better indicative of the actual or proper empirical basis of the probability judgment.

6. The difficulties of the empirical theory which are genuine are not, thus, those which arise because probability may seem often to concern frequency of a property in a class which is finite: difficulties of that kind are apparent only. The real difficulties are rather those which attend upon any determination of a frequency in a class which is *not* finite.

That there are difficulties affecting the notion of a frequency in a class which cannot be exhaustively examined, and the distribution of whose members is not fixed by any antecedent rule but is to be empirically discovered, is fairly obvious. And it is questionable whether the empiricists' attempt to define such a frequency as the limiting value of the frequency ratios which is approached by an infinite series, does not aggravate these difficulties instead of removing them. Members of a non-finite reference class may be examined in progressively larger and larger numbers, and the ratios expressing cumulatively the frequency of the quaesitum property, as so far found, may be recorded in a corresponding series. But it becomes evident that from examination of the initial segment, so far set down, of such a non-terminating and empirically constituted series, no judgment as to an eventual limiting value which these ratios approach can at any time be determined with certainty, and there is some doubt that it can even be confirmed.

From behavior of the series up to a certain point, approximation of it to some series describable in strictly mathematical terms may be suggested. And from the character exhibited by an initial segment of such a *mathematical* series, convergence of it to a certain limit might be assured with deductive certainty. But nothing which would follow from mathematical properties of this mathematical series can be concluded with respect to later segments of this empirically deter-

mined series except by an extrapolation representing some inductively based prediction as to further empirical findings; and *the basis for such empirical prediction is precisely the point in question.* (That manner of begging the question is the besetting fallacy of empiricist discussions. Almost one may say it is typical of empirical theorists that they begin with the stern demand that we must restrict ourselves to objective empirical facts, but very soon will be discovered talking pure *a priori* mathematics, though without any awareness that they have changed the subject.)

The crux of this problem centers upon the interminable character of the series in question when the reference class is not finitely exhaustible. Behavior of the empirically found frequency ratios, up to a certain point, might justifiably raise some presumption as to further behavior of the series over some comparably *finite stretch,* representing later and predicted empirical findings; but the validity of such inductive extrapolation becomes increasingly dubious as the further stretch thus predicted becomes longer, in comparison with the number of instances already examined and the length of that initial segment of the series which is already determined. But where the prediction must be of a limiting value approached as the length of the series approaches infinity, this relation of the number of instances already examined to those for which prediction is made, is always that of some finite number to infinity. Thus judgment made at any time that this series will finally converge to a certain limiting value, somewhat resembles judgment about all the beans in an infinitely deep bag of beans when a finite number of beans on the top have been examined.

To put the same matter in another way: if any measurable degree of assurance that the empirically determined series of frequency ratios will converge to a specified limit is to be justified from examination of the series up to the point where this judgment is hazarded, then it must be possible to say that if this series were *not* eventually to show and thereafter maintain convergence toward the limit mentioned, then it would be in some measurable degree *im*probable that the initial segment of it so far determined would have the character actually found. And where the series is infinite, the presently constructed initial segment finite, and the remainder is to be constructed by reference to empirical findings not yet made, the answer to the question "What is the chance that if the whole series were *not* to

converge to the limit m/n, this initial segment would be thus and so?", seems to be wholly dubious, no matter how beautifully the series has behaved up to the present point. Thus it does not appear that any definite degree of confirmation can ever be afforded that such an infinite and empirically to be determined series of frequency ratios approaches a specified limit m/n.

Lest we think of this matter in a fashion unnecessarily abstruse, let us return to a concrete example. After one hundred throws of a coin, the frequency of heads is found to be 0.46. After two hundred throws, it is 0.476; after three hundred, 0.517 (to three decimal places); after seven hundred eighty-four, it is exactly 0.5; and after one thousand, 0.498. This experience justifies assurance that there is approximately an even chance of heads for throws of this coin. No one will or should doubt it. The doubt attaches to defining this probability by saying that as the number of throws approaches infinity, the series of values of the frequency ratio of heads will approach 0.5 as a limit. Because, for one thing; if we ask, "What is the chance that if an *infinite* series of throws would *not* approach 0.5, but instead 0.56, as a limit, we should *not* find the above data, up to the present point?", there seems to be no clearly justified answer whatever. And for another and more important thing; to make such a statement about an infinite series, seems to be going altogether too far out on a limb to express the actual expectations we should have and could test when we venture judgment that the probability in question is close to 0.5.

There are really three separate questions here: (1) Is the probability that an unobserved or unspecified instance of ψ, will be an instance of φ, to be identified with the objective frequency of instances of φ amongst instances of ψ?; (2) When we are dealing with empirical and not mathematical entities, does it make sense to speak of a frequency of instances of φ amongst instances of ψ when no finite number can be assigned to this latter class?; (3) Is the objective frequency of instances of φ in a non-finite class of instances of ψ, correctly definable as the limiting value which the frequency ratios found will approach as the number of observed instances of ψ approaches infinity?

It requires affirmative answer to all three of these questions to validate the usual empirical definition of probability. But at the mo-

ment it is the third of them only with which we are concerned. And the answer to that question appears to be that unless the language used is to be taken in some uncommon and unobvious sense, this manner of defining an objective frequency is strictly nonsense: the assertion that an infinite series, which is empirically and not mathematically determined, will approach a certain limit, seems to predict nothing specific which is *finitely* ascertainable, and hence to have no empirical and testable meaning. And that is precisely the kind of meaning which the empirical theory would demand that it should have. When the frequency of instances of φ amongst instances of ψ is so formulated, it seems impossible to say just what character of experience up to date (*any* date) would be required by it or what would be incompatible with it, or to ascertain any measurable degree of confirmation or disconfirmation which would arise by virtue of any particular and finitely completable set of empirical findings. The relation between the finitely completed or completable findings and the infinitely to be determined eventuality, seems to defeat the possibility of any valid inductive extrapolation.

It is a different question whether there can be such a fact as the objective frequency of instances of φ amongst instances of ψ, when these classes are not finitely exhaustible: whether under such circumstances, "The frequency of instances of φ amongst instances of ψ is a/b" is a statement which is finitely testable and hence empirically meaningful. And there should be less doubt that such statements as "The frequency of heads amongst all throws of coins is close to 0.5" or "The frequency of fair days amongst those following a day like today is about 0.8" do have empirical significance. The meaning which statements of this type genuinely have may be determined by adhering to the fairly plain and common-sense intention of them. They are *not* decisively verifiable; first, because no definite limit can be set to the number of pertinent instances to be examined, concerning which they make prediction, and second, because we cannot say that *if* the objective frequency in question is a/b as stated, then the frequency found for the first hundred instances examined—or the first thousand, or the first million—will *certainly* show a frequency

approximating to a/b within a specified small amount e.[3] We can only draw such implications as, "If the objective frequency of heads is close to 0.5, then it is *improbable* that the first hundred throws will show a frequency of less than 0.4 or more than 0.6; and *highly* improbable that the frequency found will diverge from 0.5 by more than 0.2; and *practically certain* that the frequency found will be between 0.2 and 0.8. But since we can assign such *probabilities* as genuinely implied by assertion of the objective frequency, we can likewise indicate a degree of *confirmation* or *disconfirmation* which results of the first hundred throws will afford; or which will arise from statable results of any finitely completable further investigation. If between 45 and 55 heads are found in the first hundred throws, then the judgment that the objective frequency of heads is close to 0.5 will be in some measure confirmed; but if more than 60 or less than 40 should be found, then that judgment would become somewhat improbable; and if more than 70 or less than 30 should be found, then the falsity of it would be fairly sure.

Thus although judgment as to an obective frequency can never be decisively verified, where the class of pertinent instances is not finitely exhaustible, nevertheless such statements, *when taken in the manner in which they are meant,* are finitely testable and can be confirmed or disconfirmed; and that is all that empirical meaningfulness requires: indeed, as we have seen, it is all that is theoretically possible in the case of assertion of *any* objective fact. The meaning of such assertion of objective empirical fact consists in the whole class of consequences which it has, indicating what will confirm and

[3] It is more judicious to speak of a class of empirical entities to which no finite number can be assigned as indefinitely large rather than as infinite. And no formulation which speaks of anything non-finite can have any genuine empirical significance except as the intention of it can be exhibited in terms of statements which follow from it and speak of something *finite.* As Kant found, such empirical totalities to which no finite limit can be set give rise to paradoxes when taken to be infinite: infinity turns out to be infinitely too big for any empirical totality.

In terms of our present problem: there is no empirical content of any statement as to a frequency in an inexhaustible class, beyond predictable consequences of results to be found for various *finitely terminable* investigations. The precise question at issue above, is whether definition of such a frequency in an empirical class as a limit approached by an infinite series, implies any specific predictions of that sort; or whether an infinite series is infinitely too long for a limiting value of it to have any definite implications about finite initial segments of it.

what will disconfirm it. And although it is peculiarly patent, in the case of statements of an objective frequency in an inexhaustible class, that the only implications of it which are finitely testable are *probability* implications, still such implication of a probability or an improbability of certain findings, under finitely predictable circumstances, is all that is required for confirmation or disconfirmation, and hence for empirical meaningfulness.

It may be said that this is exactly what is implied by definition of the frequency in terms of an infinite series which approaches a/b as a limit; and that by indicating the *ideal* or maximum degree of such confirmation, that definition achieves the desired precision which our manner of formulation, above, must lack. But if that allegation be made, it is to be hoped that the precise issue here will be observed. We have doubted that, for example, the statement "The value of the frequency ratio of heads amongst all throws of a coin approaches 0.5 as the number of throws approaches infinity" has genuinely *any* implication of a degree of confirmation or disconfirmation which will arise from *any* specific findings for the first hundred, or thousand, or any other finite number of throws. Hence we have doubted that such statement is finitely testable and has empirical meaning. If that doubt can be removed, then the suggested criticism of this manner of defining a frequency in an inexhaustible class should be withdrawn. But in any case, if such definition in terms of a series approaching a limit, has the same desirable consequences which follow from explication of the meaning of such statements of objective frequency in terms derived from the Rule of Induction, then at least it must become evident that its supposed advantages of theoretical precision, as contrasted with the consequences of this homely rule, are spurious. The question is whether it does not achieve this air of exactitude by postponing the determination of precise accord between a predicted value of the frequency ratio and any empirical results actually found to the time which never comes, and thus saving itself from the necessity of speaking in terms of approximations and probabilities by avoiding the consequences of any actually completable test. If so, then the prediction becomes too mathematically elegant to do any work, and too pretty to have sense.

However, it is the less necessary to arrive at any final adjudication of this difficult matter because we do not as yet touch the most essen-

tial point of the empirical theory. We have so far spoken only of *objective frequency* in a non-finite class; and although question has been raised whether such objective frequencies can be expressed by statement in terms of a series approaching a limit, we have made *no* question that there is a genuinely meaningful manner of expressing an objective frequency, which allows of confirmation or disconfirmation. But the finally essential question of the empirical theory concerns the *identification of a probability* with such an objective frequency. And with respect to that finally essential point, the empirical theory encounters a difficulty which is insuperable. There may be doubt whether judgment of a frequency, defined as a limit approached by an infinite series, is genuinely confirmable or not. And there may also be doubt whether such an objective frequency can be successfully explicated in the manner we suggest, for which confirmation and disconfirmation become genuinely possible. But there can be *no* doubt that, in whichever of these two ways a frequency in an inexhaustible class is to be defined, *no judgment of such an objective frequency in an inexhaustible class can ever be decisively verified and become completely certain.*

The point of criticism here is perhaps obvious. According to the empirical conception of probability, the statement "The probability that an unobserved or unspecified instance of ψ will be an instance of φ, is a/b," is equated with and defined by another; "The frequency of instances of φ amongst instances of ψ is a/b." Since it is recognized that the instances of ψ in question constitute an inexhaustible class, this frequency is expressed in terms of a limit approached: "The determined frequency-ratio of instances of φ amongst instances of ψ approaches a/b as the number of instances of ψ for which this ratio is determined approaches infinity." But the point is that our assurance of the truth of this last statement can never become complete. Suppose it reasonable to assume that results of finitely completed investigations can establish a probability as to this objective frequency in question. Suppose it reasonable to think that the judgment, "The frequency of instances of φ amongst instances of ψ is a/b," may become confirmed in high degree, through observation of the series of successive determinations of this frequency-ratio for larger and larger finite classes of instances of ψ. Still it will be entirely out of the question that such a statement of the objective fre-

quency in an inexhaustible class should ever be decisively verified and become completely certain. Thus on the empirical theory, any statement of the form, "'*P*' (or 'φc') has probability *a/b*," becomes a statement of an objective frequency which at no time is or can be certain, but is—what? Shall we say 'probable'? No matter how we turn or twist the problem, and no matter how much *a priori* mathematics we summon to our aid, we can never assure an objective frequency in a non-finite class of *empirical* things, as anything more than a probability. And any seeming avoidance of that disastrous conclusion—disastrous for the empirical theory—can never be anything better than the result of some subtle fallacy.

If we accept the account which this empirical theory would give of the cognitive status of a belief '*P*' which we have some warrant for believing but which remains less than certain, then plainly we shall never get to the bottom of our problem. Because so construed, "'P' is probable" becomes no better than probable. And if we apply this same interpretation to the *probability* that '*P*' has probability *a/b*, then it must appear that there is no certainty but only a probability that "'*P*' has probability *a/b*" is probable. And so on. Thus when confronted with the general problem how we are to elicit or express the cognitive status of beliefs which have some justification but are less than completely certain, we find that the empirical interpretation of their probability would not provide a solution but only the beginning of a perpetual stutter.

This does not in the least condemn the supposition that when we judge the probability that an instance of ψ will be an instance of φ to be measured by the fraction *a/b*, we justifiably do so only on some ground which indicates that the frequency of instances of φ amongst instances of ψ is also measured by *a/b*. But this supposition—be it noted—does not suggest that the probability that an instance of ψ will be an instance of φ is *a/b* when and only when the frequency of instances of φ amongst instances of ψ is *a/b*: what it suggests is that the probability in question holds if and only if *the given ground of judgment makes it probable—credible, rational to believe*—that the frequency of instances of φ amongst instances of ψ is *a/b*. It is one thing to say, "The probability that an instance of ψ will be an instance of φ is *a/b* when and only when the *given data indicate* that the frequency of instances of φ amongst instances of ψ is *a/b*." It

is an entirely different thing to say—as the empirical theory does—that this probability is a/b when and only when the frequency of instances of φ amongst instances of ψ *is in fact* a/b. This kind of fact may be rationally credible on the data given, but it is not and cannot be theoretically certain. And it is for that reason that the empirical definition of probability, which identifies a probability a/b with the *objective fact* of a frequency a/b, can only result in the kind of infinite regress pointed out, which must reduce this empirical interpretation to absurdity.

Also, we can see without further ado that *no* theory which identifies rational credibility in general with any kind of empirical objective fact, could be in any better case. The only possible kind of account which can apply to the cognitive status of less than certain empirical beliefs which nevertheless have a warrant or justification, is one which will identify such probability with some fact which is knowable *a priori* when the data on which it is to be judged are given. Rational credibility of belief can, in the nature of the case, depend on nothing more than the supporting premises of what is believed and some relationship of it to these premises which is of the general type of logical relations.

7. It suggests itself that when attention is given to the whole problem of the cognitive status of what we assert as having a ground or reason but not as assured with certainty, the apriorists and the empiricists in probability theory must have more in common than the apparent opposition of their fundamental dicta suggests. On the one hand, though the apriorist insists that nothing posterior to a probability judgment can invalidate that judgment if it is correctly drawn from its data—and we observe the sense in which this must be true of rational credibility in general—still he would hardly assert that a probability and the frequency with which the kind of thing judged will actually be found true, are mutually irrelevant. Nor could he plausibly deny that the purpose for which probability judgments are made marks them as essentially significant of expected future events. More specifically, he could not well deny that the probability that an instance of ψ will be an instance of φ is measured by a/b if and only if our rational expectation is that instances of φ will occur amongst instances of ψ with a frequency close to a/b. If probability judgments were not in this sense predictive, they would be practically

pointless and hardly would be made. On the other hand, the empiricist not only cannot deny the significance of a rational credibility which is determinable solely from premises given and logic (in some broad sense of 'logic'); he cannot well fail to recognize that his own predictive judgments of objective frequencies to be determined will either have or lack validity according as they are or are not reached from proper data or premises in acceptable ways, and will be trustworthy or the opposite according as they are or are not thus *valid*. The empiricist must admit that at the moment when he is called upon for judgment, he can come no nearer to determining the objective frequency in question than by an *estimate* of it. And he will require that this estimate, if it is to claim any rational credence, shall be arrived at from the given data in some formulatable manner which represents a judicious mode of making such estimates. Thus he must recognize that when he ventures to assert a probability a/b, the fact is that he does so because he finds that a/b represents a *correct estimate* of a frequency from the whole body of pertinent given data. Recognizing this fact of his actual practice in probability judgments, he should thus, in consistency, accept the following dictum as pertinent and binding for all such probability determinations: That a given instance of ψ will be an instance of φ, is to be determined as probable in the degre a/b when and only when the frequency of instances of φ amongst instances of ψ is validly estimated as a/b from the given data. And on the other hand, an apriorist who should not fatuously deny the practical point of probability judgments, ought similarly to subscribe to the following: That an instance of ψ will be an instance of φ, has the *a priori* probability a/b, when and only when the frequency of instances of φ amongst instances of ψ is validly estimated as a/b from the given data.

It thus suggests itself that an account of probability should be possible which identifies a tacit community of conception underlying both these theories and perhaps more fundamental and important than their differences: an account, namely, which should take as its point of departure the thesis that *a probability is a valid estimate of a frequency from the given data.*

But if it is to be possible thus to reconcile the two theories, by drawing out implicit presumptions in each and amending both of them, then there are two further matters to be dealt with. First, if

we are to say that the probability that an instance of ψ will be an instance of φ is a/b when and only when the frequency of instances of φ amongst instances of ψ is validly estimated as a/b from the given data, then we must observe that this estimate of the frequency is itself no more than rationally credible, and that the degree of its credibility (the probability that the actual frequency coincides with the estimate) is *not* the probability, a/b, that an instance of ψ will be an instance of φ. This degree of reasonable assurance that the frequency is as estimated from the data given, is one aspect of what we may call the *reliability* of the probability determination. Such reliability will turn out to be a characteristic of probability determinations in general which is familiar and universally recognized in practice, though it is commonly neglected in theory. It has its own importance, quite apart from the consideration mentioned above which obliges us to take account of it.

Second; the empiricist alleges and the apriorist seems often to admit that application of the *a priori* method represents a mode of probability determination fundamentally different from the empirical one, by reason of the apriorist's use of the Principle of Indifference. The validity of that principle thus appears as a moot point between the two theories.

The first of these two matters has an important bearing on the second. We take them up, accordingly, in the order mentioned.

8. As has been said, attention to the property of probability determinations here spoken of as their reliability, becomes necessary for us because otherwise there will be the possibility of confusing the credibility of a frequency estimate (the degree of assurance that the frequency in question is as estimated from the given data) with the probability which is measured by this estimate of the frequency. However, the fact that, in addition to the dimension which is measured by the usual probability coefficient, probability or credibility has another mode of variation, representing *the degree of assurance with which we can argue from the data given to the case whose probability is judged,* is something tacitly recognized by holders of every theory, in connection with problems of application, though commonly it re-

mains unformulated.[4] Or it appears only in maxims governing the choice of data, or of the reference class, and taken to be pragmatic only and not subject to rules accord with which is essential for validity of the probability determination itself.

On the *a priori* theory, this inexplicit dimension of the probability is most easily indicated by the fact that data given or chosen, to which the probability judgment will be relative, may or may not afford a *well-judged* determination of the chance that the event in question will happen or that the matter of fact judged will be as anticipated. Different data for judging probability of the same quaesitum —giving different assessments for the same problem—could be ranked in some order of their relative satisfactoriness as a basis of judgment, if one is practically to depend on the probability judgment made. Most obviously; if one body of data is included in another and more extensive body of data, then judgment arrived at from the more extensive data will in general be a more reliable basis of practical decision. However, since either of two such divergent assessments of the probability of the same event or state of affairs will be relative to the data, both determinations will be equally valid. Thus although it would be scandalously impractical to overlook additional pertinent data; and one determination is thus pragmatically better and the other worse; this relative trustworthiness or reliability is not considered a dimension of either of these 'equally correct' probability determinations.

On the empirical theory, this same consideration appears in the fact that choice of the reference class is a matter of similar practical importance, affected by the question what data, amongst those available or which could be ascertained, will represent the most trustworthy basis for prediction concerning the matter in hand. Though here again, this question of relative trustworthiness is not supposed to

[4] Keynes recognizes one aspect of such reliability—the degree of assurance of the probability determination which depends on the *amount* of evidence—and calls this *weight*. (See *A Treatise of Probability*, pp. 312, 315.) However, he seems to connect this with 'mathematical expectation' and other matters not intrinsically connected with reliability as here treated. Also he *fails* to connect it with closeness of analogy between instances comprised in the data of the problem and the case in point—though he discusses that matter at some length. As we conceive it, the amount or adequacy of the data and the closeness of analogy with the case in question are two aspects of the same question of reliability in the probability determination.

affect 'correctness' of the probability determination from whatever body of data constitutes the chosen basis of judgment, because such choice will be reflected in the particular reference class within which the frequency of the quaesitum property will be assessed. The fact that the same quaesitum property may have one frequency in one reference class and a different frequency in another, allows of divergent but 'equally correct' probability determinations for the same problem. Though any insurance actuary, for example, who should be practically indifferent to choice between two experience tables giving different assessments of the same probability in question, would not last long in his profession.

It also contributes to neglect of this consideration of reliability, on the empirical theory, that the empiricist identifies the probability with the actual frequency of the quaesitum property in the reference class, and not with an estimate of it afforded by given data. He proceeds as if he *knew* the objective frequency in question with certainty; or as if in case this frequency is uncertain, the probability is likewise and *pari passu* uncertain and incapable of determination. Also, he overlooks, or extrudes from his theoretical statement of the problem, the fact of a possible hiatus between the reference class in general and the case in point. He neglects the fact that the probability is not predicated of the reference class as a whole but of a particular and unobserved instance contained in it; and that it can be doubtful whether, amongst instances ideally similar to the one in question, the quaesitum property would occur with the same frequency as it does in the reference class chosen. We are obliged so to choose our reference class that we shall have some *information* pertinent to this frequency of the quaesitum property in it, even though that should mean subsuming our instance inquired about in a class whose resemblance to it in pertinent respects is subject to doubt. For example, we are interested in the chance that *this* pair of dice will show a seven; not merely in the frequency with which pairs of dice in general will show a seven. Since we have no experience or pertinent information about these particular dice, the best we can do is to subsume our instance in the general class 'throws of two dice'. But we may be aware that the frequency of sevens in that class gives a relatively untrustworthy assessment of the chances with the dice

now in play, which might have their own peculiarities, though we have no positive evidence on the point. Nor is this consideration confined to cases where we have some particular and definite ground for doubt that the frequency in the reference class in general gives a good index for the instance inquired about. It is *universally* the case that this instance in question may have its own peculiarities, affecting occurrence of the quaesitum property. Ideal resemblance—ideal homogeneity of the instances in the reference class in all respects possibly affecting the frequency in question—is something which never obtains. Different cases differ only in the *degree* in which argument from the reference class in general to the instance in point will be reliable.

Thus the reliability of a probability determination, as measured by estimate of a frequency in a specified reference class, is affected by two considerations: the trustworthiness of argument from the given data to the reference class as a whole, within which the frequency of the quaesitum property is to be assessed; and the trustworthiness of arguing from the reference class as a whole to the case in point. And both of these considerations are neglected by the empirical theory, though no empiricist would neglect them in practice.

The force of this consideration of the reliability with which we can argue from our data to the problem in hand, is not confined to cases in which there may be perversity or negligence in determining what data we shall make the basis of our judgment or in what reference class we shall subsume the instance to be judged. Even when we are most judicious on such points, it remains true that there will be a greater or a smaller degree of reliability in the best possible assessment of the probability which can be made under the given circumstances. We might, for example, be obliged to judge of an orebody from a relatively few samples brought in by an untrained prospector, or we might have adequate data secured by experts according to a careful plan. And the probability coefficient, measuring the chance of success as against failure of the mining project, might happen to be the same in both cases. But in neither case would this single dimension, the probability coefficient, tell the whole story concerning the chance which investors would be taking. Similarly, if a friend offers to settle some trifling matter by the toss of a coin, the probability of a head is one-half; and it is the same if a suspi-

cious looking stranger invites us to gamble on it; because even if the stranger has a false coin, it may as well have two tails as two heads. But we are not entitled to the same assurance in the one case and in the other. Using the vernacular, we may say that one who presumes or hazards what has a small probability coefficient, takes a *long* chance; but one who presumes or hazards what is judged on insufficient data or on grounds not closely relevant, and hence acts on a probability determination which is valid but of small reliability, takes a *big* chance, even if the probability coefficient is large. Thus one who invests in unfamiliar stocks or plays the other fellow's game or ventures prophecy concerning matters remote from his experience takes a big chance, regardless of the expectation of a positive as against a negative outcome which is justified on the basis of his meager or not too pertinent grounds of judgment.

Since it is to be recognized that a probability determination has this dimension of reliability, in addition to the one measured by the usual probability coefficient, it becomes a little confusing to speak of the latter as *the* probability coefficient. Let us call this usual measure of the 'odds' the expectation coefficient or merely the *expectation;* and express our probability judgments in the form, "On data *'D'*, *'P'* is probable with expectation *a/b* and reliability *R*." Obviously the reliability qualifies the expectation: *'R'* here represents the reliability with which *'a/b'* can be assigned to the expectation that *P* will be the case. And although reliability cannot commonly be gauged in a manner making it appropriately representable by a fraction, still it is plainly a matter of more or less, and hence of degree; and for convenience we may speak of 'R' as the *reliability coefficient*.[5]

It is perhaps obvious why, when account is taken of the reliability of a probability determination, it is necessary to retain a reference to the premises in addition to indication of the reference class within which the frequency of the quaesitum property is judged. But in order to clarify that matter, as well as to suggest certain further points which are pertinent, let us consider one more example. The problem is, let us say, the actuarial one of the incidence of accidents

[5] In retrospect, we may observe that in the Rule of Induction, as stated on pp. 272-73, the phrase 'degree of assurance' refers to the reliability of the inductive conclusion, not to the probability coefficient or expectation measured by *'m/n'*.

amongst employees of a certain logging company for the ensuing year. Two experience-tables are available: Table A, for a wide variety of industries over a long period, gives the average annual incidence of compensatable accidents as 27.8 per 1000; and there is little variation from this figure from year to year. Table B, for the logging industry exclusively, but over a short period only, gives the average incidence as 43.4 per 1000; and figures for the various years show divergences from this average which are considerable. Table B is nevertheless chosen as the base, and it is reported: "The probability that an unspecified employee of the concern in question will incur a compensatable accident in the coming year is 0.0434." The empiricist would say that this statement means: "The annual frequency of compensatable accidents in the logging industry is 0.0434" —or else he must say there is no determinable probability for such accidents on these data. Instead of this, we should say that there is no incorrectness in this probability statement, and that it means "On the data of Table B, the *valid estimate* of the frequency of compensatable accidents amongst employees of the company in question in the ensuing year is 0.0434." But it would have to be recognized that the given data are relatively inadequate for judging the expectation of accidents in the logging industry, and not as closely pertinent as is desirable for judging this expectation for employees of the company in question (though more closely pertinent than the data of Table A). For any one of a number of reasons, operations of this company may be subject to greater hazards or smaller hazards than logging operations in general, or logging operations of those companies whose experience is tabulated in Table B. A good actuary would doubtless find a better way of assessing the probability in question. But without considering any such complication, our crude illustration may serve to indicate the mainly pertinent points.

The 'ideal' base for assessing the probability in question would perhaps be an experience table for the concern in question over a long enough period to indicate any general trend of the accident rate and the range of variations from the mean. Or if the operations and number of employees of this concern be not sufficiently extensive to constitute a reliable basis of judgment, then an experience table for concerns operating under conditions as closely similar as possible to

those of the one in question. And the various ways in which the data available, or those chosen as a base, fail to realize this 'ideal', indicate a necessary recognition of a smaller degree of reliability in the assessment of the expectation coefficient; though they do not indicate that it 'ought to be' either higher or lower—do not indicate any error in the estimate, but only that this or any other assessment must be relative to the data and to this adequacy or inadequacy of them and to the degree of their pertinence. Even on a base approximating to the ideal, the expectation coefficient cannot be *identified* with the actual frequency in any reference class; because that objective frequency would have reference to the future as well as the past, and we can only argue to it by inductive extrapolation from past experience. Thus we must gauge the reliability of this argument from the data to the reference class as a whole. Further; even if the given data should approximate to the 'ideal', they must fail in some measure to be one hundred percent pertinent to the case which is to be judged; and the best possible reference class for which there can be data will still fail to duplicate all the circumstances of the present case which are likely to affect the incidence of the quaesitum property. Hence we have also to gauge the degree of assurance with which we can argue from the reference class to the case in point. Thus any assessment of the expectation coefficient for any problem in hand must encounter the hazard of estimating a frequency in the reference class as a whole from the given data, and the further hazard of applying this estimated frequency to an instance or instances which may differ from those of the reference class in general in ways which affect occurrence of the quaesitum property. The measure of this double hazard is determination of the reliability or unreliability of the expectation as assigned.

9. The considerations affecting the degree of reliability in a probability judgment can be summed up under three heads: the adequacy or inadequacy of the data, the proximateness or remoteness of the data, and the uniformity or disuniformity of the data.

The meaning of 'adequacy' here will be obvious: if the past experience collated with respect to the frequency in question be extensive, then the assessment of the expectation will be in that respect correspondingly reliable: and if the data be meager, then in general it will

be correspondingly unreliable. In particular, we have the obvious rule that *additional* data which are pertinent always increase the reliability in some degree (regardless of any effect they may have on the expectation coefficient); though this increase in reliability may not be in direct proportion to any measure of the additional information.

'Proximateness' of the data signifies the degree of resemblance, or closeness of the analogy, in point of known specific properties whose presence or absence may affect occurrence of the quaesitum property, between the data and the case in question. As has already been suggested, this question of proximateness subdivides into two: How close is the analogy between the *observed* instances in the reference class, which constitute our data, and the reference class as a whole?; and How closely analogous are members of the reference class in general to the instance or instances in question? If the problem be to assess the probability that a certain half-dollar will show a head on a given throw, then the reference class 'throws of this half-dollar' will be closely proximate to the case in point; 'throws of half-dollars in general' will be less proximate, since half-dollars in general might lack some property of this one which could affect its falling heads; and 'throws of coins in general' will be still less proximate. Also; if the reference class 'throws of coins in general' should be chosen, but our past experience should have been mostly confined to throwing pennies, then the data will be less proximate by reason of the possibility that *pennies* have their own perculiarities, amongst coins in general, which may affect the occurrence of heads. That is, the data would be less proximate to the case in point by being less proximate for the chosen reference class as a whole. Or in terms of our other example: an experience table representing data of accidents in the logging industry is more proximate, and in that respect more reliable, than a table for industrial accidents in general, where the case in point concerns accidents to employees of a logging company. And an experience table for accidents to employees of logging concerns operating (1) over similar territory (2) with similar machinery (3) felling timber of like size (4) employing the same class of labor, etc., would become progressively more proximate with each such added qualification.

'Uniformity' of the data signifies the measure in which the frequency of the quaesitum property approximates to the *same value* for all properly chosen subsets of instances of the reference property. (Subsets will be 'properly chosen' if taken in any manner not antecedently likely to affect the frequency found; i.e., according to rules of 'fair sampling'.) In more precise language; if the frequency of the quaesitum property, amongst examined instances of the reference property, be m/n, then the data are more uniform according as the frequency found, for subsets of l instances, shows a maximum divergence, e, from m/n, which is more closely the same, and according as the mean value of e is smaller.[6]

Uniformity or disuniformity affects reliability because it affects the degree of assurance with which we can argue from one subset of instances in the reference class (which might contain our data) to another subset (which might include the instance or instances in point). In other words; disuniformity in the data is an inductive indication of disuniformity of occurrence of the quaesitum property in the reference class in general; and disuniformity of occurrence of the quaesitum property within the reference class as a whole, decreases the reliability of arguing from the frequency found in any set of observed cases to the unobserved case in point.

It is a commonplace that, in practice, the considerations of adequacy and proximateness are usually at odds with one another: choosing the reference class so as to have a more adequate body of data often means choosing it so as to include cases less closely analogous to the one which is to be judged. For example, in assessing the expectation of accidents for a group of loggers, one cannot, at one and the same time, choose the most comprehensive experience table, which would be that for industry in general, and the most proximate one, which would be that for logging operations under conditions as close as possible to those affecting the group in question. That this consideration does not oftener present a practical dilemma, is due to the fact that increase of reliability with increase in the size of the body of data is subject to a law of diminishing significance (something like the law of diminishing returns): beyond a certain

[6] On this point of uniformity or disuniformity, there is obvious connection between reliability and probable error.

point, mere increase in the number of cases included in the data becomes increasingly less likely, in general, to affect the frequency found.

Speaking generally, the degree of reliability in a probability determination and the magnitude of the expectation coefficient, are independent of one another and must be separately assessed. And the almost complete neglect of the dimension of reliability, in theoretical formulations, is a notable shortcoming which leads to anomolous results. On the *a priori* theory, it has the result that there is no way of recognizing the obvious and highly important fact that neglect of pertinent data which are available is a fault, and the resultant probability judgment less good than it should be; and of the fact that a judgment made in the light of later experience is to be preferred to any made earlier, and hence on grounds less adequate. That any probability judgment is relative to its data, does not cover this point, but leaves this preference amongst 'equally correct' determinations as a sort of pragmatic footnote to a theory which affords no explanation of it. On the empirical theory, this neglect of reliability leaves no way open for theoretical justification of probability judgments in those cases where the assumption that the objective frequency of the quaesitum property is determined with certainty would be too patently absurd. The empiricist in probability theory is, in consistency, obliged to divide probability judgments commonly made into the two classes; those for which, with a little fudging of the facts, it can be supposed that the data fully determine a frequency in a reference class, and those for which, since any such frequency is plainly uncertain, the word 'probability' must be supposed to have another and merely colloquial meaning, and the problem of our reasonable degree of assurance must be thrown out as having no scientific solution. As a fact, these two kinds of cases differ in degree only: there never is complete certainty of a frequency in an empiricist's reference class; and there is hardly any genuine practical problem of decision in the face of uncertainties for which there is not *some* ground affording a rational expectation having some small degree of assurance. For the theorist to confine himself to problems where there is a plainly indicated statistical base, merely makes it necessary for the rest of us to devise some humbler way of dealing reasonably with most of the

practical exigencies of life. It would be most disconcerting if there were *no* rational way of thus coming to decision in uncomfortable but unavoidable circumstances; if there were no formulatable principles of the wider kind of 'colloquial' or 'moral' probabilities. And it would be at least surprising if there were no connection between these 'unscientific' probability determinations and those which are 'scientific'. We can cover this wider field of vital problems, and also deal more successfully with the narrower field of professionally respectable ones, if we recognize that *all* determinations of an expectation are better or poorer estimates only of the frequency of the kind of thing in question, and that the weight which justifiably can be given to such estimates is a separate dimension of the probability determination, which can be gauged by reference to properties of our data in relation to what has to be judged.

However, although the dimensions of the expectation coefficient and the reliability are in general independent of one another, they are not completely so. It is a commonplace that one determination of the expectation, based on sufficient and closely relevant data, and correspondingly reliable, may be notably different from another, reached from less satisfactory data, and correspondingly less reliable. As also, that different bodies of data, both relatively reliable, may still give slightly different measures of the expectation. And again, it is a matter of no surprise that as we approach the situation in which the only data afforded are notably insufficient, or lacking in proximateness to the case in hand, we also approach the situation in which equally satisfactory, or unsatisfactory, choices of the basis of judgment may give notably divergent assessments of the expectation. Different bodies of data, neither of which affords a determination having more than small reliability, may be equally in accord with the rules and valid, but widely different. However, it would be a paradox if two estimates of a frequency could be at one and the same time widely divergent and both highly reliable. We have to remember, therefore, that quite generally it will be the case that assessments of 'the same probability' from different data will not be estimates of the same frequency, but of frequencies of the same quaesitum property in different reference classes. Where the reference class is the same, in two assessments of the expectation, these estimates—which

in this case refer to the same frequency—could be widely divergent only by some notable difference in adequacy between the two bodies of data giving rise to them. In such a case, therefore, it could not happen that both assessments are highly reliable. And where the reference classes are notably different, in two estimates of the frequency of the same quaesitum property, it cannot be the case that the two sets of data (which dictate these different choices of the reference class) are both closely proximate to the case in point. Thus it may well happen that divergent determinations of the expectation for the same case in point may both be accounted satisfactory in the sense of being 'as good as could be expected under the circumstances'; but where reliability is gauged in absolute terms, and not thus relatively, notably divergent assessments cannot both be highly reliable. In such absolute terms, highly reliable determinations must be closely in accord. Thus the reliability of the assessment and the evalution arrived at, are not wholly separate matters. For any one problem, these two dimensions of the probability determination do not vary in complete independence of one another. But, of course, there is no correlation between the magnitude of the expectation and the degree of reliability of the determination, either for a particular problem or amongst probability determinations in general. And a main fact to be remembered is that, for a specific case in point, two determinations which are both valid but one or both of them of low reliability, may be notably divergent.

10. To sum up so far: We have suggested that instead of defining probability in the empiricist fashion so as to identify the measure of it with an actual objective frequency, we should, in order to avoid the paradox of an infinite regress in the definition, and in order to be in accord with what is commonly and most usefully meant by 'probability', identify it with a *valid estimate* of a frequency. That is, instead of holding that "The probability that c, which is an instance of the property ψ, will also have the property φ, is a/b," means, "The frequency of instances of φ amongst instances of ψ is a/b," we should take it to mean, "The frequency of instances of φ amongst instances of ψ is validly estimated from the data 'D' as a/b." Reference to the data should be included, or understood, in addition to specification of the reference class (instances of ψ), because our data can never in-

clude all members of this reference class. The reference class must in all cases, if there be no mistake in formulation of the problem, be indefinitely large, and some finite number of its members only will have been observed. What estimate of the frequency is validly arrived at, must therefore be relative to that subset of observed instances which is comprised in the data.

Since validity of an estimate depends only on the data and the rules, this conception belongs to the general class of *a priori* theories, though no implication as to the Principle of Indifference is involved; and the conception of frequency in a reference class is utilized.

Though on this conception a probability statement makes no assertion of a *frequency,* still an *estimate* of a frequency can be a meaningful statement only if the assertion of the frequency itself would be meaningful (though the estimate may be valid when assertion of the frequency as estimated would be false). With respect to the question what, precisely, is to be meant by "The frequency of instances of φ amongst instances of ψ is a/b," where the class of instances of ψ is not finitely exhaustible, it has been pointed out that any statement of this form expresses a non-terminating judgment, incapable of decisive verification, but meaningful because it is confirmable and always remains—theoretically at least—capable of further confirmation or disconfirmation. But since such non-terminating judgment is empirical and predictive, it has no meaning beyond what is contained in some empirically testable consequence or other which it has. Hence if we determine what results, or what *kind* of results, of *finitely terminable* investigations will confirm it, and what will disconfirm it, we discover the only meaning which requires to be found for it and the only meaning which legitimately could be ascribed to it. What such results of investigation would confirm particular assertion of an objective frequency, and what would disconfirm it, is in fact well understood. For any investigation, there is some assignable small number, e—depending on the number of instances observed and other conditions of the problem—such that divergence of the frequency found, from a/b, by an amount less than e, affords some confirmation of the judgment; and a divergence greater than e lessens any antecedently determined degree of confirmation or increases the disconfirmation.

If we should adopt the usual empiricist manner of defining a frequency in terms of a limit approached by an infinite series, as indicating the class of possible confirmations of it, that manner of formulation would be subject to doubt. If acceptable, it must at least be interpreted in a manner which is unobvious and at variance with the usual mathematical meaning of the language used. Otherwise this manner of definition will fail to indicate any assignable degree of confirmation arising from specifiable and terminable investigations, by reason of the fact that the instances collated will always stand to the whole class of instances which are pertinent in the ratio of some finite number to infinity. We have accordingly suggested that the manner of such confirmation is more clearly formulatable by reference to the Rule of Induction, and consequences which can be drawn from it; and that if statement in terms of a limit approached implies anything different from that, then this definition in terms of a limit is theoretically unsound.

Valid estimate, from the data given, of the frequency of the quaesitum property in the reference class, determines what is usually called the probability coefficient. We call it instead the expectation coefficient. The determination of it, and its application to the case in point, is affected by some degree of reliability or unreliability. Reliability is a separate dimension of every probability judgment, representing the degree of justifiable assurance that the frequency as estimated from the data is closely in accord with the actual frequency of the quaesitum property in the reference class, and that there are no properties peculiar to the case in point and not characterizing the reference class in general which affect occurrence of the quaesitum property. This degree of reliability is determined by the combined measure of the adequacy and uniformity of the data and the proximateness of the data to the case which is to be judged.

Thus full statement of a probability judgment should be of the form "That c, having the property ψ, will also have the property φ, is credible on data 'D', with expectation a/b and reliability R." If in fact the data 'D' give this estimate, 'a/b', of the frequency of instances of φ amongst instances of ψ, and if the adequacy and uniformity of the data and their proximateness to the case in point, indicate reliability in degree 'R' of this determination, then this prob-

ability judgment will be *valid*. And since reliability as well as correctness of the frequency estimate depends only upon the data, in relation to the case in point, and upon correct principles of judgment, a probability statement which is *valid* is *true* when its data, *'D'*, are true, and in any case is assertable in whatever sense its premised data are assertable.

11. We have not so far given any consideration to the question what are correct rules of probability inference, beyond the basic Rule of Induction and general considerations governing reliability. We shall not in fact enter upon that question in further detail, for reasons already indicated. But it is a general question of fundamental importance whether such correct rules should be in terms of relation between observed cases (past experience) and the matter to be judged —as the Rule of Induction would indicate—or in terms of *a-priori*-determinable alternatives, as the Principle of Indifference would appear to dictate. Especially since acceptance or rejection of that principle is often, though erroneously, taken as the basic distinction between *a priori* and empirical conceptions of probability, it may be well, in concluding this chapter, to indicate why, though this principle is validly and usefully applicable in a large class of cases, it is not fundamental, and does not call for any qualification of the account of probability given above.

The Principle of Indifference undoubtedly was suggested by the traditional manner of formulating the basic rule for mathematical evaluation of a probability: "If a thing can happen in m ways and fail to happen in n ways (each of these ways in which it can happen or fail to happen being equally likely), then the probability that it will happen is $m/(m+n)$." The parenthetical qualification here is often omitted, but may reasonably be taken as tacitly assumed. Oftentimes that qualification would be negatively phrased; "There being no reason to assume that any one of these ways in which the thing can happen or fail to happen is more likely than any other"; and it is such negative formulation which is connoted by the name 'Principle of Indifference' and which suggests expression of that principle in terms of 'equal distribution of our ignorance'. But any such way of stating the rule is incautious or naive. The positive and less vulnerable manner of its statement has already been indicated: "Any two

alternatives which are symmetrically related to the whole body of the data are, on those data, equiprobable."

The entire issue with respect to this principle turns precisely upon the consideration suggested by that essential qualification: Is the *valid ground* for taking two alternatives to be equiprobable, the ground that we have *no* reason to take one as more likely than the other, or is it that we know from past experience a *positive* reason for equating them? For example, is explanation of the fact that the probability of drawing the ace of spades from a well shuffled pack is 1/52, to be found in the consideration that there are 52 cards in the pack and that we have no reason to expect any one of them as against any other; or is it an extensive body of past experience indicating that random selection of one object from a collection of n objects which are closely similar, will in the long run result in any one of the n objects being chosen about as often as any other?

So put, perhaps the issue becomes tenuous; but if so, that fact itself is significant. Both apriorists and empiricists will agree that where past experience positively indicates the equality of alternatives, the classic rule validly applies. And both will also agree that where experience positively indicates that one out of a set of logical alternatives is *more* frequent than another, these alternatives are *not* equiprobable, and the rule finds no application. This leaves only one kind of case in doubt—only one kind of case with respect to which use of the Principle of Indifference could give any result not likewise validated by the Rule of Induction from past experience, and conformable to the general principles of determining probability by reference to relative frequency. That one kind of case is the case in which *no past experience indicates anything whatever concerning relative frequency of the alternatives in question.* And it should be doubted whether that kind of case can occur.

It is not commonly observed how tenuous—or non-existent—the issue at stake must be, when the only class of cases which could be in point are those where past experience gives no indication either that alternatives are equiprobable or that they are not. Nevertheless those who object to the Principle of Indifference have most frequently located this supposed issue correctly and have essayed to disprove the principle by just that kind of example (where there is *no*

relevant experience) which alone might conceivably be crucial. An illustration is found in Charles S. Peirce:[7]

> "In the conceptualist [*apriorist*] view of probability, complete ignorance, when the judgment ought not to swerve either toward or away from the hypothesis, is represented by the probability 1/2.
>
> "But let us suppose that we are totally ignorant what color hair the inhabitants of Saturn have. Let us, then, take a color-chart in which all possible colors are shown shading into one another by imperceptible degrees. In such a chart the relative areas occupied by different colors are perfectly arbitrary. Let us enclose such an area by a closed line, and ask what is the chance on conceptualist principles that the color of the hair of the inhabitants of Saturn falls within that area. The answer cannot be indeterminate because we must be in some state of belief; and indeed conceptualist writers do not admit indeterminate probabilities. As there is no certainty in the matter, the answer lies between *zero* and *unity*. As no numerical value is afforded by the data, the number must be determined by the scale of probability itself, and not by calculation from the data. The answer can, therefore, only be one-half, since the judgment should neither favor nor oppose the hypothesis. What is true of this area is true of any other one; and it will be equally true of a third area which embraces the other two. But the probability for each of the smaller areas being one-half, that for the larger should be at least unity, which is absurd."

The objections which Peirce here intends to urge are two: first, that the supposition of any assignable probability in the absence of empirical evidence for or against a hypothesis is baseless; and second, that the Principle of Indifference, by assigning equal probabilities to alternatives which represent a merely logical division, which may be arbitrary, reduces to absurdity by allowing incompatible probability determinations for the same quaesitum.

The illustration offers a somewhat crude example of this difficulty: any apriorist would at once object to Peirce's color-chart areas as 'alternatives'. But more subtle illustrations of the same point could be given. And what the critic may maintain is that nothing in the prin-

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[7] *Collected Papers*, Vol. II, pp. 422-23. We choose this example, which in some respects is not particularly good, because it so well indicates further bearings of the question in hand.

ciple itself or the theory usually accompanying it prevents such extravagant applications. As a fact, even the most carefully guarded expressions of the Principle of Indifference have never obviated such arbitrariness and consequent paradoxes by any clear and workable canon of its application.[8]

However, it is significant that such examples, from which it is argued that the Principle of Indifference is unworkable and can give incompatible determinations for the same quaesitum, all belong to one of two general types: either, like this one of Peirce's, they refer to matters which are as remote as possible from all common experience or, like the problem of the probability that measure of a certain physical quantity known to lie between 1 and 3 will lie between 1 and 2, they are so abstruse and divested of empirical context as to be merely verbal and spurious. As a result, such attempted reductions to absurdity of the Principle of Indifference prove little or nothing. Just in so far as they approximate to a real case of *complete ignorance,* they fail to seem important, because it is so patent that no reasonable person would apply the Principle of Indifference in such a case. It is the *reason why* they are thus inconclusive which is the mainly important point. *Complete ignorance of all relevant empirical facts is completely fictitious in the case of any meaningful empirical question.* There are no probability problems in the complete absence of empirical data which directly or indirectly, are indicative of a frequency in past experience.

Let us examine Peirce's illustration from that point of view. If there are any real grounds, however tenuous, to conjecture that there may be inhabitants of Saturn having hair, then this same evidence—whatever it may be—will likewise provide *some* basis for judging the probability that their hair will be red. For example, we shall know some extended analogy between these supposed creatures and organisms with which we are familiar: that is implied in their being 'inhabitants' and having hair. And we shall know a good deal about

[8] Keynes proposes the following: "The Principle of Indifference is not applicable to a pair of alternatives, if we know that either of them is capable of being further split up into a pair of possible but incompatible alternatives of the same form as the original pair." (*Treatise,* p. 61.) The color-chart areas of Peirce's example would be a case in point. However, in spite of lengthy discussion, the notion of 'same form' is left vague and open to the same difficulties which give rise to the paradoxes in the first place.

their environment in comparison with our own: that is implied in their living on Saturn. We shall know, perhaps, the amount of solar radiation penetrating to the surface of their globe, and the relative profusion or scarcity of certain chemical substances having an established correlation with color in organic tissues. In any case we shall have some more or less extensive body of information which is in some degree pertinent by virtue of our being able to ask an intelligible question any answer to which could be even theoretically verified. Otherwise the problem would be merely cooked-up nonsense, and it might as well be asked, "What is the probability that an undescribed object, existing under undetermined conditions, will have a certain unspecified property?" That would be the only kind of question alternatives with respect to which would be a genuine case of complete ignorance. And the verbal possibility of that question does not make it significant.

A second point which requires to be observed is that if there *are* relevant empirical data, then no assignment of relative probabilities to alternatives is valid if it fails to accord with the relative frequencies indicated by such empirical grounds of judgment. If Peirce's example is more than an unwarranted caricature of use of the Principle of Indifference, then exactly the same procedure ought to be valid for question concerning the hair-color of the Cro-Magnon race, or the question whether the hair of a neighbor we have not yet met will be red. The only difference would be the somewhat smaller plausibility, for such cases, that there are no empirical data bearing upon relative frequency of the quaesitum property. But in the case of our neighbor, it would be at once evident that the probability of red hair cannot be 1/2 in view of the widely different frequency of red hair in the population generally. And while any judgment as to hair-color of the Cro-Magnons is precarious, no one with a real interest in that matter would fail to observe the pertinence of cephalic index, jaw structure, and other characteristics, essential to identification of the race in question, and to give some weight to known correlation between such characteristics and hair-color amongst historic peoples. Remove all such relevant information, and you remove the question itself. The mere words 'Cro-Magnon', 'red hair', etc., do not set up any probability problem.

However, while complete absence of empirical data indicating equality or inequality of any alternatives posed, must render the

problem itself unreal, still there are real problems for which the relevant data will afford *no closely proximate* ground of judgment. For example, the facts about the frequency of red hair in the population generally, are rather remote ground for judging the probable hair-color of people living in our neighborhood or of a designated but unobserved individual. That does not defeat the significance of the question: one who should be able to lay even-money bets that the next individual to be met would not have red hair, would eventually find it highly profitable. But it does render any assessment of the expectation in such cases highly unreliable. It is precisely this tendency of the empiricists to repudiate such problems, where there are data which are genuinely but only remotely relevant, which lends color to the supposition that there are real problems and real solutions of them which can only be accounted for on the supposition that relative probabilities may be assigned to alternatives *a priori* and without reference to any empirical grounds indicative of relative frequencies.[9]

It is failure to recognize that it is only some empirical ground for *valid estimate* of a frequency, not *knowledge* of a frequency, which is required for assessment of an expectation, which has contributed to the plausibility of the assignment of relative probability to alternatives on non-empirical grounds. The unwarranted restriction of probability problems which thus follows from empiricistic theory, leaves a gap to be filled. It leaves problems which cannot be repudiated as unreal, and for which everybody knows there is a common-sense solution having a degree of reliability, for which no theoretical explanation is offered. And the conception of an *a priori* ground of 'equal distribution of our ignorance' acquires plausibility by seeming to fill this gap. If it were not for this fact that empiricistic theory is unable to cover the wide field of practically necessary probability judgments, the supposition of a non-empirical ground of measurable expectations would have been less plausible. And neglect of the general consideration of reliability has contributed to this unfortunate

[9] It is this same empiricistic tendency which leads to the near absurdity of the dictum that there is *no* probability of an individual instance as such—when in fact almost all probability assessments are predicated of individual instances. The individual *as known* is designatable only as some class of one, to be marked off by some set of specific characters recited. As such, any individual is likely to be relatively remote from the pertinent data. But the justified inference is only that, as applied to a specified individual, assessment of an expectation is relatively unreliable.

result, by leaving us no manner of acknowledging, in our theory, that while assessment on adequate and closely proximate grounds is definitely better and takes precedence over any arrived at from data which are relatively meager or relatively remote, nevertheless this latter kind of probability determination may be equally valid and theoretically respectable, and represents a sound, though correspondingly less trustworthy, basis of practical decisions, when no more satisfactory basis for them is afforded.

We should further observe that, where the only available and pertinent grounds of judgment are relatively remote from the case in point, and any valid assessment of the expectation is correspondingly unreliable, there may well be alternative ways of construing the problem—alternative estimates of the frequency of the quaesitum property, by choice of one or of another reference class—which may be equally reasonable but give divergent determinations of the expectation. In fact it is *always* the case that there are such different determinations of the expectation for any quaesitum; since always there are possible, though ill-judged, choices of the reference class which would give such divergent determinations. Where ignorance is excessive, it becomes difficult to select the well-judged reference class, since any choice will give no better than an unreliable determination of the expectation. And as has been pointed out, it is no contradiction that two determinations of the expectation for the same quaesitum property should be widely divergent where one or both are of low reliability. In fact, we might say that as we approach the limiting case of maximum remoteness of any relevant empirical data —'complete ignorance'—we likewise approach the situation in which equally correct assessments might be divergent in any degree. It makes no difference whether we cover this limiting case by saying that when there is complete absence of empirical data indicating a relative frequency of the quaesitum as one alternative amongst others, there is *no valid* assignment of the expectation, or say instead that in such a case, *every* assignment of the expectation would be valid but of zero reliability. It makes a great deal of difference, however, both in theory and in practice, if we refuse to recognize the kind of case where assignment of the expectation with relatively low reliability only is possible, and repudiate all problems for which there are not data indicating unambiguously a reference class to be chosen and a nearly certain frequency of the quaesitum property in that class.

The question whether relative probability of logical alternatives can be assigned *a priori,* or only by reference to empirical data indicating relative frequency, should be carefully separated from the different question which represents the definitive issue lying between *a priori* theories in general and empirical conceptions of probability. A theory is of the *a priori* type if it conceives that a probability conclusion which is *valid* (which is derived from the data according to correct rules or modes of such derivation) is *true* when its premised data are true. The present question has nothing to do with that, but concerns the different problem, what modes of determining probabilities from given data are *valid.* When the Principle of Indifference is taken to be a fundamental rule and subject to no limitations of its application, it is supposed to dictate that equiprobability of alternatives may validly be assigned *a priori.* And the alternative conception is that relative probability of alternatives can validly be assigned only on grounds of empirical data indicating relative frequency of these alternatives. What we are suggesting is that, although apriorists sometimes assign relative probability to alternatives, relying on the Principle of Indifference, where such assignment has no validity, the issue is really empty. Because the apriorist admits that where given data indicate *un*equal frequencies of alternatives, this principle has no application. And nobody challenges the results of it where empirical data indicate *equal* frequency of the alternatives in question. That leaves only the case where no empirical data indicate *any* relative frequency of the quaesitum as against alternatives. And when we recognize that the pertinent data may be relatively remote while still remaining relevant to the problem, the suggestion is that that kind of case cannot occur if the problem itself has empirical significance and is genuine.

The fairly patent fact is that most of the problems to which the Principle of Indifference is customarily applied in practice—those concerning dice, cards, coins, and individual members of supposedly homogeneous collections—are those with respect to which there is an immense mass of more and less closely pertinent experience, the whole weight of which is on the side of the assumption that alternatives, as usually specified, represent equal frequencies of occurrence. For that broad class of cases, where we deal with aggregates of things closely similar to one another, the Principle of Indifference offers a frequently useful rule of thumb, by reminding us of a simple method

for computing complex probabilities. But the important consideration with respect to this class of cases, is that the real ground for assigning equiprobability of the alternatives is not the mere matter of logical division and symmetrical relation to the whole body of the data —if 'symmetrical relation' means anything different from an indication by the data of equal frequency of occurrence—but is the extensive body of past experience which bears upon the point. It is not mere lack of empirical information which persuades us superstitious humans that there is no abracadabra for getting a seven or throwing heads oftener than tails. Our real ground of persuasion that certain alternatives are equiprobable can only be of that same sort which leads us to dismiss the merely logical alternatives that the coin will land on its edge and stay so, or go straight up and never come down. The Principle of Indifference is not fundamental, but is applicable only where there is independent ground in experience—experience which may be remote from the case in point but nevertheless is pertinent—for assuming that alternatives in question represent equal frequencies of occurrence.

The indicated conclusion of our whole discussion is that there is no need, and indeed no room for any well considered and basic meaning of 'probability' except one: that, namely, which identifies it with an *a-priori*-determinable relationship between the expectation coefficient as assessed and empirical grounds on which that assessment is made. But these grounds can afford such determination of the expectation only as they give rise to a correspondingly valid estimate of the frequency of the quaesitum property in some reference class. In practically all cases, the matter in question, whose probability is to be assessed, will be classifiable in more than one way, giving in general different determinations of the expectation. The pragmatic problem of arriving at a *well-judged* determination, is that of so choosing the reference class as to give a determination having the highest possible degree of reliability. Truth of the determination is not necessarily affected by such choice, because in any probability determination reference to the data on which it is judged must, explicitly or implicitly, be retained. Such reference to the grounds of judgment will also be implicitly indicative of the reliability of the determination; since reliability also concerns only logical relations, such as adequacy, proximateness, and uniformity, which are implicitly determined when the data and the instance to be judged are specified.

Chapter XI

Probable Knowledge, and the Validity of Memory

1. We set out upon discussion of the probable or credible because we found reason to think that all empirical knowledge is characterized by at least theoretical uncertainty; and the question thus arose, "In what sense can what is presently uncertain be called knowledge?" We had seen that common presumptions would indicate that no empirical belief is properly included under knowledge unless (1) it is decisively verifiable or else is confirmable and remains always capable, theoretically at least, of being further confirmed without limit; and (2) there is some ground on which this belief is rationally justified.

We have now come to the conclusion that such justification of empirical belief as rationally credible, concerns a logical relation of the belief (or the statement of it) to grounds or premises which constitute evidence of it; and that such credibility of a statement *'P'* coincides with the intent of "It is probable that *P*," in a sense of 'probable' which is commonly current and represents the only basic meaning of 'probable' which it is necessary to consider. Specifically, we have concluded that a judgment of the form "*'P'* is probable in degree *a/b*" is justified only when, for some *c* and some property φ, *'P'* is equivalent to "*c* has the property φ," and there is some other property, ψ, of *c*, such that our data, *'D'*, validly give the estimate *'a/b'* of the frequency of instances of φ amongst instances of ψ. (We have also concluded that our assurance concerning *'P'*, or 'φc', is affected by another consideration, representing the reliability with which we can argue from the given data to the instance in point.) "*'P'* is probable," in ordinary usage, is to be taken as a brief and colloquial expression implying that *'P'* has probability, in the above sense, the measure of which would at least exceed 1/2. In the common case, such affirmation would be correctly understood as implying

an indefinite measure of this expectation but one well above such even chance of '*P*' being true, and fairly reliable.

But granting the acceptability of this conception of the probable or credible, we have still not delimited precisely the nature of probable knowledge. There remain questions which on this conception—or in fact on any other which would be plausible—are matters of some difficulty and have seldom been given adequate consideration. Indeed, the difficulties so arising cannot be met at all without some degree of disillusionment about the usual formulations of empirical knowledge and the claims ordinarily made for it. When these commonly overlooked questions are duly weighed, it appears necessary to admit, first, that the usual modes of stating what we 'know' empirically are unprecise; and second, that identification of the 'knowing' with the knower's state of mind at the moment, is in most cases and in degree an idealization.

Or perhaps the realization of such falling short of perfection should not be spoken of as disillusionment, since it is clear enough upon reflection that we are prone to speak of knowledge in terms of an ideal which is seldom quite met. And appreciation of this fact will hardly give aid and comfort to the skeptic. But common ways of speaking about what we know would, if taken at face value, suggest naivété or else a degree of conventional fiction.

2. One consideration which is in point is plainly indicated by the conclusions of the last chapter, though it was not there discussed. We persist in asserting the factuality we believe as being what we *know,* even though we may be quite clear that our belief falls short of certainty. And if we attempt to reform this common manner of statement, by substituting "It is probable that *P*" for the unqualified assertion '*P*', then question arises whether we do not, in thus achieving precision, replace the *empirical* statement '*P*' by one having no empirical content whatever. I believe, for example, that I see my dog in the distance, or that tomorrow will be fair, and consider my belief well justified. I call this belief empirical because it concerns a state of affairs to be determined by experience. But I am aware that the actuality of this state of affairs is affected by some uncertainty. And if, attempting to formulate my cognitive assurance more judiciously, I should say that what I know is the *probability* that yonder animal is my dog, or that tomorrow will be fair, then the question

arises whether what I know in this modified sense is an empirical fact at all. For this probability of it arises through a logical relation to data, and if that relation holds, then it does so quite without reference to the question whether in point of fact the animal is my dog or tomorrow is fair.

This question has several parts. First let us note that there would be no escape from it by substituting an empirical conception of probability for the one here advanced. The empiricist in probability theory may appear to have an advantage on this point because, while he does not suppose himself to assert fair weather tomorrow in the statement that tomorrow will probably be fair, he nevertheless does interpret that statement as affirmation of another and equally objective state of affairs, namely, the frequency 0.8, or the like, of fair days amongst days following upon the weather indications presently observed. This frequency is indeed an empirical fact —supposing the statement that he makes is true in the sense he intends. But the difficulty is that if it is such a frequency which "Tomorrow will probably be fair" asserts, then that statement itself is in some degree uncertain when made; and what anybody can be sure of in making it is only that belief in it is justified on the grounds on which it is judged. Fully to corroborate it, would require observation of all such tomorrows throughout all past and future time. The empiricist need not be disconcerted as to his affirmation if tomorrow proves not to be fair: he has said only that eight out of ten such instances will be fair days. But he must be convicted of error, on his own interpretation, if further observation requires revision of his frequency estimate. And against that contingency he can have no present guarantee. Except, perhaps, for difference in the *degree* of his justified assurance, he is no better off with respect to it than he is with respect to fair weather tomorrow. Thus the attempt to express the cognitive status of uncertain beliefs in this usual empiricist manner results only in recurrence of the same problem over again at a higher level, and presents us with an infinite regress, from which we can only extricate ourselves by the flat assertion, sooner or later, of something which in point of fact is not known with certainty.[1] If

[1] Many empiricists accept this consequence, making separation between the frequency statement and any judgment concerning an individual instance which is made in the light of it. Reichenbach, who deals with this point more explicitly than others, characterizes the judgment about the individual instance

that is the best that can be done to explicate the status of a warranted but uncertain belief, one might as well accept the hazard in the first place and flatly assert "Tomorrow will be fair."

The point of saying that so and so is probable, instead of asserting it unqualifiedly, is that a probability statement which we are justified in making does not have to be recanted on account of any future disappointment. And on that point, we cannot eat our cake and have it too: cannot assign to our statement the signification of a future verifiable state of affairs and at the same time save it from falsification by failure of what is thus prognosticated. But if we take that fact to mean that either the probability statement asserts some empirical state of affairs, in which case it must be in some degree uncertain, or else it asserts only something logical and *a priori,* and in that case may be certain but can have no empirical content, then the division of the alternatives, as so put, is over-simple.

We should observe that an *a priori* conception of probability, of the sort here advanced, does not reduce a categorical probability statement to mere assertion of any logical and *a priori* fact. On that point, the designation *'a priori'* for theories of this type may be misleading. As has been pointed out, a probability statement, on any theory, may be either hypothetical or categorical. "On data *'D'* it is probable that *P,"* is hypothetical if the data are merely assumed. In that case the statement asserts only a relation between *'P'* and *'D'* according to correct rules of probability determination, and may appropriately be expressed as "If *D,* then it is probable that *P."*[2] Such a statement asserts no empirical fact. But though the same verbal form, *" 'P'* is probable on data *'D',"* might be used to express a categorical probability conclusion also, the case is then different.

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as a 'posit'—an assertion whose only justification is that of a hazard taken in accord with the only procedure offering hope of success in such hazard-taking.

Our objection is not only against such complete separation between scientific probabilities which inhabit a mathematical Platonic heaven and the practical judgments we must make, but also against the supposed mathematical prettiness of the frequency judgments. In point of fact, these are themselves uncertain, or else they are purely ideal and do not even relate to any *class* of terrestrial phenomena.

[2] This will be strictly true only if the empirical premises are fully stated—as ordinarily they would not be. The rules of probability determination explicate the *meaning* of the probability relation between *'D'* and *'P'*; just as the logical rules of ordinary deduction explicate the meaning of implication expressed by "If *D* then (certainly) *P."*

For example, "Judging by the fact that the barometer is high, tomorrow will probably be fair," not only asserts a valid probability connection between high barometer readings and ensuing fair weather: it also asserts the high barometer reading in this instance. Thus a categorical probability conclusion *asserts the premised data* of the probability determination: it is of the form, "*Since* data '*D*' are given, it is probable that *P*." And omitting any further consideration, the fact that these asserted data are empirical is of itself sufficient to assure that such a statement has empirical content. It asserts that much at least which could be determined only by experience, and is not knowable *a priori*. (It may well be that these asserted data are themselves less than certain: but let us not rush forward to complicate our problem by that consideration. We shall come to it shortly. In any case, it does not affect the fact that whatever statement *asserts* something empirical, whether fully assured or not, is by that fact empirical and not *a priori*.)

Furthermore, the categorical probability statement not only asserts its data but it asserts a certain consequence as following from them. Just as "*If D* then (certainly) *P*, and *D* is the fact," leads to the categorical consequence, "Therefore (certainly) *P*"; so too, "If *D* then probably *P*, and *D* is the fact," leads to a categorical consequence expressed by "It is probable that *P*." And this conclusion is not merely the statement over again of the probability relation between '*P*' and '*D*'; any more than "Therefore (certainly) *P*" is the statement over again of "If *D* then (certainly) *P*." "If the barometer is high, tomorrow will probably be fair; and the barometer *is* high," categorically assures something expressed by "Tomorrow will probably be fair." This probability is still relative to the grounds of judgment; but if these grounds are actual, and contain all the available evidence which is pertinent, then it is not only categorical but may fairly be called *the* probability of the event in question.

The trouble is to express this intended empirical significance of a probability conclusion from factual data, in any other manner than by the probability relation of it to those data. It is a little as if, attempting to exemplify the meaning of the future tense in English, we should say, "Since today is Monday, tomorrow *will be* Tuesday," and our interlocutor should then ask, "But what *present* fact is asserted by this conclusion that tomorrow will be Tuesday?" It could

be replied; "We assert this as being a future consequence of the present fact that today is Monday"; but very likely we should break down and add: "We cannot tell you exactly in what the *present* fact of tomorrow being Tuesday consists, in any different manner; because it is a fact about the future and not about the present in any other sense than this one of being an *implication* of present fact." If the interlocutor lacks any primordial sense of futurity, every attempt at explanation will fail. Just so; we find no good way of explaining the categorical probability of tomorrow being fair, in terms of empirical factualities, except by explaining it as a probability consequence of the empirical fact of the data from which it follows, even though it *has* a significance not merely contained in that. And for the rest we may be inclined to add: "We cannot explain the empirical significance of a categorical probability statement in any other manner than that; because it is a *probability* which is asserted and not an ascertained empirical factuality in any other sense than this one of being a *consequence* of empirical facts." For one who should lack a primordial sense of probable events, every attempted explanation of a categorical probability statement must fail. Any who should perversely insist upon reduction of its meaning to terms of some presently ascertained factuality—other than the data giving rise to it —must simply be left behind in the discussion. He denies a category of cognition which is fundamental and as different from theoretically certain knowledge as apprehension of the future is different from observation of the present.

Such considerations may leave us with the unhappy sense of some unanswered question; even though what question it is which remains over, may be obscure. Let us see whether we can, by an example, locate the source of this discomfort, and obviate it.

I see something in the distance moving toward me, and believe it is my dog. This object comes closer and closer; I have more and more corroborating evidence; my belief becomes stronger and stronger; and finally I am quite sure it is my dog coming to meet me. Not theoretically certain: if the future health and happiness of all my family should depend on my being right, I should make further investigation; should want to look at his collar, observe his response to the name 'Skipper', and so on. But I *know* this is my dog: anybody who should habitually hesitate or raise further questions under

such circumstances as these, would need the attention of a psychiatrist.

There has been here a series of cognitive apprehensions, differing from one another in degree, all the way from doubt to practical certainty. But even from the start there has been something entirely certain; namely, some visually apprehended content of sense. I could not well express these visually given data with any accuracy, but such relatively inexpressible content of experience was indubitable fact. From moment to moment, these visual data were increasingly clear and detailed; and increasingly adequate grounds for the judgment, "This is my dog." Correspondingly, there was a growing conviction, from initial doubt to finally complete—or nearly complete—assurance. I have made successive inferences (so it would appear if I should analyze my successive apprehensions from the point of view of their cognitive validity) based on these successively given and successively more adequate data. The validity of the inference, in each case, is attested by certain rules, called the principles of probability or rules of induction. The data are empirical and certain, and the principles assure that the conclusion validly follows. If *D,* then probably *P;* so application of the principles tells me. And '*D*' is given. Therefore, probably *P*. Such is the general character of my cognition at each successive instant. The difference, from moment to moment, has been one of degree only, and at no point is there a transition from something called doubt to something different in kind which can be called knowledge.

But now we come to difficulties concerning the appropriate manner of verbal expression. If I had been asked at first, "Is that your dog?", I should have replied, "Probably," or "I think so." Now I answer, "Yes," and say that I *know.* This is our practical and everyday habit; to assert without qualification those beliefs which come so close to being certain that any hesitation in acting on them would be unreasonable; and indeed to extend this manner of affirmation to many things which do not thus approximate to certainty. In fact this habit is imperative. Both verbal and mental economy, and the necessity of decision, require us to think and act in terms of what approximates to complete assurance, omitting the strictly called-for qualifications. In only one way do we exhibit in practice our awareness of the discrepancy between our empirical cognizings and one hundred percent certainty. If when the dog meets me and I am

'sure' that he is mine, he shies away when I reach toward him, and on close examination I find it is another dog, still I shall not be struck with horror that my familiar world is destroyed or I have lost my mind. Merely I shall reflect that incredible coincidences do happen once or twice in a lifetime; and I never was absolutely certain about this animal.

The *ideal* of empirical knowledge is certainty; but it is an ideal which is approached and never fully attained. When the degree of justified belief becomes high enough, we do not express it by "Probably *P*," but simply by the affirmation '*P*'. But though the difference amongst our empirical assurances is one of degree only, the difference between these two *expressions* is an absolute difference of kind: "Probably *P*" may be certain, not only practically but theoretically; whereas '*P*' is only *probable*.[3]

Added to this, is another possible ground of confusion. "Probably *P*" is a judgment assured by data '*D*', to which it is implicitly relative. Thus we may think to express this judgment more adequately as, "If *D* then probably *P*". But this last is a hypothetical and purely logical statement. It has no empirical content. By contrast "Probably *P*" is an inference: it requires as premise the data '*D*', and is certain only as these data are certain. But these data being given, it *is* certain, though this certainty is empirically grounded and requires such a ground. Also this conclusion, "Probably *P*," has empirical content, though that content may be regarded as being the data '*D*' rather than the factuality '*P*'.

But just at this point, it is necessary that we make a choice. As a combined result of the ambiguities mentioned and of our habit of affirming what is highly probable as if it were completely certain, it becomes impossible to speak precisely about empirical knowledge, without incurring consequences the expression of which will have the air of paradox by failing to accord, at some point, with what we say we know or with what accuracy requires us to admit about our knowledge.

Shall we say that when my dog is right here in front of me, I *know* that this is my dog; or shall we say that what I know is that this is probable, or has the probability a/b? Either mode of speech will

[3] We neglect here certain further considerations concerning the required premises. These will be taken up in sections which follow.

make no difference to the validity of my cognition or the content of it. But saying I know it, without qualification, will suggest, as the content of my cognition, the empirical matter of fact affirmed; whereas saying that it has the probability *a/b* may suggest that it has no empirical content except the data *'D'* which are the ground of my assurance. The state of affairs, this being my dog, is certainly in my mind and is certainly the referred-to objective of my cognizing. The mode of speech which would clearly acknowledge this fact, and at the same time avoid the unwarranted suggestion of certainty about this thought-of state of affairs, would be to say that empirical cognizing *does* have such matters of fact or states of affairs as content, but that empirical cognitions are *beliefs*. There is no other kind of empirical knowledge except such beliefs which theoretically are probable only. Let us, therefore, say that empirical knowledge has as its content the believed-in matter of fact. But let us remember that, in accepting this commonplace and appropriate manner of statement, we have decided to say that matters of fact may be *known* though they are *not certain*. And this involves the admission that we may, on occasion, 'know' something which is *false*. Remembering these consequences will obviate the paradoxes which otherwise will be sure to bother us.

Empirical knowledge, then, is belief; justified belief, warranted belief, rational belief. It arises as inference from empirically given data. (That the data may not themselves be certain, is a point for later consideration: for the present we ignore it.) The empirical matter of fact believed, is probable on these data; there is a logical connection of the data *'D'* with the matter of fact *'P'*. "If *D* then probably *P*," is knowable by application of principles of induction. The inferable conclusion is "Probably *P*," or "*'P'* is probable in degree *a/b*." But what is believed is not merely the data, nor this logical connection between the data and the conclusion, nor even this conclusion, "Probably *P*." What is believed is *'P'*; and the content of our cognition is this empirical factuality which is probable.

This content of belief includes certain expectations which would afford the needed verification or confirmation of it. These are probable, as what is believed and implies them is probable. The belief is rational if the degree of assurance with which these expectations are entertained conforms to *a/b*, the degree of probability with which

'*P*' is assured. In that case, this degree of assurance is not merely a psychological 'felt intensity' of belief, but the degree in which it is epistemically warranted.

Though the above would apply to beliefs having *any* degree of such justification, still in order to be in accord with customary speech, there will be two further restrictions upon what we should say that we empirically *know*. First, the degree of probability of what is believed, must be high: just how high, could not be determined except arbitrarily, but something like practical certainty. And second, the grounds '*D*' of our inference, must be well taken; they must include all pertinent data open to our inspection. Neglect of any part of such data would not invalidate the inference as such; nevertheless it would vitiate the belief as reasonably held.

As qualified by a degree of assurance conforming to its probability, the expectation representing our belief is one the failure of which is a *disappointment, not a disproof*. When we believe '*P*', with a degree of assurance conforming to its probability a/b, the negative result of an attempted confirmation of '*P*' may require the belief to be abandoned; but though it discredit '*P*', it will not convict us of error in believing it and expecting confirmation of it. That '*P*' was credible, on the grounds on which we believed it, remains a fact. We must observe, however, that a continuing belief in something, '*P*', while it continues to have the same matter of fact as its content, is nevertheless a different belief as soon as it receives added confirmation, or is disconfirmed, because it is then justified—or lacks justification—in different degree.

The nature of probable knowledge can in no wise be accurately expressed in terms merely of what is certain or what is actual or what is true. The only certainty which can affect it, is certainty of a justifying relation to something given: assurance of its validity as belief and of rational warrant for expecting what it implies and in acting on it.

But if probable knowledge has its character of hazard and of 'faith', still there remains the difference of *valid* probability judgment and *rational* expectation from that which is baseless or is erroneously arrived at and which has no warrant. It still differs from '*animal* faith' by just this distinction of justified belief from that attitude which does not ask for grounds and remarks no difference between

a warranted expectation and a wild hunch, or instinctive drive, or merely emotional inclination. The skeptic is the man who if he cannot have theoretical certainty will have nothing—and so has nothing. Because no empirical belief is better than probable, he perversely maintains that one is as good as another, erasing the distinction of the rational from the irrational and the non-rational. And if the final question be what good it will do to be circumspect and believe only what is justified, then that again is something which can be answered only by assuming the validity of induction and the superior epistemic status of probable knowledge over improbable belief. This is the case because any proof that a present probable belief will be of advantage, must involve some extrapolation of findings from past experience. As Reichenbach points out, what can be assured is only that if acting on the probabilities does not advantage us then no manner of directing our activities will do us any good: acting in accord with probabilities is that procedure which will achieve success if success is achievable.

3. Another problem, or rather two problems which are related, are contained in the fact that if a belief '*P*' is to be justified as probable knowledge, then the categorical probability statement, "On data *D*, it is probable that *P*," must be true and be known to be true. And for this, it is essential that the premises here represented by '*D*' be asserted. Obviously it would not be sufficient for such judgment that some premises or other could be found which would support it, or that such premises be taken for granted. Such supporting statements must be true, and the truth of them must be disclosed to the judgment. When this necessity is noted, two questions arise which must give us pause. First, confining attention to empirical beliefs of the sort whose validity would commonly pass unchallenged; Is there any ground sufficient to warrant such belief as credible which is actually in mind? And second; In such cases, is it possible to attest the truth of these supporting premises of the judgment?

Once such questions are raised, it becomes necessary to observe that much of what is commonly—and with sufficiently good reason —called 'our knowledge' is not explicit judgment at all. Rather it represents habitual attitude, acquired by reason of past judgments and past trials of them, which becomes the basis of present decision and action, without any explicit revival of those contents of previous

experience which are the basis of it. And even where there may be some explicit questioning of this foundation of the belief-attitude, such critical examination will hardly extend far enough to determine validity. For the same reasons that animal activities would be impossible without habit, human life also, so far as it is governed at all by conscious cognition, would still be impossible without belief-habits which become effective without conscious revival or re-examination of their bases. But if it may thus be said that most of 'our knowledge' consists merely of habitual attitudes, instigated by some vague and fused reminiscence of past like occasions on which the attitude now taken has been found justified or has led to success, still this does not reduce belief to the status of 'animal faith'. Because *if* such vague and fused reminiscence is credibly indicative of past success, and *if* past success is credibly indicative of a like eventuation in the present or a future instance, then there is, in just these considerations, a given ground of this believing attitude and a genuine relation of that ground to the present belief which is sufficient to attest the validity of it as cognitive. That genuinely assignable basis and justification might not be sufficient to satisfy our common pride of knowledge—in that, we must perhaps suffer some disillusionment in the interests of veracity. But it is sufficient to save the validity of knowledge from that status of insoluble problem, ascribed to it by the skeptic. That our attitudes of belief are commonly not self-critical, is a matter upon which we are to be congratulated, in view of the practical consequences of over-much self-criticism and hesitation in action. That we are capable of such self-criticism when it is called for, is the most that could be desired. The more important question —and the one genuinely raised by skepticism—is whether with the utmost reach of critical self-consciousness, a validation of the believing attitude could be disclosed.

The two questions, whether grounds sufficient for empirical beliefs entertained are really present—or *could* be present—as bases of judgment, and whether such grounds can really be certified, cannot be separated, more than provisionally. They cannot be separated for the fairly obvious reason that logical analysis of typical empirical judgment would disclose, as basis of it, antecedent judgments of empirical fact; and these antecedent and supporting beliefs will themselves not be certifiable as true but only as credible, and hence will

call, in turn, for justification by reference to some ground of their own. The obvious question thus suggested is whether this pyramidal relationship of our beliefs does not defeat the even theoretical possibility of any justification of empirical belief. And that in turn suggests doubt whether the relation is genuinely pyramidal or is really circular.

4. It has been pointed out, in earlier chapters, that the regress of empirical knowledge is not interminable, since the non-terminating judgments which typically express empirical belief go back eventually to terminating ones; and these to actually given data of sense, formulatable in expressive statements whose truth is certain. But that consideration, though important, will not save us in the present situation. Because no empirical judgment can be validated solely by reference to immediately given facts of sense. It is also necessary, in order to justify any empirical judgment—even the terminating one "If *A* then (probably) *"E"*—that some generalization of the sort derived from past experience should be afforded. In every instance of valid induction from presently given data, there is required, over and above these data and the rules of induction, a general premise concerning past cases resembling the present one. In fact the terminating judgment "*S* being given, if *A* then (probably) *E*" is itself such a generalization, or the extension of such a generalization to the present case. For example, I may judge that because a certain visual doorknob-appearance, *S*, is presently and indubitably given, therefore if I initiate the proper grasping motion, *A*, the doorknob-contacting sensation, *E*, will follow. But this judgment that when *S* is given, if *A* then *E*, is not made certain by the certainty of *S* in the present instance. It requires also a generalization from past cases of seeing and reaching for doorknobs. The present givenness of *S* merely secures that this generalization, if valid, applies to the present occasion. The prediction, "If *A*, then *E*," in this instance, is decisively verifiable (or falsifiable). But we are not now asking about the assurance of it *after* trial is made of it, but about its cognitive status when it functions as prediction, *before* that trial is made: we are asking about its justification, not about its verification. And it becomes evident that any justification of it as empirical belief depends on an *antecedent* empirical belief, which in its turn is not a theoretical certainty but only a probability. Furthermore,

what we thus observe in the case of terminating judgments—namely, that a part of their requisite ground will be some other empirical belief, itself less than certain—will obviously hold also and *a fortiori* for non-terminating judgments, which never are decisively verified, but at best are only in some measure confirmed.

However, that the ground, or a part of the requisite ground, of one belief, *'P'*, is another empirical belief, *'Q'*, which is less than certain, does not of itself invalidate the justification of *'P.'* It is not the certainty, but only the genuine credibility of *'P'* which is called for; and if such genuine credibility could be assured for this ground of it, *'Q'*, then the relation of *'P'* to 'Q' will assure a similar credibility of *'P'*, even though the difference of the credibility of *'Q'* from certainty will be reflected in a correspondingly lower credibility which is thus assured to *'P'*. The difficulties with which we are presently concerned lie elsewhere: specifically in two things; first, that the indicated complexity of the ground eventually requisite for justifying *'P'* seems to require a complexity of empirical belief which, not only practically and in the common case but also theoretically and in *any* case, is quite impossible. And second, in the fact that always such ground of credibility must include presumption of past experience as factual; and hence raises the problem of the validity of memory.

5. We shall hope to meet these questions directly. But first certain preliminary observations may be in order. In part, these questions, like those earlier discussed, would seem to call for reasonable decision about the way in which we shall speak of knowledge rather than any different kind of answer. As was noted earlier, whether the ground of judgment is or is not explicitly in mind, is hardly the pertinent consideration, because it could not plausibly be taken to mark the important distinction between attitudes of belief having positive cognitive value and those which lack it. Rather the pertinent distinction is between cases in which, if the judgment be challenged by ourselves or by others, we should be able to assign a basis of it which, whether explicitly thought of in drawing the judgment or not, is so related to it that we can truly say, "If it were not for that, I should not have so judged." And taking this genuinely pertinent sense of there 'being a ground of the judgment', it is evident that the same consideration may apply to a required ground of the ground. In this sense that they could be made explicit on demand, and are

such that the judgment would not have been made if the opposite were the case, bases of judgment which are psychologically remote from the psychological state of mind, may still be genuine determinants of it as truly cognitive.

We may be impeded in our appreciation of the genuineness of such merely implicit and possibly remote grounds of judgment by the fact that, practically, there is seldom occasion to appeal to them. To make explicit such underlying bases of judgment, even supposing them genuine, takes time and the trouble of reflection. And our practical interest in judgment, being characteristically in its truth rather than in its validity, is most often better served by seeking further confirmation of it. The question being whether the chisel is sharp or we have money for purchases, we do not pause overlong on any question why we think so, but proceed to some further test of truth. We appeal to confirmation, not to justification. It is only when such tests are impracticable, either because conditions for making them cannot easily be effected or because the test involves some hazard not to be lightly assumed, that the knower is likely to make inquiry as to the grounds of his belief. And at some point or other in the regressive searching out of grounds, this antithesis between what the practical interest in truth would dictate and what the theoretical justification of belief would require, is bound to appear, and turn us aside from any further inquiry as to bases of judgment. But that fact is not directly relevant to the epistemological question whether there *are* such grounds which just reflection might elicit.

The really critical question for the validity of empirical knowledge is not whether grounds sufficient for the justification of belief are actually contained in the explicit psychological content of the mental state called judgment: rather, it is the question whether the knower's situation in empirical belief is such that sufficient grounds could be elicited upon inquiry, or whether it is such that this is even theoretically impossible. To that problem, which genuinely relates to the possibility of empirical knowledge, we must return shortly.

It is a slightly different question, which may be raised, whether what is called empirical knowledge because it supposedly has such sufficient and implicit grounds, is appropriately so called when they are implicit; or whether that appellation should be reserved for the possible later state of mind in which they should be made explicit.

In one sense, that has been answered already. Decision to speak of knowledge only where justifying grounds are explicitly present to mind would be so rigoristic as to exclude most, if not all, of our attempted cognitions, and would obscure the important distinction of practically valuable knowledge from 'ignorance' and from 'error'. But the specific objection which is to be anticipated here is one relating to knowledge and the time process: namely, that it is unwarranted to attribute to a cognitive state, occurring at a certain time, what could only be collated with it at a later time through a process of thought. A state of empirical apprehension, occurring at time t_1, is called knowledge—so we may imagine the critic to object to our discussion—but only because it has implicitly certain grounds. 'Implicitly', however, is here a weazel-word; what is really meant is that, by a process of reflection, a different state of mind, in which certain pertinent items are explicitly included, could occur at the later time, t_2. Thus the cognition said to be valid occurs at t_1, when perhaps some sense-content taken to signalize an empirical fact is presented. But for valid knowledge a further ground of judgment, not explicitly in mind, requires to be collated with this given content of sense. Thus it turns out that no cognitive state possessing the characters requisite to validity occurs at t_1. And what—it may be—mentally occurs at the later time, t_2, is a different state in which what is apprehended is a logical relation between the (now past) content of consciousness at t_1 and something else. So no apprehension including what is requisite to valid empirical knowledge, occurs either at t_1 or at t_2; and cognitive states of justified belief occur at no time, and are fictitious.

The direct answer which can be returned to objection of this sort, we shall attempt later. But a possible rebuttal which at least robs it of any positive force, can be given at once; and is worth remarking because it bears also upon other problems with which we shall be concerned shortly. Knowing is itself a temporal process, like hearing a tune or guiding a car round a corner. It is not the time-extended cognition but the chopping of it up into unextended instants which is fictitious. If it be a paradox that temporally extended experience can be known together at one time, the crux of that paradox is not in the supposition of its truth but in the supposition that we could give either the affirmation or the denial of it any meaning if it were false. It is a frequent fallacy of those who are inclined to tear every issue

to rags that they would confine knowledge within some kind of phenomenalistic limitations but allow themselves to speak like gods who, by standing outside these limitations, can look down upon us poor humans struggling to know and observe the futility of our endeavors. Characteristically they thus involve themselves in the implicit contradiction that if their critical observations were valid, then what they assert would be a thought which they could never substantiate or even think. If it be said that empirical knowledge is impossible because it requires that something be assured in immediate experience, and that whoever formulates anything which he takes to be thus assured, does so retrospectively and hence in violation of the requirements of immediate assurance, then the answer is that *if* what requires to be immediate in order to be genuinely apprehended were in fact thus always just escaping us, then we should have no veridical awareness of it as having this quality of *not* being given. Either the pristine given character is there to be inspected, or there is nothing there the inspection of which would inform us of what has just escaped. If what we always catch be not the thing itself but only its reverberation, then we should take the *reverberation* as the thing itself, and there would never be anything presented to make us aware of our error in so doing. If what we seek to formulate as given is not in fact there to be inspected, then the present state of its *not* being there to be inspected would similarly have escaped before we could discover by inspection this deficiency of it. The critic who raises this sort of objection must, to be plausible, claim to know his statement by some kind of supernatural revelation. Because if it should be true, then certainly he could never learn it from experience. The temporal character of empirical knowledge doubtless has its puzzles, but we shall not arrive at the solution of these by embracing the paradox of the liar; by asserting that what we presently apprehend is never present experience. 'The present' is 'long enough' for the genuine apprehension of the data of direct experience; because otherwise there would be no such thing as direct experience, of which anyone could be aware or could even mention as what we do *not* have. Specifically, we shall suggest that knowing takes place in the *epistemological present;* a present in which what is sensuously given is surrounded by or embedded in a mass of epistemically pertinent surrogates of past experience, in the form of memories or of the

sense of past experience as having been so and so; and that such present-as-past items are capable of being elicited by attention and reflection and brought into relation with one another and with the sensuously given—all without going beyond the bounds of what is genuinely present now. We need not ask whether the epistemological present coincides with what psychologists call the 'specious present' or what Kant called the 'synthetic unity of apperception': we may satisfy ourselves with observing that unless there were such a present within which the psychological processes essential to cognition could be embraced together, no one could ever have the slightest ground for supposing that there *wasn't* one: his capacity for making such denial or even for thinking the thought denied, must be sufficient evidence that what he denies is the actual and omnipresent fact about the temporality of experience.

6. Similar considerations apply also to the problem of the validity of memory. If we can give the question of such validity any meaning, then it must be possible for us to envisage what it would mean, in particular instances, for memory to be thus valid. Lacking that, the statement of the problem itself would be *vox praeterea nihil.* The skeptical objections which are easily conjured up against the possibility of 'any valid assurance about the real past' are all of them likely to be of this bogus variety which, if taken seriously, would imply that no conceivable character of reality and of experience would allow us to 'know a real past'. But if that were truly the case, then the phrase 'real past' would be meaningless, because no one would be able to envisage anything to which it would apply; and if, *per impossibile,* he could somehow envisage this unknowable, there would be no conceivable manner of assuring that what was thus suspected was, in fact, an actuality that we miss knowing. That particular form of skepticism, we are justified in repudiating out of hand, because it is verbal nonsense.

There must be *some* sense in which knowledge of the past is possible if the question of it can be raised at all. Perhaps it would be the part of wisdom to leave the question with that observation: particularly so, in view of its obvious difficulties and its purely theoretical character. Epistemological studies have quite generally avoided the problem. And any difficulties involved are in no sense peculiar to the analysis of knowledge attempted here but are common to all

theories which recognize that the validity of empirical knowledge depends on the possibility of inferences based on past experience. (And would any theory be plausible without that?) However, to observe that there must be some solution of the problem, is not to find one. And the common omission of this topic from epistemological studies is a bit of a scandal. If we cannot account for what everybody must assume as true, our theories are plainly by that much inadequate. We shall attempt to indicate the positive solution of questions thus arising, though with due sense of temerity in confronting difficulties so commonly avoided, and with no expectation of any extraordinary insight which might resolve these at a stroke. For such questions, it is to be expected that answers which can be given must lie, unobserved, in what is commonplace.

The particular difficulty which intrudes this question of the validity of memory into any discussion of empirical knowledge is, as has been observed, that such knowledge requires inductive inference from past experience; and must thus come, in the end, to this question of reliable memory. It is a mitigation of the problem to observe that such inference is not required to assure what is called knowledge with certainty but only with probability. But can there be even such probability which is genuine unless the basis of it may be assured as unqualifiedly true? *Proximate* grounds of the probable or credible need not be certain: it will be sufficient if these are themselves genuinely credible. If *'P'* is credible on ground *'Q'*, then the credibility of *'Q'* assures a credibility of lesser degree than if *'Q'* were certain. But if the credibility of *'P'* rests on the credibility of *'Q'*, and that of *'Q'* on that of *'R'*, and so on; and if in this regress we nowhere come to rest with anything which is certain; then how can the credibilities spoken of be assessed at all or be genuine; since each in turn is relative to a ground, and no ultimate ground is given? Unless there is eventually some termination of this series of supporting grounds; in something which stands fast without support; will not the whole edifice of empirical knowledge come tumbling down? Is it not, then, required that there be ultimate data, sufficient for our inductive inference, which themselves are certain?

There *are* grounds of empirical knowledge which are thus certain, in given presentations of direct experience. But these sense data which provide our cues to empirical belief are not, by themselves,

sufficient to assure what is believed as even credible. For that, it is also essential that there be some collation of fact about like experiences in the past. We must be able to say; "When so and so is given, such and such may be expected, because this has been so in past cases." Omitting any question of the validity of such inductive inference from past to future, we have the difficulty, which concerns us now, that for this inference the premises about the past must be assured. But in fact these are presently given to us only in the form of memory; either as explicit recollection or as a memorial precipitate or fused sense of past experience. And what is so recalled is not certain. The assumption of certainty for memory in general would be contradicted by the fact that we remember remembering things and later finding them to be false. And memory in general being thus fallible, the claim of certainty for any particular memory, or class of them, becomes dubious. Such credence of any particular thing remembered, asks for some other and supporting ground beyond the immediate item which presents itself with the quality of recollection. And here we might well fall into despair; because we see in advance that in any attempt to provide for a memory such supporting grounds of its credibility, we are bound to encounter the same difficulty all over again, and in a more complex and aggravated form. Because we shall have to rest upon facts about like memories in the past and their subsequent confirmation—facts which can only be themselves disclosed by remembering.

The answer which, as we conceive, can be returned to the problem thus posed, has two parts. First; whatever is remembered, whether as explicit recollection or merely in the form of our sense of the past, is *prima facie* credible because so remembered. And second; when the whole range of empirical beliefs is taken into account, all of them more or less dependent upon memorial knowledge, we find that those which are most credible can be assured by their mutual support, or as we shall put it, by their *congruence*. Neither of these two theses is put forward as being self-evident, or even as having initial plausibility. Nor are we minded to put them forward as *ad hoc* postulates, which should be accepted on the ground that, granted these premises, the 'facts of knowledge' can be explained. Both of them should be submitted to an examination which is as careful as possible, and accepted only if they then appear compelling.

First, however, let us be quite clear why the usual conception of empirical knowledge as a vast and complex body of information, built up historically out of the experience of men, each advance supported by previous cognitive achievements, and the whole structure founded originally upon our data of sense—why this easily suggested picture, whatever its historical justification may be, affords no solution for the problem of the *validity* of empirical knowledge. All of one's empirical knowledge rests, ultimately, for its credibility, upon one's *own* experience. (And there is no empirical knowledge which belongs to men in general but to nobody in particular.) Reports by other persons, and other such indirect evidence, play an enormously large part, in the justification, as well as in the corroboration of it; but before such indirect evidence can play this supporting role, it is essential that there be some ground on which, for example, the credibility of another's report can be assessed. That ground will involve a reference to past experience of receiving such reports and finding them reliable, in measure, by reference to later confirmations of what was reported. It requires the report plus some such generalization from our own experience to give credibility. And since the report itself is, when received, a certain kind of experience of our own, the whole basis of belief must finally lie within the knower's own experience.

Similarly for our own experience. What we empirically know in the first person all goes back eventually to those critical items which may be labelled 'direct perception', like my present observation of the paper now before me. But for the objective empirical fact of this paper—or even for credibility of it—the presently given and indubitable data of sense are not sufficient. For credibility of the statement "White paper is now before me," I must have, in addition to the sense presentation, those generalizations which would not be available in the early experience of an infant, and which will enable prediction, with a degree of assurance, of the corroboration in further experience of what the reality of white paper before me would imply. Such generalizations are available to me by virtue of my past experience of comparable occasions. But they are available only as remembered. That is; what is available directly, to my present reflective examination of my present belief, is only given presentations having the qualitative character of memory, and not the facts of past experience which are requisite. Before I can accredit the present belief, on the

basis of given sense data and a generalization about past like occasions, I must first accredit the presently given recollections or sense of past fact, which are the only available witnesses to actual past experience. I must find at least a degree of credibility attaching to the empirical judgment, "On past like occasions I had such and such experience"; and the present fact of memory, which suggests this judgment to me, is still not sufficient to assure the truth of it. In addition to the present data of recollection, a generalization is required to the effect that when such data of memory are given, the seemingly remembered experience may, with some degree of credibility, be accepted as actual. And that requisite generalization concerns the trustworthiness of memory in general, or of memories of a certain class which includes the present one. To establish that generalization, I must summon the evidence that I have, on past occasions, had experiences like this present one of remembering explicitly past facts, or of sensing them as belonging to my past, and that these past experiences of remembering later turned out to be genuinely indicative of past facts, in a sufficiently large proportion of cases to justify my accepting the present recollection as probably valid.

I could, doubtless, summon such evidence: I do on occasion, reflect upon the reliability of certain classes of my memories; for example, of my recollections of colors, or of names, or of the places where I put my things; and I do arrive at generalizations about the credibility of this or that kind of memorial presentation. But it is more in point to observe the general predicament of empirical knowledge which now becomes sufficiently evident. I set out to assess the credibility of an empirical fact believed, on the evidence of present data of sense. For this, a generalization concerning past like occasions of experience proved requisite. That had to be based on memory. But the mere fact of present memory was insufficient; both because memorial presentations, like sense presentations, are not equivalent to the empirical fact they suggest to us, and because, in particular, merely remembering—as certain of my memories themselves suggest —is not a completely trustworthy index of the facts remembered. Before I can assess my present belief, then, I am sent back to past experience, and must assess the credibility of particular items of memorial knowledge. These can only be assessed by reference to past experiences of remembering—which, in turn, are not presently

given, but only evidenced in memory. There is no circularity here—as the merely verbal formulation might suggest: I could make the assessment of this particular memory in the general manner which is obvious. But what I observe is that I am certainly not going to be able in this process to come to the end of my problem of assessing the credibility of my present empirical belief; because at each step I shall be sent back to past experience; hence to the evidence of memory; and shall always find that the available evidence of memory is insufficient and requires itself a ground of credence, which, in turn, can only be found in past experience—as remembered—and so on. The general nature of memorial knowledge constitutes a Gordian knot. And no ultimate solution of the validity of probable knowledge is possible unless this can be untied.

As has been pointed out, this predicament is theoretical, not practical. Because memories, as well as beliefs suggested by sense perception, are confirmable as well as justifiable. And the practical resolution of any doubt as to the correctness of a memory, is to make some further test of it, by looking to some present or future consequence of its truth. If, for example, I wonder whether I am correct in remembering that I put my glasses on the mantel, I shall not pause overlong in reflecting on the grounds I have for trusting this particular recollection, but shall look and see. If my memory is corroborated in this way, that is much better evidence of its credibility (if I still have an interest in that) than any which I might get by summoning up anterior grounds for crediting it. But for the theoretical problem of the validity of my memorial belief as genuinely cognitive, this appeal to confirmation would be pointless. Because this theoretical problem concerns credibility *per se,* not the truth of what is credited; which last is the practical concern.

For the requisite analysis of knowledge, we are brought no nearer by observing that memories can be confirmed by sense experience, instead of regressively justified on antecedent grounds. Because our problem concerns the validity of belief as probable knowledge anterior to and independently of any corroboration by sense which is subsequent to the cognition under examination. And what we find with respect to that problem is that any solution involving the supposition that a belief is justified as probable on antecedent grounds which are either certain or, if only probable, then are such as have in turn their

temporally prior grounds, and so on, until we come to final and sufficient grounds contained exclusively in direct empirical evidence—that this solution by way of a finite linear regress ending in given data which are wholly certain, is quite impossible.

What, in particular, makes it impossible, is the fact that the 'experience' looked to as the eventual foundation of our whole pyramidal structure of empirical beliefs, is mainly not given sense experience, at the time when we appeal to it, but past experience, available to us only as remembered. But no memory is epistemologically equivalent to the certainty of what is remembered: it is only evidence to be weighed in validating the empirical judgment that what is remembered actually took place. And the attempt to validate this judgment sends us in search of other requisite grounds, which in turn will involve other appeals to memory. Hence no regressus of this sort can be brought to termination in empirical certainties.

7. The nature of this predicament almost inevitably suggests a coherence theory of truth as the solution of it. Specifically it suggests, as a possibility to be examined, that a body of empirical beliefs, each of which is less than certain and no one of which can be substantiated on empirically certain grounds, may nevertheless be justified as credible by their relation to one another. That possibility is indeed borne out by certain facts about conjoint probabilities which are simple and fairly obvious. But these pertinent facts are fundamentally different, in the logical significance of them, from those theses, put forward by British post-Kantian idealism, which have the best right, historically, to the label 'coherence theory of truth'. In order to mark our departure from that historical conception, we shall speak of the *congruence* of statements, instead of coherence; and shall assign to this term 'congruence' a definite and limited meaning. *A set of statements, or a set of supposed facts asserted, will be said to be congruent if and only if they are so related that the antecedent probability of any one of them will be increased if the remainder of the set can be assumed as given premises.*

This relation of congruence requires something more than merely the mutual consistency of a set of statements, but something less than that relation of a set or system such that each statement in it is logically deducible from the others, taken together as premises. If, however, we are not to repeat some of the fallacies of the historical co-

herence theory, it becomes vitally important to observe that neither mutual consistency throughout, nor what we call congruence of a set of statements, nor even that relation of a system in which every included statement is deducible from others which are included, can by itself assure even the lowest degree of probability for a body of empirical beliefs or suppositions in question. For that, it is absolutely requisite that some at least of the set of statements possess a degree of credibility antecedent to and independently of the remainder of those in question, and derivable from the relation of them to direct experience. It is on this point particularly that the historical coherence theory appears to be ambiguous: it seems never possible to be sure, in presentations of that conception, whether 'coherence' implies some essential relation to *experience*, or whether it requires only some purely logical relationship of the statements in question. Indeed, the so-called 'modern logic', associated with this theory, is such as totally to obscure the essential distinction between analytic truths of logic and those empirical truths which can only be assured by some reference beyond logic to given data of sense.

The mere relationship of consistency amongst statements believed —the fact that, together, they constitute a completely self-consistent system—provides by itself no ground whatever for rational credence of any one of them. This would be sufficiently evident if the body of statements in question should be small. No one would be so silly as to believe four statements, *'P', 'Q', 'R', 'S'*, because they were consistent, if there were no *other* reason to believe any one of them. Possibly, however, it will be replied that it is the size of the aggregate of statements believed which makes the difference here: that the 'whole of the truth' is consistent, and no non-fact is consistent with this whole of the truth; and hence that as the body of included beliefs approaches to such a comprehensive whole, complete consistency is increasingly good evidence of truth and therefore an increasingly good ground of rational credence.

Such reasoning, however, is a mere paralogism. The premises—that the whole of the truth is a completely consistent system, and that no non-fact is consistent with this whole—are obviously true, supposing that the phrase 'whole of the truth' means anything. But the conclusions drawn do not follow, and in fact find no basis whatever in any logic which is not itself born of confusion. If there is any

consistent body of truth, then also there is a corresponding and equally self-consistent system of statements incorporating some which are false; or many such systems. That in the end only one sufficiently comprehensive system of statements would be found consistent, is a suggestion which runs counter to obvious facts about the nature of consistency and of systems: probably it strikes us as plausible because we are such poor liars, and are fairly certain to become entangled in inconsistencies sooner or later, once we depart from the truth. A sufficiently magnificent liar, however, or one who was given time and patiently followed a few simple rules of logic, could eventually present us with any number of systems, as comprehensive as you please, and all of them including falsehoods. Insofar as it is possible to deal with any such notion as 'the whole of the truth', it is the Leibnitzian conception of an infinite plurality of possible worlds which is justified, and not the conception of the historical coherence theory that there is just one all-comprehensive system, uniquely determined to be true by its complete consistency.

This point can be brought out without reference to those difficulties which must eventually defeat the human attempt to envisage any system of statements adequate to describe a possible world. First, let us remark a fact which is simple and commonplace. Empirical statements universally have the character of logical contingency: they cannot be certified as true by any logical character of them, nor can they be so certified as false. If we should have collated, up to a certain point, some body of such empirical statements believed, then for any empirical truth not already implied by or incompatible with what we thus believe, both that truth and the contradictory of it are entirely consistent with this body of antecedent beliefs. Let us suppose this set of statements believed to be self-consistent throughout; and let us label the conjoint statement of all these beliefs *'P'*. And let *'Q'* be any further contingent statement, whose truth is not yet determined. That *'Q'* is contingent means that *'Q'* and its contradictory, 'not-*Q*', are both of them self-consistent statements. That *'Q'* is not deducible from *'P'*—and hence is not already contained in the system *'P'*—means that everything contained in *'P'* is consistent with the falsity of *'Q'*. And that 'not-*Q*' is not deducible from *'P'*—and hence *'Q'* is not already determined to be false or disbelievable—means that everything in *'P'* is consistent with *'Q'*. To say that a

body of antecedent beliefs '*P*' does not imply already the truth or the falsity of '*Q*', and to say that '*Q*' and its contradictory 'not-*Q*' are both of them completely consistent with everything in '*P*', are merely two ways of saying the same thing.

Second—and now we come nearer to the point in question—if we start with some set of contingent statements, '*P, Q, R, . . .*', and the problem be to determine the truth or falsity of one of them—say '*P*' —by reference to its consistency or inconsistency with comprehensive systems of possible empirical fact, then that problem has no solution. It is insoluble for the following reasons. For any pair of such propositions, '*P*' and '*Q*', if the conjoint statement '*P* and *Q*' is not consistent (i.e., if '*P*' is not consistent with '*Q*'), then '*P* and not-*Q*' will be consistent; and if 'not-*P* and *Q*' is not consistent, then 'not-*P* and not-*Q*' will be consistent. And for '*P*' and '*Q*' and any third contingent statement '*R*', the facts are similar. If '*P* and *Q*' is consistent, then either '*P* and *Q* and *R*' is consistent or '*P* and *Q* and not-*R*' is consistent; and if 'not-*P* and *Q*' is consistent, then either 'not-*P* and *Q* and *R*' is consistent or 'not-*P* and *Q* and not-*R*' will be consistent. Likewise for any compound statement '*M*', representing any already constructed system of possible empirical fact, and any remaining empirical alternative, '*N*' or 'not-*N*': if '*M* and *N*' is not consistent, then '*M* and not-*N*' must be consistent.

Thus if we start with any empirical belief or statement '*P*', we shall find that one or other of every pair of further empirical statements, '*Q*' and 'not-*Q*', '*R*' and 'not-*R*', etc., can be conjoined with '*P*' to form a self-consistent set. And exactly the same will likewise be true of its contradictory 'not-*P*'. *Every empirical supposition, being a contingent statement, is contained in some self-consistent system which is as comprehensive as you please.* And as between the truth of any empirical belief or statement '*P*' and the falsity of it (the truth of 'not-*P*') consistency with other possible beliefs or statements, or inclusion in comprehensive and self-consistent systems, provides no clue or basis of decision.

Unless there are *some* empirical truths known otherwise than by their relations of consistency or inconsistency with others, no empirical truth can ever be determined by the criterion of consistency. And when some empirical truths *are* antecedently known, no *further* empirical truth is in any wise determinable by appeal to considerations of

consistency or inconsistency, except such as are determinable from what we already know or can determine by the familiar methods of ordinary logic. The attempt to determine any empirical truth not simply deducible from antecedently determined facts, by an appeal to consistency, is completely defeated by the elementary facts of logic.

It is quite plausible that 'the whole of the truth' is such a tight-locked system that every particular fact in it is completely fixed by other facts in it: indeed it is totally implausible that the whole of the truth should fail to have such systematic structure. But still there is no revelation contained in that, nor any help for the supposition that consistency and such systematic interdependence of true statements can determine empirical truths as yet unknown. That point can be made clear without any cumbersome logical paradigms by considering certain facts about logical systems which are well known.

There are an unlimited number of pure geometries, each of them incompatible with every other, if terms which are common to these different systems are assigned the same fixed denotation. And the truth about the general properties of space is presumably contained in some such system: all the others being in some part false, when so interpreted. Yet every one of these geometries is a tight-locked system of the type mentioned. It requires no more than deductive ingenuity to derive any law of any one of these systems from the remaining laws of it. This is obvious for the 'theorems', since they are deduced from the postulates; but it is true likewise of the postulates, each of which is deducible if the theorems and the other postulates be given. The divergence of these geometries from one another, and the fantastic character of most of them, when taken to represent the truth about space on any usual interpretation of their terms, is a good example of the footless character of any attempt to determine empirical truth by appeal merely to 'coherence' or 'systematic unity'. And if it should be replied that this failure is apparent only, because even a whole system of geometry is still too far off from that whole which could contain all fact, then we may revert to considerations of the preceding paragraphs. Let any geometry (since it will be consistent throughout) be the '*P*' of our illustration. Then as has been shown, both the assertion of it as a whole and the contradictory of that (the assertion that it is at least in some part false) will be consistent with, and capable of inclusion in, some larger system which is self-consis-

tent throughout, and is as comprehensive as any which the wit of man can devise. The thesis that empirical truth can in any particular be determined by reference to the systematic unity of all truth, is saved from flat disproof only by the fact that the 'whole of the truth' remains always beyond the reach of any investigation we can make. And for any set of empirical suppositions which we *can* investigate, their mutual consistency and 'systematic unity' afford no evidence whatever of the truth of the whole set or of any particular supposition contained in it.

8. What might with better reason suggest 'coherence' as justifying empirical belief, is consideration of certain facts about probability and about conjoint probabilities. It is relationships of the kind in question for which we have suggested the label 'congruence' instead of 'coherence'; and the main considerations which are in point have already been referred to in Chapter VIII.[4] For example, one main method of inductive substantiation of empirical beliefs is that called 'hypothesis and verification'; and it can be claimed with some plausibility that the major part, or even the whole, of the business of inductive inference could be brought under the general principles of this method. By this procedure the probability of a hypothesis is weighed by looking to the truth or falsity of consequences of it, and by looking to the probability which such consequences have independently of the hypothesis. What are rated as consequences of a hypothesis are not—it should be observed—deductions from it. Deductive consequences may be included as a special case; but when a hypothesis *'H'* is said to have the consequence *'C'*, what typically is meant is that *'H'*, together with other statements which may reasonably be assumed, gives a high probability of *'C'*.[5] For instance, if the hypothesis that there are termites infesting a certain building is said to have the consequence that the walls of the building will sag, what is meant is that, given the premise of termites in the building, together with known facts about termites and about buildings, and the laws of physics, there arises a high probability of sagging walls. One would have to be a bit ingenious to supplement the stated hypothesis *'H'* with some set of other reasonable presumptions *'K'* in such

[4] Sect. 14, pp. 235-242.

[5] It is not even essential that such a probability be high: in general, the same principle will apply wherever *'C'* is more probable than not.

wise that *'C'* would follow by the laws of deductive logic from *'HK'*. And even where this should be possible, it still goes beyond what would commonly be intended by calling *'C'* a consequence of *'H'*. For this usual meaning, it will be sufficient if there is a fairly high probability of *'C'* on the premises *'HK'*. Also, what figure as the pertinent facts *'K'* which are presumed, may, some of them, be premises which are not themselves so certain that failure of the consequences of *'HK'* could not lead to the repudiation of *'K'* instead of the repudiation of *'H'*. The whole set of statements in question, *'H'* and *'K'* and the various consequences, C_1, C_2, and so on, may be such that, antecedently to tests which are not yet made, each of them has some higher or lower degree of probability but none of them is certain—even when 'certain' means only 'practically' or 'scientifically' certain. A complete and careful logical analysis of this fairly frequent type of situation represents a kind of study which has never yet been carried out; and we shall not attempt it here. The most important considerations may be elicited without that, relying on facts which are obvious.

A point which particularly should draw our attention, is what can happen when various consequences of a single hypothesis are found to be true. If different consequences be verified, or independently confirmed, the conjoint fact of these separate confirmations may increase the probability of the hypothesis in a degree notably greater than that which any one of them alone would give, and greater than the sum of the increases which these confirmations would give separately. Specifically, if *'C_1'* and *'C_2'* be independent consequences of *'H'* (so related that supposing *'H'* false, the finding of one of them true would not increase the probability of the other), then the finding of *both* of them true will increase the probability of *'H'* in measure as this conjunction of circumstances (C_1 and C_2 both true), is improbable if *'H'* be false.

Consider the following example: Four persons, N, E, S, and W, are dealt and inspect one card each from an unexamined pack. N is dealt, first, the extra card belonging to no suit; E second, is dealt the king of hearts; S third, the queen of hearts; and W fourth, the jack of hearts. Knowing how packs of cards are put up by the factory, what each person separately observes gives a certain probability that the pack has never been shuffled. For N, this probability is fairly

high; but for E, S, and W, it still is small—so small, in fact, as to be negligible. Pooling their information, however, will give a very high probability of this supposition. And a similarly high probability will attach to further and still untested consequences; e.g., that the fifth card dealt will be the ten of hearts; the sixth, the nine of hearts, and so on. For this example:

'H' = "This pack of cards has never been shuffled."

'K' = "Cards are packed at the factory in the order; extra card, king of hearts, queen of hearts, and so on; suits being in the order hearts, clubs, diamonds, spades."

'C_1' = "The first card dealt will be the extra card."

'C_2' = "The second card dealt will be the king of hearts"....

'C_{15}' = "The fifteenth card dealt will be the king of clubs"....

None of these statements is antecedently assured. 'K' has—let us say—a considerable probability; 'H' a low probability; 'C_1' a very low probability; and for each of the other consequences, the antecedent probability is of the order 1/52—though not exactly that since even the number of cards is uncertain. The premise 'KC_1' gives a fairly high probability of 'H', and hence of 'C_2', 'C_3' and so on. 'KC_2', or 'KC_3', etc., separately gives a low probability only of 'H'. But the conjoint premise, '$KC_1C_2C_3C_4$' gives a high probability of 'H', and of all further and untested consequences. Even '$KC_2C_3C_4$', omitting 'C_1', would give a fair probability of 'H', which would rapidly increase to a near certainity with verification of 'C_5', 'C_6', etc. as expected on the hypothesis of an unshuffled pack.

This whole set of statements illustrates the relationship intended by the name 'congruence'. They are not merely consistent, but are such that the probability of any one of them is increased by finding the others true; hence also by any evidence increasing the probability of the remainder of the set. Even 'K' may not be certain in advance, and would be better assured by finding these others to be fact. As it happens, this example is one in which no member of the set is a *deductive* consequence of the remainder of the set; even 'HK' does not give 'C_1' or 'C_2', etc., by syllogistic or other such rules (though the set of statements in a deductive system may be thought of as an 'ideal' instance of congruence, to which other congruent sets approximate in some degree). We may also observe that it does not require *all* of the remainder of the set to establish a probability of any one: 'K', to-

gether with a relatively small subset of the consequences, gives a high probability of *'H'* and of the other consequences. And while *'H'* and *'K'* are, so to say, key members of the set, still a sufficient subset of the consequences would give some probability of *'H'* without any high degree of antecedent probability attaching to *'K'*. And *'H'* itself is antecedently *improbable*: it is suggested by the consequences of it, and its substantiation depends upon them. It will be evident without discussion that this feature—that it does not require all of the remainder of the set to establish a probability of any given one—is more or less generally exhibited by sets which are congruent. However, the one point which we wish particularly to emphasize is the fact that the *conjoint* truth of some—and perhaps a relatively few—in such a congruent set of statements may be sufficient to establish a high probability of some other, or perhaps of all the others, *even though no single one of the items thus conjoined would be particularly good evidence of anything in question.*

Our previous example of the relatively unreliable witnesses who independently tell the same circumstantial story, is another illustration of the logic of congruence; and one which is more closely typical of the importance of relations of congruence for determination of empirical truth in general. For any one of these reports, taken singly, the extent to which it confirms what is reported may be slight. And antecedently, the probability of what is reported may also be small. But congruence of the reports establishes a high probability of what they agree upon, by principles of probability determination which are familiar: on any other hypothesis than that of truth-telling, this agreement is highly unlikely; the story any one false witness might tell being one out of so very large a number of equally possible choices. (It is comparable to the improbability that successive drawings of one marble out of a very large number will each result in choice of the one white marble in the lot.) And the one hypothesis which itself is congruent with this agreement becomes thereby commensurately well established. It is the possible role of congruence in the determination of empirical truth which is dramatized in detective stories and mystery tales. Here various items of evidence are given initially, or introduced as the story unfolds; some as authenticated fact, and some having greater or smaller initial credibility. Taken separately, these afford small confirmation of the hypothesis which eventually gives

the solution, and may not even serve to suggest it. Also, any single one of them is congruent with various alternative hypotheses. But the picture-puzzle relation of these items, at one stroke raises what was merely conjecturable before to the status of the highly probable, when the last piece of evidence fits into place. And if such light fiction typically exaggerates the part which congruence alone may play, still science has its detective stories in goodly number, and the logic of them is rather better than that of the thrillers.

It may also serve to emphasize the importance of congruence in the confirmation of empirical beliefs if we observe in how large a measure the final bases of credibility must be found in evidence having the character of 'reports' of one kind or another—reports of the senses, reports of memory, reports of other persons—and this label 'report' is appropriate just because such items do not fully authenticate what is 'reported'. 'Reports' also exemplify another feature which, more often than not, characterizes the confirmation of our beliefs through their congruent relations: namely, that where independent 'reports' mainly 'agree' what they agree upon may still become highly credible, in spite of some single report, or a few, which disagree. It is on this point that our second example is rather more typical than the first. In that first example, of the pack of cards, failure of any one of the consequences would greatly reduce the probability of the hypothesis, if not eliminate it altogether. But if all the witnesses but one independently tell the same story, that story is still highly credible, and the disagreeing witness is probably to be discredited.

In general, that is the relationship of empirical beliefs we hold, so far as these are believed initially on grounds which are independent, and are not based on the same evidence, or the one of them believed merely because the others have already been accepted. Congruence of such beliefs may be a potent and valid ground of their credibility. And if we find ourselves faced by the problem of some measure of incongruence amongst beliefs entertained—some one or more of them being improbable if the remainder continue to be credited—still the congruence of the remainder may be evidence which far outweighs that of the incongruent items, and these may validly be discredited. Even where it is the 'evidence of sense' which is in question, this may be the case. If sight corroborates hearing, and both are confirmed by touch, such agreement affords practical certainty.

And if sight and touch confirm the same hypothesis or interpretation, rejection of any incongruent evidence of hearing may be the rationally indicated solution. That we should mistake the source of the sound, or 'hear' what is not there to be heard, may justly be more credible than that we should both see and touch something which would not be where we seem to find it if we had heard correctly.

Yet we must not, without further ado, suppose it universally the case that no single item of evidence can outweigh congruence of other items or of our antecedent beliefs. If an unexamined coin should have fallen heads ten times in succession, there would be a considerable probability of its being a false coin; but a tail on the eleventh throw would discredit that presumption at once. 'Congruence' is a rather broad or weak relationship—though not quite so weak as consistency—and where it obtains, a variety of stronger relationships may also hold, or may fail to hold. It will be sufficiently evident that the logic of congruent sets would be a complex matter. We have spoken of it mainly in terms of 'hypothesis and verification'; partly because the logic of that method will be familiar. But plainly there is hardly a feature of the logic of induction which would not be involved. Indeed, it may well be said that 'congruence' is merely a suggestive name for a relation universally discoverable in those situations where inductive inference is possible. And if it should be added that real usefulness of it would depend upon that developed logic of induction which is here omitted, we should have no quarrel with that comment. However, it is likewise true that 'hypothesis and verification' is only a name for one mode of formulation which universally can be given to problems of inductive inference.[6]

[6] The distinction between 'the hypothesis' and its 'consequences' is often arbitrary to a degree, and made on grounds which are only in part logical. A good deal of logic was formerly written on the assumption—usually vague and unexpressed—that the consequences by which a hypothesis is confirmed are *deducible* from it. As has been noted this would be the case only exceptionally; very exceptionally in fact. Typically what is labelled 'hypothesis' is a member of a congruent set, selected by reference to one or more of the following considerations: (*a*) it is more general than its consequences, (*b*) it is relatively difficult to test directly, and is mainly to be confirmed by reference to its consequences, (*c*) it is that member of the set in whose confirmation we are particularly interested, (*d*) it is a statement whose addition to the set emphasizes the congruent relationship of the members.

There is one fallacy which, while seldom explicit, seems to color a good deal of discussion of the inductive procedure of hypothesis and verification: it seems to be assumed that an ideal case for exhibiting the logic of this method would be an instance in which the hypothesis, '*H*', cannot be tested directly,

Speaking in terms of this familiar method, the considerations needing to be weighed in determining any particular relationship of congruence, would include the following: (1) the other hypotheses, alternative to the one under consideration, which also might 'explain' (give a high probability of) those items which are found true or for which a high degree of probability is independently established; (2) the antecedent credibility attaching to this hypothesis in comparison with alternatives; (3) the independence which the consequences have of one another (that is; whether, supposing *'H_1' false,* the probability of a consequence, *'C_1'*, depends on that of another, *'C_2'*); (4) the probability of each consequence on the supposition that the hypothesis in question holds.

9. We could hardly be too much impressed with the part which is played, in determining what we shall believe and what we shall accept as probable, by the congruence of any statement in question with our antecedent beliefs and with what has already some degree of confirmation. The weight of this consideration of congruence is observable at every level of empirical knowledge, from that of the simplest 'facts of perception' to that of the highest and most comprehensive generalizations of science. Yet if recognition of this importance

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but evidenced only by some set of consequences, *'C_1, C_2, . . . C_n'*; and that if ideally chosen, these consequences would all be mutually independent. It should be noted that this ideal case is wholly impossible. In the nature of this case, either the remainder of the set of consequences, without reference to *'H'*, must afford some probability of a given consequence, *'C_m'*—in which case this consequence is not independent of the others—or *'C_m'* is not a consequence of *'H'*, or the other consequences, without *'C_m'*, afford no probability of the hypothesis. For example, suppose that zero comes up 'too often' on a roulette wheel, but that under the conditions no direct test of possible interference can be made. Then either this too frequent occurrence of zero must eventually establish a probability of its continuance for the future, or no smallest probability of interference could arise, no matter how often the zero comes up. And the difficulty of setting any criterion for determining how often, here, is 'too often', and how long continuation of this aberration is required for a probability as to the future, should warn us of dubiety in the presumption that two occurrences of zero are, logically considered, completely independent.

In general, the consequences of a hypothesis are independent only in the sense that the establishment of one does not increase the probability of another on the assumption that the hypothesis is *false.* And the whole set of consequences will be congruent *without the assumption* of the hypothesis. One manner in which this fact may be emphasized, is by the statement often made that inductive inference is, in reality, inference from particulars to particulars; the 'generalization' having no content save the included particulars. A not directly testable hypothesis likewise has no content beyond the testable consequences of it. And if these consequences be not of themselves a congruent set, then the hypothesis must be either empty or false.

should suggest a 'congruence theory of empirical truth', analogous to the coherence theory, then that suggestion must in the end prove misleading. The supposition that the logical relation of congruence could by itself be a sufficient test of empirical truth in any case, must be set aside, for reasons which are similar to those which require repudiation of the coherence theory.

It would perhaps have initial plausibility that the finally best test of any particular empirical belief is its congruence with other acceptable beliefs, and the eventual congruent relation of all such acceptable beliefs together in some 'whole of the truth' which itself would not be further testable except by its comprehensiveness and total congruence. It suggests itself that empirical beliefs in general may each be taken as having separately the character of hypothesis. And our attention may be drawn to the 'systematic unity' of any extensive body of acceptable empirical beliefs; their complex relationships of subordination, super-ordination, and mutual support, essential to their remaining concomitantly credible. We may further be impressed by the fact that, in the test of any one belief or hypothesis, much more is eventually involved than what is usually recognized in statement of the problem. What are put forward as consequences of one single belief or hypothesis are seldom drawn from that assumption alone but require also collateral suppositions which commonly are unexpressed just because they are taken for granted. A sufficiently meticulous examination of the actual premises of such inductive inference would oblige us to recognize a more and more comprehensive foundation of it. This would be evident, for example, wherever a hypothesis within any single science is to be examined: much more than what is likely to be stated explicitly will be involved in our assumptions determining what consequences this hypothesis under consideration will be taken to have. Perhaps we should find ourselves unable to stop short of the whole body of accepted principles of that science. For reasons which thus become obvious, we might well think that the eventual basis of all our inductive inferences and all our empirical truth-determinations, is a totality of acceptable belief; a vast and intricate hypothesis, which is at one and the same time the ideally indicated basis of particular beliefs which are acceptable, and the presumption which is corroborated by the total congruence of acceptable beliefs within it.

But if we should thus think of the body of valid empirical beliefs as such a comprehensive best-of-all-possible hypotheses; and of congruence as the relation of all the particulars it comprizes to one another; then there are two considerations of first importance which we must not overlook. First, that although this empirical 'system' is vastly more comprehensive and intricate than a deductive system like a geometry, and differs from it also by the fact that connections within it are mainly those of probability inference instead of inference with certainty, still such a 'systematic unity' of the empirically credible will have two features in common with a deductive system. The whole intricate network of it will be constituted at bottom by linkages of ground and consequence, which is in general a one-way relation; just as a deductive system is constituted by the primal linkages of deductive premises and conclusion, which is in general a one-way relation. And that, however tight-locked this system may be, and suggestive of a 'block-universe', there would still be the same possibility of dissecting it into independent constituents which is indicated by the logical analysis of deductive systems, revealing independent postulates, and is evidenced by the multiplicity of geometries, each incompatible, when taken as a whole, with every other, though each includes something in common with other such systems, and each has the tight-locked character of a system within which no single statement contained can be repudiated if the rest of the system be accepted. No best of all comprehensive hypotheses could be determined merely by its systematic unity and the congruent relations of all the items in it. What particular world we live in would still have to be determined by disentangling the intricate network of its connections into particular linkages of separate probability relations; and this not merely because our minds are too limited to compass the sweep of such comprehensive wholes, but because any possible world would be only one of many logically overlapping ones, each having such total congruence and systematic unity. Any finally decisive test of actuality, as against mere logical possibility, must lie elsewhere than in relationships of congruence.

And second; we must give attention to just what kind of fact it is by which the conjunction of antecedently improbable circumstances may so powerfully increase the probability of an empirical belief; and particularly of items reported or remembered or otherwise not

quite directly determinable in present experience. Take the case of the unreliable observers who agree in what they report. In spite of the antecedent improbability of any item of such report, when taken separately, it may become practically certain, in a favorable case, merely through congruent relation to other such items, which would be similarly improbable when separately considered. On the general principle that, out of all the possible ways in which unreliable reporters can go wrong, their happening to tell independently just these stories which agree point for point, would be so thoroughly incredible on any other hypothesis than that of accurate telling of the truth. And similarly for memory: something I seem to remember as happening to me at the age of five may be of small credibility; but if a sufficient number of such seeming recollections hang together sufficiently well and are not incongruent with any other evidence, then it may become highly probable that what I recollect is fact. It becomes thus probable just in measure as this congruence would be unlikely on any other supposition which is plausible.

But still it is no logical relationship of statements believed which contributes the critical ground of their believability. Such logical relationship—at least the relation of complete consistency—is requisite as a *sine qua non* of probability. But if this congruent set of statements should be fabricated out of whole cloth, the way a novelist writes a novel, or if it should be set up as an elaborate hypothesis *ad hoc* by some theorist whose enthusiasm runs away with his judgment, such congruence would be no evidence of fact. If such merely logical relationship of statements were good reason for belief, then unreliable reporters would be working in the interest of truth if they got together and fudged their stories into agreement. And the hard-pressed undergraduate who works his 'experiment' backwards and gets his 'data' from the answer in the book, would be following a highly meritorious procedure which should be recommended to all scientists. The feature of such corroboration through congruence which should impress us, is the requirement that the items exhibiting these congruent relationships must—some of them at least—be *independently given facts* or have a probability which is antecedent. There must be *direct* evidence of something which would be improbable coincidence on any other hypothesis than that which is corroborated. The root of the matter is that the unreliable reporters do make such con-

gruent reports without collusion; that we do find ourselves presented with recollections which hang together too well to be dismissed as illusions of memory. The indispensable item is some direct empirical datum; the actually given reports, the facts of our seeming to remember; and without that touchstone of presentation, relations of congruence would not advance us a step toward determination of the empirically actual or the validly credible. However important this relation of congruence in the building up of our structure of empirical beliefs, the foundation stones which must support the whole edifice are still those items of truth which are disclosed in given experience. All the facts of reality undoubtedly form a congruent set, and one comprising an untold number of subsets, each congruent within itself and congruently related with all the others. But that character of reality will not tell us which one, out of innumerably many such possible worlds, each of them overlapping logically with others, this world we live in is; any more than the completely congruent character and systematic unity of each of the various geometries, will determine for us which one of them applies to our space. To discover that kind of fact, we shall have to rely upon experience.[7]

10. That part of the discussion of the preceding two sections which is directly pertinent to our present argument, is a small one only. For the rest, we have pursued this consideration of the part played by relationships of congruence in the establishment of empirical fact and the validation of empirical belief, on account of its intrinsic importance, and in order to guard against certain fallacies to which this type of conception seems liable.

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[7] It could, of course, be emphasized with equal justice that no single fact of reality is determinable by the content of given experience alone and without reference to relations of congruence. But any set of 'all the facts of reality' would have to include the interpretation and complete explanation of every given datum of experience.

It is likewise in point, that no test of the applicability of 'abstract' concepts, like those of a geometry, is possible without assignment of a sense meaning, as criterion of its applicability, to each concept in question. Such abstract concepts are patterns of relations; and the question of their applicability is in part one of specific sense meaning to be assigned, and in part one of the empirical data applicability to which is in question. It may well be that all concepts are liable to some degree of such abstractness. Insofar as that should be the case, problems of application of concepts, or interpretation of given data, become determinable neither from the concepts alone nor from the data alone, but only by a complex procedure in which both these factors must play a part.

We make no attempt here upon the complex problems of this type, taking concepts as having specific sense meaning. That procedure does not preclude

The application of our conclusions to the validation of memory is one which would, in all probability, have been obvious without this extended examination. Our only evidence of past experience, essential to the validity of any inductive establishment of empirical fact as probable, must be finally in the form of present 'reports' of past fact; particularly the reports of memory and of our present sense of past experience as having been thus and so. But the past is irrecoverable: we cannot go behind the epistemological present in any attempted justification of belief: and the presently given memorial items are not epistemically equivalent to the past experience which they represent, but are only surrogates of such past fact. They are, moreover, beset by the paradox that if memory in general is to be trusted, then *not all* memories are trustworthy; which estops us from any blanket assumption that what is remembered is true.

In this situation, the consideration of congruence supplies the missing link. It is not necessary to make this unwarranted assumption: it is only essential that the fact of present memory afford *some presumption* of the fact which is memorially presented. All that is needed is initial assumption that the mere fact of present rememberings renders what is thus memorially present in some degree credible. For the rest, the congruence of such items with one another and with present sense experience will be capable of establishing an eventual high credibility, often approximating to certainty, for those items which stand together in extensive relations of such congruence. Such establishment of high credibilities concerning what is past, by refer-

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the possibility of dealing with 'abstract' concepts: any statement involving such, then becomes a formal statement about the relations of statement functions for all values of their variables; such values being the specific interpretations or sense meanings which could be assigned; and the interpretations which can *validly* be assigned are then limited by the logical pattern constituted by such formal statements. The division of such problems into one part which is 'syntactic' (relating to logical pattern) and another part which is 'semantic' (relating to specific interpretation and to application), is a possible one; but it is doubtful whether it is necessary or judicious. In my opinion it is neither, but obliges a complicated mode of detouring around Robin Hood's barn, to arrive at an obvious destination which could otherwise be reached at a single step.

Such 'abstractness' of concepts is not to be confused with that abstractness which must characterize all concepts, but would more accurately be called 'variability'; and even if, by reason of human psychology, it besets all our thinking, that should not be allowed to obscure the fact that wherever such an abstract or variable concept is allowed to function as a concrete one—a wholly fixed meaning—a fallacy is involved.

ence to congruence, will, moreover, be in full accord with our common-sense practices in the corroboration of past fact, and with our common understanding of the basis of our actual beliefs about the past. Furthermore, this logic of congruence is compatible with the fact that even though what is remembered or presents itself with the sense of pastness is *prima facie* credible for that reason, this initial credibility may be dispelled and give way to improbability in cases where the seemingly remembered item is incongruent with others which are congruent amongst themselves.

It should also be observed that our final data now are not those of remote basic inductions, made in men's first emergence from mere animal habit into some consciousness of their own psychological processes of giving credence, and building up historically, one induction upon another, to the eventual level of modern understanding of the world and contemporary science; nor are they those of the individual's life history, representing a similar building up of the structure of his personal knowledge. To speak in such terms of human knowledge, or of personal knowledge, has its own kind of correctness and justification, but it represents, at one and the same time, a kind of complication of the problem of knowledge which is unnecessary and a simplification of it which is not finally permissible. No one's knowledge at any time literally embraces 'our human knowledge', which through social cooperation is 'our common possession'; it does not even embrace what we claim to know as individuals because we have a justified sense of being able to summon or to discover it at need. Such senses of the verb 'to know' have their obvious meaningfulness and legitimacy, and what is known in the more literal and explicit sense would be difficult to mark off sharply from such implicit knowing. But it seems clear that we shall solve the only problems we are called upon to meet if we can indicate the kind of justification which may be given for individual explicit belief at the time when such belief is consciously entertained and its validity could come in question. And for such validation, experience which is literally past and irrecoverable is neither the possible nor the required kind of final datum. Rather it represents something itself inferable with probability from the mnemic data of recollection and the present sense of past fact which themselves lie within the epistemological present.

Such validation, it may well be thought, would still require a hor-

ridly complex train of inference; so complex indeed that it is hardly believable that any one even carries it out. But in that case, there are two questions we must ask ourselves. Is a belief genuinely justified if we credit it from a sense of valid inferability from some datum which we apprehend as available: if, for example, we believe today is Tuesday from a sense that yesterday was Monday but without explicit construction of the steps of logical inference? And second, when we thus fail to construct our inference explicitly, or even to summon our data explicitly, and thus abbreviate the psychological passage of authentication, is our procedure one which is justified? We shall not enter upon this mainly psychological and descriptive problem. It has to do with the sense in which it is finally possible to say that knowing is a psychological state or process at all. And the reader can now make his own judgment of that matter as well as the writer; and can assess the importance of any issue between different answers which might conceivably be given in his own way. We would only point out that if the reconstruction of an ideal inductive inference, supporting a belief as credible, is psychologically abbreviated by reliance upon a *sense* of the possibility of steps of inference or the *mnemic impression* of a judgment as reliable on account of past authentication of it, then this substitution of such sense of authenticity for explicit reconstruction of inductive inference, may itself have the same kind of inductive validation which justifies reliance upon our sense of past fact in general. Our feeling sure that a certain judgment *has been* sufficiently attested is evidence affording a probability that what is so felt is fact, and a justification of our reliance upon that judgment; just as any other kind of mnemic datum is presumptive evidence of what is thus mnemically sensed.

11. There is, however, one further step which calls for examination, if this kind of final validation of empirical knowledge by reference to ultimate data in some sense presently given, and to the congruence of such data, is to be acceptable. It is essential to the argument that any item of our sense of past fact be *prima facie* credible; that such mnemic presentation itself should, before any further examination as to congruence, afford some probability of past fact. Just what degree of credibility thus attaches initially to the remembered, merely because remembered, we do not need to ask. It does not appear that we could, candidly, assign any particular degree to it.

We seldom take cognizance of this initial presumption, because generalizations as to particular *classes* of our memories intervene between it and any matter to be attested by memory. That recollections of the recent past are comparatively reliable; of the remote past, unreliable; that our memory for faces and for what we have said is trustworthy, but our remembering of names and dates is not: such generalizations will be the proximate grounds on which the credibility of particular memories is assessed. But these are, of course, generalizations from past experience (of remembering, and of later confirming or disconfirming) and as such are presently available only in the form of remembered experience, and require for their own authentication the presumption of initial credibility of the merely remembered as such. And the degree of this initial credibility, we have said, is hardly assignable. But it does not need to be assigned. A larger or a smaller such initial probability would have no appreciable effect upon the eventually determinable probabilities in question beyond that of a difference in the *extent* of congruity with other mnemic items and with sense presentation which would be required for building up eventual probabilities sufficient for rational and practical reliance. If, however, there were *no* initial presumption attaching to the mnemically presented; no valid supposition of a real connection with past experience; then no extent of congruity with other such items would give rise to any eventual credibility. The coherence of a novel, or of the daydreams we are aware of fabricating as we go along, can never have the slightest weight toward crediting the content of them as fact, no matter how detailed and mutually congruent such items may be.

This assumption of initial credibility of mnemic presentation might be made without further ado: everyone in fact takes it for granted, in effect if not explicitly. But it seems undesirable thus to rest the final validity of empirical knowledge upon an *ad hoc* postulate, however agreeable to common sense. The analysis of knowledge, even though in some sense or some part a logical reconstruction rather than a psychological depiction, should be no mere attempt to find a set of postulates sufficient for what we already believe, but should be governed throughout by our final and best sense of fact. Furthermore, this assumption in question has a certain kind of justification, in the fact that mnemic perseveration of past experience; its present-

as-pastness; is constitutive of the world we live in. It represents that continuing sense of a reality beyond the narrow confines of the merely sensibly presented; the only reality which as humans we can envisage; the only reality which could come before us to be recognized as such. If we adopt the Cartesian method of doubting everything which admits of doubt, we must stop short of doubting this. Because to doubt our sense of past experience as founded in actuality, would be to lose any criterion by which either the doubt itself or what is doubted could be corroborated; and to erase altogether the distinction between empirical fact and fantasy. In that sense, we have no rational alternative but to presume that anything sensed as past is just a little more probable than that which is incompatible with what is remembered and that with respect to which memory is blank. It would seem regrettable to have come so far in the attempt at complete validation of empirical knowledge and to stop short with no examination of this final point. Let us make trial of a Cartesian doubt that our sense of the past has any reliable connection with past actuality; even though this must be, in the nature of the case, an essay in the fantastic.

As a first step in such doubt, let us not deny that inductive generalization from the mnemically presented may be trusted, but let us suppose that a particular knower is subject to a systematic delusion of memory, which he has no reason to suspect, concerning—let us say—his experience of music. As he remembers it, whenever he has heard music in the past, it has been accompanied by kaleidoscopic patterns of imaged color. Now music is promised, and he predicts the like accompaniment on this occasion. This prediction is, for him, validly credible if the general principle of induction is valid: it is made in the light of the best and most pertinent evidence open to him, and that evidence justifies it.

Will such a knower later discover the delusive character of this class of his memories, through the test of experience? The supposition that he will, is supposition that the delusion will not persist. If it should persist, but should not extend to his sense experience when given, then he will find each further verifying experience a puzzling exception to all past experience as he will remember it, which he will take note of and resolve to bear in mind next time, as diminishing the credibility of similar predictions for the future. But on each occa-

sion when this later becomes pertinent, he will again remember his past experience erroneously, and again credit prediction on the basis of his delusive recollections. And his judgment will again be completely valid, if judgments based on past experience as remembered are valid.

And now let us attempt to generalize this fantastic supposition. Let us suppose that everyone at every moment is subject to such systematic delusions in all sorts of ways. If that should be the case but these delusions should not extend to sense perception, then our sense experience is going to be highly surprising to us. And if we remain reasonable and minded to check generalizations made by their further confirmations and disconfirmations in experience, then we shall continually be noting the necessity of revising downward the credibility of recollections of one kind or another, because of our present disappointments in prediction. But also, we shall always be forgetting our disappointments, on each later occasion to which they would be pertinent, and remembering the general character of past experience in ways determined by our delusions instead of the ways in which it actually occurred. And our credible beliefs, formulated each time on the basis of past experience as remembered, will have the same logical validity that credible beliefs do in actual and normal experience. And in a community of persons subject to such tragic affliction, if some should busy themselves with the analysis of experience as cognitive, and raise the question of the validity of memory, they would be in exactly the same case as ourselves, and find the same reason for crediting memory in general that we do.

Suppose, then, the terrible thought occurs to us that our memories are in fact like that; and we tremble with fright about ourselves and our future. On calm reflection, however—in this exceptional moment of sane suspicion—we ought to observe that we are not going to suffer from this affliction so much as we might suppose. Because we are never going to be in position to substantiate this suspicion we now entertain. Our lives, as some outside omniscient observer would view them, are going to be a continual succession of disappointments of our cognitive expectations by our presented sense experience, but we are never going to know that general fact. Each disappointment is going to be strictly temporary, like the suffering some people suspect that they have endured under an anaesthetic, though the memory

of it—they suppose—is later blocked. Also, what is a *cognitive* disappointment, may be in other respects a pleasant surprise. And on any grounds, *occasional* cognitive disappointments must be expected by anyone who commits himself to predictions which are less than certain. In short, we are going to lead quite normal lives.

Let it be admitted that this attempt of ours at a Cartesian doubt of the validity of memory has not been well carried out. It would in fact be impossible to carry it out consistently. If we have induced the reader to suppose momentarily that we have been logically cogent, however fantastic, that will be because we have unjustifiably capitalized on the suggestion of *systematic* delusion: a general *unreliability* of memory would be something quite different and must reveal itself, if we preserved our rationality, by its falling into incongruities. The attempt to carry through a circumstantial supposition that would actually conform to what we have attempted to suggest, must inevitably end in nonsense.

Still the point which we have so poorly illustrated should be obvious. The world as revealed to us by our sense of past experience must be the world we live in. Any suspicion we could entertain, and any generalization we could have reason to credit—including any about the nature of reality, or of life and experience, or about the relation between experience and reality, or about anything else—must be attested by its conformity with what the congruities of given experience and recollection will substantiate. That world our sense of which is a memorial precipitate of past experience, may be phenomenal, in whatever good or bad sense one may find to give to 'phenomenal' as compared with 'real'; but it is the only world with which we can be acquainted or in which we can raise any question admitting of possible answer. Our fantastic supposition above, if it should succeed in anything, would succeed only in conjuring up some unknowable *an sich* world, and would be merely an essay in bad metaphysics. We might as well have gone the whole length in one sweep and supposed that there is no such thing as past or future, but that humans, bounded in the nutshell of the here and now, count themselves kings of infinite time and space by a systematic delusion. But as the time-worn theme of Berkeley's idealism should have taught us, the distinction between an objectively real world and a sufficiently systematic delusion of one—congruent throughout—is a distinction which makes

no discoverable difference, and is not the subject of any reasonable discussion. One can put it forward only by supposing himself both in and out of his 'merely phenomenal' world at one and the same time.

Our sense of a cumulative temporal experience, mnemically presented within the epistemological present, or in Kant's phrase, in the transcendental unity of apperception, not only is something of which we cannot divest ourselves; it is constitutive of our sense of the only reality by reference to which empirical judgments could have either truth or falsity or any meaning at all. Without it, there could be no answer to any question, nor any question to be answered, because there could be no such thing as fact and no intelligible discourse. The genuine difficulty is not to justify it but to formulate it; conformably to the fact that to assume correctness of *all* memories and of *every* sense of the factual taken to arise from past experience, would lead to contradictions. It cannot be formulated at all in terms merely of the truth or falsity of what is remembered, but only in terms of a probability or credibility attaching to what presents itself with this quality of pastness; a credibility which can only be dispelled on grounds arising from similar credence of what similarly presents itself as past.

Empirical reality does not need to be assumed nor to be proved, but only to be acknowledged. Nor does the thesis that empirical reality can be known, require to be postulated or to be demonstrated: it is an analytic statement which can only be repudiated on premises which already imply it. It is by overlooking this fact that the skeptic must always fall into contradiction. He cannot overturn the world without some Archimedean point of fact as premise. And he can have no such premise if there be no criterion we can apply, and by so applying distinguish empirical fact from non-fact. If the skeptic asserts nothing objective, then he puts forward no assertion nor even any conjecture; since there is nothing else concerning which conjecture could have a meaning. And if what he conjectures is something inaccessible to knowledge, then what he thus indicates is *ipso facto* not that empirical reality in view of which we live and act, and which we cannot repudiate, and in the absence of which even our thinking must lapse into unintelligibility.

The problem is not to prove the objectively real and the possibility of our empirical cognition of it, but to formulate correctly those cri-

teria which delimit empirical reality and explicate our sense of it. What we would here maintain is that without genuinely knowable past experience, or without genuine relevance of past experience to the future, we could have no such sense of empirical reality. But our only indubitable certainties (beyond the logical) are those of presentation; and mere presentation, whether of memory or of sense, is never sufficient for complete assurance of objective fact. What is indispensable to our having any criterion of the empirically real, is that the mnemically presented must be a probability-index of actual past experience, and that coincidence in past experience must be a probability-index of the future. That being the case, we have no alternative but to accept the principle that mnemic presentation constitutes a *prima facie* probability of past actuality, and to accept, in some form or other, the Rule of Induction. These are ingredient in and, together with the certainties of given experience, are constitutive of, our sense of that reality which we cannot fail to acknowledge, unless we would repudiate all thought and action and every significance of living. That we cannot do.

BOOK III

VALUATION

Chapter XII

Knowing, Doing, and Valuing

1. Evaluations are a form of empirical knowledge, not fundamentally different in what determines their truth or falsity, and what determines their validity or justification, from other kinds of empirical knowledge.

This fact has often been obscured by failure to distinguish mere apprehensions of good or ill in experience from predictions of the possible realizations of these qualities in particular empirical contexts, and from appraisals of the objective value-quality resident in existent things. The first of these—direct findings of value-quality in what is presented—are not judgments; and unless or until they become the basis of some further prediction, they are not cognitive. But predictions of a goodness or badness which will be disclosed in experience under certain circumstances and on particular occasions, are either true or false, and are capable of verification in the same manner as other terminating judgments, which predict accrual of other qualities than value. This kind of foresight represents one of the most essential of cognitive capacities: indeed, we might say it is the root of all practical wisdom. And evaluations of things; appraisals of their potentialities for good or ill; are likewise true or false, and must be justified as well as confirmed by reference to experience. The manner of their validation, and of their confirmation, does not differ, in general, from that of attributions of other properties to objects.

The contrary conception has, of course, been frequent. It has been held that value-apprehensions are subjective or relative in a sense which is incompatible with their genuinely cognitive significance. Or it has been maintained that value-predications are not matter of fact statements at all, being merely expressions of emotion and hence neither true nor false.

But this is one of the strangest aberrations ever to visit the mind of man. The denial to value-apprehensions in general of the character of truth or falsity and of knowledge, would imply both moral and practical cynicism. It would invalidate all action; because action becomes pointless unless there can be some measure of assurance of a valuable result which it may realize. And this negation, if it be carried out consistently, likewise invalidates all knowledge; both because believing is itself an active attitude which would have no point if it were not better to be right than wrong in what one believes, and because knowledge in general is for the sake of action. If action in general is pointless, then knowledge also is futile, and one belief is as good as another.

2. This relation of action and evaluation is as obvious as it is important. But it is sometimes clouded by the fact that action is considered merely as 'behavior', and value-judgments are so thought of as to be divested of both their cognitive and their imperative significance at one and the same time. We shall intend here to limit ourselves to what is plainly open to common sense; but it will be necessary to speak in terms which have been cleared a little of their common ambiguities. Such relatively verbal questions are tiresome—particularly so when they relate to matters of importance—but we must endure them, for the sake of clarity.

Action is behavior which is deliberate or decided upon; which is subject to critique and could at least be altered on reflection. Behavior which it is beyond the subject's power to control is not action. That is; we shall, in this context, limit 'act' and 'action' to the sense of 'conduct'.

Action—at least action of the sort called rational and sensible—is for the sake of realizing something to which positive value is ascribed, or of avoiding something to which disvalue is ascribed. In order not to tread on the toes of any for whom 'rational' has other connotations, let us choose the more colorless term 'sensible' here, and say that an action is *sensible* if and only if something to which comparative value is ascribed is expected to be realized as a result of it—where 'comparative' refers to some contemplated alternative or alternatives.

This expectation of a result in the light of which an action is adopted, is its *intent;* the intent of the act, and the intent of the doer in adopting it.

All acts have in common the character of being intended or willed. But one act is distinguishable from another by the content of it, the expected result of it, which is here spoken of as its intent. There is no obvious way in which we can say what act it is which is thought of or is done except by specifying this intent of it.

As the word 'sensible' is here used, an act is sensible or not exclusively by reference to its intent, and without reference to the further question whether this expectation with which it is adopted is or is not a well-judged prediction of the actual result.[1] It will, therefore, be appropriate to extend the characterization 'sensible' and its opposite to the expectation called the intent of the act; and say that an intent is sensible if this expected result is one to which comparative value is ascribed, and that an act is sensible if and only if the intent of it is sensible.

It has often been maintained—e.g., by the Platonic Socrates, by psychological hedonists like Bentham, and amongst recent writers by Schlick—that all intentions are sensible in the present meaning of the word. Whether this is in fact the case, or whether there is such a thing as perversity—deliberate choice of the comparatively disvaluable—we do not need to decide at present.

We shall include under 'intent' the *whole* expected result of the act. Oftentimes such result would be complex, and have parts which would be differently valued. *That part* of the intent of an act for the sake of which it is adopted, we shall call its *purpose*. Sometimes the word 'motive' is used in the sense here given to 'purpose'. And 'motive' might come nearer to what is meant than 'purpose' does in one respect: 'motive' is generally applied only when some specific act is done or contemplated; whereas 'purpose' is sometimes used to name what is desired (and viewed as possible) even though no specific mode of attaining this desired result should be in mind. There could be, thus, purposes which are not the purposes of any particular act, done or contemplated. Still 'purpose of an act' remains unambiguous. Also, the word 'motive' would not do so well here, being frequently used to indicate an underlying general principle, sentiment, or continuing attitude, rather than any expected consequence of a particular action.

[1] This is, of course, a little out of line with customary usage; according to which an act would *not* be called sensible if taken in the light of an expectation too obviously ill-judged.

'Purpose' and 'intent', or 'intention', are often taken to be synonymous, though common usage will hardly bear that out. In particular instances the purpose and the whole intent may coincide. More often, however, there will be some part of the expected result of action to which the doer is indifferent. And it happens rather frequently that an action is adopted for the sake of some consequence, *A*, though it is expected to have also the consequence *B*, and the doer would regard *B*, by itself, as undesirable. In cases of this last sort, if it be inquired concerning *B*, "Did you do that intentionally?," the truthful answer would be such as, "Yes; but only because *B* was bound up with *A*."

It will be appropriate to extend the designation 'sensible' to purposes as well as intentions; and to say that the purpose of an act is sensible only if what is purposed is something to which comparative value is ascribed. But it is to be observed that the purpose of an act may be sensible when the intent of it, and the act itself, are not: the doer may adopt an action for the sake of some value included in the anticipated result, although he would judge this result as a whole to be disvaluable. We may also remark that, while it is plausible to suppose that there are actions the intent of which as a whole is not sensible, it is definitely less plausible that there is any act the purpose of which is not sensible: that anything is done *for the sake of* that which the doer recognizes as disvaluable. For example, one who yields to the solicitations of a present gratification, and in so doing, wittingly prejudices his own further interests, nevertheless does so *for the sake of* this gratification which he values: thus his purpose is still sensible, though his act and the intent of it are not. Even perverse acts would hardly be done except, paradoxically, for the sake of the satisfaction—which one values—in being thus perverse. In any case, it would be anomolous to call an act done for the sake of the recognizedly disvaluable, a *successful* act, whatever the outcome of it. Let us say, therefore, that an action is successful if and only if it is adopted for the sake of some anticipated consequence to which comparative value is ascribed, and this expectation is borne out by the result of performing the act.

This anticipated result will, in some cases, be decisively and finally verifiable; an enjoyable experience, for example. But in other cases, it will be something not thus completely verifiable at any given time,

e.g., if the purpose is to make the world safe for democracy, or to bring about some other state of affairs, or create some object, whose value-consequences are expected to continue for an indefinite length of time. Since the success of an act whose purpose puts it in this latter class will never be fully verified, and since there is a tendency (included in the meaning) to withhold ascription of success or failure until it is demonstrated, it will be well to say that an act is to be called successful *so far as* the purpose of it is verifiably achieved. (With other characters, predication is regarded as true if the ascription is positively verifi*able*. The point of difference here is that 'success' and 'failure' have a temporal significance: an act succeeds only *when* the purpose of it is achieved; though a thing is as truly round, for example, before its roundness is verified as after.) The locution 'so far successful' will also be appropriate to the fact that in some cases an ascribed value may be realized in the result of action but realized in some part only or not in the degree in which it was anticipated.

There is, unfortunately, a further ambiguity affecting the usage of 'successful' and 'unsuccessful', and reflecting a certain complexity which characterizes intentions and purposes in general. There is no sensible intent without an ascription of comparative value, but also there is none without the ascription of this value to something specific and describable in other than value-terms. Even in the sense in which value is one single quality or character in all its instances—if there be any such sense—it is still impossible to intend or expect just 'value' or 'value in general'. Values are attributes which do not wander outside some substance; they can be realized or contemplated only as characters of something in particular, or of some specific *kind* of thing. This being so, there are two distinguishable parts or aspects of any sensible intent or purpose. There is expectation of some result describable in terms other than those of value; and there is ascription of comparative value to this anticipated result. An action may, thus, fail of its purpose in either of two ways: the expected specific result, describable in other than value-terms, may fail to follow; or this result may be realized but found not to have the value ascribed to it.

For example, I may go to the theater because I expect to enjoy a good performance. And my action may fail of its purpose because the performance is poor. But also it might fail of its purpose be-

cause, although I could find no fault with the performance, I do not enjoy it. In this latter event, my action is unsuccessful because, although the desired result as describable in other than value-terms is realized, the ascription to it of a quality affording me enjoyment is not borne out. (It should not be assumed, from this example, that all values are enjoyments: that will need to be considered.) There is also the third possibility that my expectation of a good performance should be found false, but the hoped-for enjoyment might nevertheless accrue—it might be so bad as to be enjoyable as unintended comedy. But in cases of this last kind; that is, where expected value is realized but by way of a result, as describable in other than value-terms, which was not expected; we might better say that the action is proved *fortunate* and not that it is successful.

It would be possible to apply the phrase 'successful act' in cases where a specific result expected is realized, although the anticipation of value in this result should be disappointed. Doubtless the expression sometimes is so used; though the notion of a success which is a disappointment is somewhat anomolous. The phrase might also be applied where, as above, the result is merely fortunate. But for the sake of clarity, let us decide against both these usages, and say that an act is successful only so far as the purpose of it altogether is realized; so far as a hoped-for value-quality accrues by way of an intended specific result.

One further qualification might be thought to be required: it might be said that some purposes are complex, and within them may be that which is more important and that which is less so for the taking of decision; hence that in determining success of an act, reference must be had to the relative weight of any such distinguishable constituents in the purpose of it. But on reflection it will appear that this complication is not called for; the result of introducing it is already implied. Because in any sensibly taken purpose the degree in which constituents are essential will accord with the degree in which value is, relatively, assigned to them. Thus the formulation of the preceding paragraph already covers the point.

3. Success is the desideratum of all action: that statement is a tautology. Nevertheless for the appraisal of an act as ascribable to the doer—for 'judgment of an act' in the most frequent sense—the success of it is less important than another character which we may

call its *practical justification.* This character is the character of being guided by anticipation of something of comparative value, which prediction, whether true or not, is at the time when the action is contemplated and for him who contemplates it, valid as probable knowledge. That is to say; the character in question belongs to an act if and only if the intent of it is an expectation which is a *warranted empirical belief.*

This character of being practically justified (or unjustified) is more important to assess than is the success of action, for two reasons. First, because such justification is as near as we can come, at the time of decision, to assuring success: the rest is on the knees of the gods. And second, because the capacity to make decisions which are thus justified, or the liability to those which are unjustified, is a more important attribute of persons than is their success in particular actions. It is so, whether the person in question be oneself or another, because the practically justified character of his acts in general is the only rational basis for prediction of any individual's *future* success or failure. In so far as one's success in general does not correlate with the practically justified character of decisions in general, that lack of accord will be merely a matter of good or ill fortune, beyond one's power to affect.

We must note, of course, that such practical justification is not the same thing as moral justification—unless on some special theory of morals. If there can be stupidity in assessing empirical beliefs, for which stupidity the person in question is not responsible, then an act may be morally justified without being practically justified. And if there can be moral obliquity in a decision to act upon a sensible intention whose probability as an empirical eventuality is correctly assessed, then an act may be practically justified without being morally justified.

4. So much punctilio in the use of words is irksome, particularly where the matters in question are the familiar and continuing concerns of daily life. But if we have now succeeded in obviating ambiguities in the language commonly used of actions, while still remaining true to the important interests which such language connotes, then it becomes clear that, as was claimed at the outset, *no intention or purpose could be serious, and no action could be practically justifiable or attain success, if it were not that there are value-predi-*

cations which represent empirical cognitions, and are predictive and hence capable of confirmation or disconfirmation. On that point, these commonplace considerations would seem to be quite decisive.

Where ability to make correct judgments of value is concerned, we more typically speak of wisdom, perhaps, than of knowledge. And 'wisdom' connotes one character which is not knowledge at all, though it is a quality inculcated by experience; the temper, namely, which avoids perversity in intentions, and the insufficiently considered in actions. But for the rest, wisdom and knowledge are distinct merely because there is so much of knowledge which, for any given individual or under the circumstances which obtain, is relatively inessential to judgment of values and to success in action. Thus a man may be pop-eyed with correct information and still lack wisdom, because his information has little bearing on those judgments of relative value which he is called upon to make, or because he lacks capacity to discriminate the practically important from the unimportant, or to apply his information to concrete problems of action. And men of humble attainments so far as breadth of information goes, may still be wise by their correct apprehension of such values as lie open to them and of the roads to these. But surely wisdom is a type of knowledge; that type which is oriented upon the important and the valuable. The wise man is he who knows where good lies, and knows how to act so that it may be attained.

Even to 'know what one likes' is a form of knowledge. Whether knowing what one likes is veridical knowledge of objective values or not, is a matter calling for further consideration. But without prejudice to that question, it may be observed that one who knows what he likes possesses that kind of knowledge which consists in ability to predict the accrual or non-accrual, under given conditions, of value-quality in his own experience. One who knows, for example, that he likes Bach and dislikes Stravinsky, may be as great a musical ignoramus as anyone chooses to allege, but when he looks at the concert program he knows what to expect. His value-predication has a verifiable content and possesses genuinely cognitive significance. Indeed, this kind of knowledge is perhaps the most important of all; not only personally but socially. At least half of the world's avoidable troubles are created by those who do not know what they want and pur-

sue what would not satisfy them if they had it. And "we could deal with the villains if it weren't for the fools."

The enterprise of human living can prosper only if there are value-judgments which are true; judgments which predict the accrual of value-quality as a consequence of action, and which are positively verifiable by adoption of the mode of action in question. Only on this condition could any action have that kind of rightness or correctness which all sensible action aims to have; and only on this condition has any knowledge that import of usefulness for the guidance of action which constitutes the eventual significance of all attempts to know. These things being so, those who would deny the character of cognition and the possibility of truth to value-apprehensions, must find themselves, ultimately, in the position of Epimenides the Cretan who said that all Cretans are liars. Either their thesis must be false or it is not worth believing or discussing; because if it should be true, then *nothing* would be worth believing or discussing. And however much of logical ingenuity may be required for untangling paradoxes of this type, the point remains clear that whoever says what is incompatible with his own presumptive attitude in saying it must either be joking or he reduces himself to absurdity.

5. Recognition of this fact that judgments of value represent an essential and basic form of knowledge has been impeded in a number of different ways. But particularly in two; by the failure to distinguish between fundamentally different types of value-predication, and by the attempt to define the goodness of all kinds of goods so as to secure the point that nothing can be a genuine and 'objective' good which is to be attained through immoral action. In fact, the whole discussion of the validity of evaluations has often been characterized by a thorough entanglement of three matters which are, in their intrinsic nature, quite distinct: (1) the nature of ultimate or basic value; that kind of value from which the value of everything else correctly called valuable is derivative; (2) the question of the first-personality ('relativity', 'subjectivity') or the impersonality ('community', 'objectivity') of value-ascriptions; and (3) the question whether, and if so why, the possible realization of or possession of the valuable by other persons, legitimately lays claim to respect on one's own decisions of action.

The first of these is, of course, a fundamental question about evalu-

ations. The second is itself a complex matter, but the root of it lies in considerations which are merely logical or have to do with our customary modes of speech. The third is a distinctive—perhaps *the* distinctive—question of ethics. The first two will demand of us lengthy consideration. The last is a separate topic outside the province of this book; though we shall make certain comments bearing on it.

We cannot make even a good beginning in the consideration of evaluations in general until we untangle the question what basic good is and what goods are derivative, from question of the subjectivity or objectivity of value-predications. And a first step here is to observe that there are three main types of value-predication, corresponding to the three main types of empirical statements in general.

First, there is expressive statement of a value-quality found in the directly experienced. One who says at the concert, "This is good," or who makes a similar remark at table, is presumably reporting a directly experienced character of the sensuously presented as such. He might, of course, have a quite different intention; he might be meaning to assert that the selection being played has a verifiably satisfactory character best attested by those endowed with musical discrimination and having long experience and training in music; or that the food verifiably meets all dietetic standards in high degree. In that case, the immediately experienced goodness would, presumably, provide the empirical cue to his judgment, but what is *judged* would be no more than partially verified in this directly apprehended quality of the given—which itself requires no judgment. Such judged and verifiable goodness of the musical selection or the viands, is an objective property, comparable to the objective roundness of a plate, or the objective frequency of vibrations in the surrounding atmosphere.

Directly experienced goodness or badness, like seen redness or felt hardness, may become, when attended, the matter of a formulation or report which intends nothing more than this apparent quality of what appears. There are any number of questions about value-quality as thus immediate, which will have to be discussed in the next chapter. But it will hardly be denied that there is what may be called 'apparent value' or 'felt goodness', as there is seen redness or heard shrillness. And while the intent to formulate just this apparent

value-quality of what is given, without implication of anything further, encounters linguistic difficulties, surely it will not be denied that there are such immediate experiences of good and bad to be formulated. We shall probably agree also that without such direct value-apprehensions, there could be no determination of values, or of what is valuable, in any *other* sense, or any significance for value-terms at all. Without the experience of felt value and disvalue, evaluations in general would have no meaning.

Any such formulation or report of apparent value, taken by itself and divested of all further implication, is an expressive statement; self-verifying (for him who makes it) in the only sense in which it could be called verifiable, and subject to no possible error, unless merely linguistic error in the words chosen to express it. Such a statement is true or false, since we could tell lies about the quality of immediate experience; but the apprehension expressed is not a judgment, and is not to be classed as knowledge, in the sense in which we have used that word.

Second, there are evaluations which are terminating judgments; the prediction, in the circumstances as apprehended, or in other and similarly apprehensible circumstances, of the possible accrual of value-quality in experience—for example, of enjoyment or of pain—conditional upon adoption of a particular mode of action. If I taste what is before me, I shall enjoy it: if I touch this red-glowing metal, I shall feel pain. Such judgments may be put to the test by acting on them, and are then decisively and completely verified or found false. Being predictive—verifiable but not verified—and subject to possible error, they represent a form of knowledge.

Third, there is that most important and most frequent type of evaluation which is the ascription of the objective property of being valuable to an existent or possible existent; to an object, a situation, a state of affairs, or to some *kind* of such thing. Such objective judgments of value are, as we shall find, considerably more complex than objective judgments of other characters than value. There is also much diversity amongst them: "X is valuable," in this objective sense, is a form of statement covering a great variety of meanings, and subject to troublesome ambiguities by reason of the difficulty of distinguishing these. But they all possess the common character of being what we have called non-terminating judgments. They are not, at

any given time, decisively and completely verified, but always retain a significance for further possible experience and are capable of further confirmation. Like other judgments of objective fact or of any objective property, determination of their truth or falsity can never be completed, and they are, theoretically, never more than probable, though often probable in the degree called 'practically certain'. Any particular confirmation of such a judgment comes by way of finding true some terminating judgment which is a consequence of it. And while there is no limit to the number of such terminating judgments, truth of which follows from the objective judgment of value, still there is nothing contained in the meaning of it which is not expressible by some terminating judgment or other. If, beyond what is thus expressible as some possible confirmation of it, the objective value-judgment should be supposed to have a further and different component of its significance, we should be unable to say or even to think to ourselves what this further component signified, or what conceivable difference the holding or not holding of it in fact would make to anybody under any thinkable circumstances.

Typically we should think of any such confirmation of the objective value of something as realization of some value-experience in connection with it. And there is question here—the question suggested, for example, by Mill's assertion that the only proof that a thing is desirable is its being desired[2]—whether objective value-judgments are not relative *exclusively* to the possibility of direct *value*-experience.

But a very little reflection reveals that such a conception would be unguarded: one may easily find evidence that a thing is valuable otherwise than through experiences of positive value. Just as one may find evidence that a thing is round or is hard in other ways than by seeing it round or feeling it hard, so too the objective value of a thing may be confirmed 'indirectly' in other ways than by what would be called 'experiencing the value of it'.

For instance, judgment that my neighbor is a good musician may be confirmed by his rendition of difficult passages, though the selection he is presently at work on is one that leaves me cold, or even if

2 "The only proof capable of being given that a thing is visible, is that people actually see it. The only proof that a thing is audible, is that people hear it: and so of the other sources of our experience. In like manner, I apprehend, the sole evidence it is possible to produce that anything is desirable, is that people do actually desire it." *Utilitarianism,* Chap. IV, 3rd paragraph.

I find his persistent exhibition of virtuosity an interruption to my train of thought and highly irritating. Or I may find evidence that my chisel is sharp, as a good chisel ought to be, through painfully cutting myself with it. We may still feel that in determination of any objective value, value-experiences occupy a privileged or peculiarly decisive place; but if so, this sense of their peculiar importance is elusive and will require to be probed. At least the conclusion would be ill-drawn, that a belief in objective value can be confirmed *only* through direct experiences of value.

Many of the puzzles which beset us about evaluation may be resolved or materially advanced by determining in which of these three senses the predication of value which is in question is to be taken. Does the statement made concern a value immediately found in experience? Then the matter lies outside any reasonable dispute: the finding of the subject of this experience is final; and concerning it there is no mistake that he can make. Any question about it concerns its evidential character as basis for some *different* evaluation; for judgment of *further* value-experiences derivable from the same thing, or judgment of some *objective* value-property of it; or else the question concerns merely the appropriateness of the language he uses for expressing what he finds in his experience.

Or is the value-predication in question intended to assert that under certain circumstances and by a certain procedure experience of a certain value-quality would accrue? It is then a terminating judgment; predictive, and verifiable or falsifiable. But it is *decisively* verifiable or falsifiable (in whatever sense the conditions of verification should be possible) by being put to the test. If or when it should be so tested, its truth or falsity will be absolutely determined, beyond any question or debate. But prior to such verification, at any time when, for example, it functions as a judgment of the desirability or undesirability of certain ways of acting, its believability rests upon inductive evidence drawn from past experience; and our assurance of it can be, theoretically, no better than probable.

Or does the value-predication signify the objective property of value or disvalue in some kind of existent? Its meaning is then translatable into some multiplicity of terminating judgments, each by itself decisively verifiable or falsifiable, and each representing some possible confirmation of this objective judgment. Such an affirmation

of objective value will have some probability or improbability on antecedent grounds, and this probability may be indefinitely increased or diminished by the test of its confirmations; though always it will retain a further and as yet untested significance, because the number of such possible confirmations of it will not be finitely exhaustible. Also the evidence which we have or may obtain for it need not be confined to direct disclosures of value or disvalue in the thing in question, but may include other and indirect confirmations of its objective value.

6. All three of the types of value-predication mentioned above are forms of empirical statement. And any one, or all, of these could be confused with a quite different kind of statement about the valuable, which is neither a formulation of value as found nor a judgment which experience could verify or confirm. For example, the declaration that pleasure is the good; or that a thing is constituted good by being the object of an interest; or that goodness is a simple, unanalyzable quality; or that nothing is unqualifiedly good but a good will. Such are not empirical statements at all, but are analytic and knowable *a priori* or else false. They are judgments; but judgments in the same sense as "Hardness is impenetrability," "Hardness is determined by resistance to sudden impact," "Hardness is a simple, unanalyzable quality," or "Nothing is unqualifiedly hard but a hard heart." Such statements, if true at all, can be certified by some analysis of meaning; their truth is determinable by reflection, without other evidence than that of logic and of what would be formulated in definitions.

In connection with such statements it is important to remember that a proposition put forward as analytic may still be false: it is not customary to apply the designation 'analytic' to a statement unless it is true; but that does not prevent anyone from offering an incorrect definition or drawing inferences from definitions which they do not in fact warrant. Also we must bear in mind the different significances which definitive statements and those derivative from definitions may have. As pointed out in Book I, they may be 'nominal definitions'; statements about words—more clearly, about the relations of symbols, or the relation of symbols to meanings. Or they may be disguised empirical generalizations about the customary or 'good' usage of linguistic symbols. Or mere announcement of conventions in the use

of language which it is proposed to follow. Or hortations to accept one such convention, to the exclusion of other usages. Or finally, they may be explications of one intension by another and more familiar or more lucid meaning; and thus delimit the essential nature of what is named and is in question. Only if they have this last mentioned character can they contribute to the clarification of a serious matter such as the nature of value. And the intrusion of seemingly analytic forms of statement belonging to any of the other types mentioned, as if they were analyses of meanings already fixed by the nature of our interest or by the problem in question, is always subject to legitimate suspicion that it may be in some manner oblique and a betrayal of our interests in the problem. We can only explicate by the use of language; and oftentimes the language itself must be explained. And adoption of other conventions in the use of language than those which commonly obtain, may be helpful or even necessary to the business of clarification. No criticism of statements which are nominally analytic only would be in point. But when such pronouncements about language are substituted for elucidations of an antecedently fixed intension, it is important to note that fact and not be misled by this changing of the subject. With respect to serious questions, like those raised by the pronouncements mentioned above, language has to be discussed, not in order to settle them, but in order to penetrate through the merely verbal considerations which come between us and the real issues. Those who insist on 'essences' have right on their side as against those who interpret all analytic statements as nominal or merely syntactic, and would discuss such a statement as the hedonists' identification of the good in general with the pleasant as if it were a matter of linguistic import only. What we should have to say on this general topic of meaning and the analytic, has already been said. And any further issues of this sort which peculiarly concern values and the valuable, will be taken up later. Merely, we would not pass this point without remarking the sense in which analytic statements in the field of values are subject to debate, and determinably true or false; even though they are statements about meanings and not about any different kind of fact, and are open to decision by critical reflection only.

The main point which is of present importance, is that such analytic statements about the valuable are not evaluations of any kind.

A valuation, of any type, is always an empirical assertion. The supposition that 'values are *a priori*' could arise only through confusion between apprehension of a meaning itself and apprehension that this meaning has application in a particular instance. An apprehension of the *nature* of value, or of some species of value, is *a priori;* just as apprehension of the essential nature of hardness is *a priori*: but an apprehension that something, or some kind of thing, has value, is empirical, just as the apprehension that a thing is hard is empirical. And it is only apprehensions of this latter sort which are valuations.

7. It was noted in Section 5 that there seems to be a more direct relation between objective value in a thing and immediate experiences of value-quality than there is, for example, between a thing's being objectively hard and its being felt as hard, or its being objectively round and our seeing it as round. As was there pointed out, however, findings of immediate value in a thing are not the only confirmations of its objective goodness which are possible; we may confirm the goodness of an edged tool by the misadventure of cutting ourselves. Still we may be inclined to think that gratification of some desire, some enjoyment or satisfaction, the realization in direct experience of a positive value-quality, is the peculiar or the decisive kind of confirmation of objective value in a thing. And that other confirmations of it have weight only as they are *evidence of* the possibility of this decisive kind of confirmation. As we might say: It is characteristic of the goodness of good edged tools that they may lead to the mishap of cutting ourselves if handled awkwardly. But that is not what *makes them good*: if they could be so designed as to minimize or remove the possibility of such untoward results, they would be even better. What makes them good is the possibility of producing objects of use or beauty by means of them; the fact that they may be instrumental, eventually, to something directly valued by the quality with which it greets us in experience.

Judgments of objective value differ from judgments of other objective properties on this point. It would be at least doubtful to say that the hardness of a thing is peculiarly or more decisively confirmed by its being felt as hard, as against, for example, the result of testing it by dropping on it a sharp-pointed instrument having a certain weight from a certain height. Or that a thing's being seen as round

is what makes it round; and that measurement with calipers is only indirect evidence of roundness.

This difference between predications of value to objects and predications of other properties, is genuine. But we should seek in vain for any precise manner of expressing it by singling out, in the fashion suggested, a privileged or specially decisive class of its confirmations made up of those in which this objective value is corroborated by experiences of positive value, or objective disvalue by direct findings in experience of that to which we are averse. These are not, in fact, unexceptionably the best evidences of value in a thing. I derive, for example, infinite amusement from a silly cartoon, cut from a magazine, which I have under the blotter on my desk. But I have no idea that it is an object of more than trivial worth. And I know that a certain fraction of a gram of radium in a lead casket in the hospital is a thing of great value. But neither I nor anyone else is likely to experience any notable immediate satisfaction in the presence of it.

We might seek to mark this peculiarity of judgments of objective value by saying that with respect to value-terms their objective meaning is derivative from and ruled by their expressive meaning; whereas for other terms, their expressive meaning is at least likely to be subordinated to their objective meaning. For example, if I say that a thing looks round, the meaning of 'looks-round' here—the expressive signification of 'round'—would perhaps be most exactly formulated by saying that a thing looks round when it looks the way a really round object looks, under the given conditions of observation; or perhaps, that it looks as a truly round thing looks under optimum conditions for visual discrimination of shape; i.e., when held normal to the line of vision. And the most nearly decisive confirmation of the thing's being really round will not be experiences of 'looking round' or 'feeling round' but the results determined with precision instruments. But for value-predications, this relation between the expressive and the objective meanings appears to be reversed: a thing *is* valuable according as it may *appear* valuable; objective value is at bottom derivative from direct appreciation; beauty is not finally determinable apart from the delight of some beholder; and nothing is good except relative to some possible felt goodness.

But here again, we should hardly arrive at any precise delineation

of this difference between value-predications and other objective predications by following this suggestion of linguistic usage. Such usage itself is too wavering and unreliable. For one thing, it must strike us that *all* objective meanings of terms are somehow derivative from their expressive significations. In a sense which is elusive of precise statement but fairly patent, 'hard' means originally the property of *feeling* hard, and its further meaning is psychologically or historically descended from that expressive signification. And in a slightly different sense, 'round' means first and foremost what looks like this

and is also applied to what looks differently, and to what satisfies certain tests of measurement, because of correlations with this mode of appearing which we have learned. The difference is that, with respect to 'hard' and 'round' and names of other properties, we have at some point thrown overboard such tests as those of *feeling* hard and *looking* round, as comparatively unsure corroborations of the objective character which engages our interest. But with respect to goodness, the mode of feeling remains the head and front of the whole matter, and no 'more precise' test of objective value would be true to our intent. *Apparent* value in the thing—the possibility of some *experience* of value-quality in connection with it—is of the essence.

The manner in which this difference of the ascription of value to objects from predications of other properties, may be precisely delimited, is by way of the distinction between intrinsic and extrinsic value. We must, therefore, give attention to that topic first.

8. The intrinsically valuable is usually described as that which is good in itself or good for its own sake; the extrinsically valuable, as that which has value as instrumental to something else. It is usually understood that, in particular instances, a thing may have value in both of these senses; but that nevertheless the intrinsic value of it and its extrinsic value remain distinct.

Ascription of extrinsic value is, plainly, relative. Or if all value-attribution is relational, then predication of extrinsic value is relative in an additional and special sense; in such predication there is refer-

ence, implicit or explicit, to something else to which the thing in question is, or could be, instrumental.

In common usage, however, the ascriptions 'intrinsic value' and 'extrinsic value' are, both of them, subject to ambiguities which we must guard against. With respect to the designation 'extrinsic value', there is the question whether if *A* is instrumental or useful for *B*, *A* is to be classed as having extrinsic value by reference to that fact alone; or whether it is further essential that *B*, or something else to which *B* in turn is instrumental, must have intrinsic value. And with respect to the designation 'intrinsic value', there is a less obvious and more difficult ambiguity hidden in the phrase 'good in itself'. There is the question whether a property of goodness which belongs to an object without reference to any instrumental relation of it to other *objects*, marks it as intrinsically good or good in itself; or whether it is further requisite that what is intrinsically good must be valuable *for its own sake*. It might be that no *object* is good for its own sake, but that all objects have value or disvalue only by their relation to subjects, or to possible experience. That at least is an issue which has to be considered; and it should not be prejudiced in advance by terminology adopted.

Let us turn first to the question concerning 'extrinsic value'. Most frequently it is taken to be essential to the truth of any predication of extrinsic value that the something else, to which the thing in question is instrumental, should have intrinsic value; or at least be in turn instrumental to some still further thing having intrinsic worth. *A*, which is said to have extrinsic value, may be instrumental to *B*, and *B* to *C*, and so on for any number of steps; but intrinsic worth in something, *Z*, to which *A* is directly or indirectly instrumental, is commonly implied. Sometimes, however, this is not the intention: there are two other recurrent types of case likely to be classed as predications of extrinsic value.

Quite frequently, *A* is judged valuable by its relation to *B* where no attribution of value to *B*, whether intrinsic or extrinsic, is intended. One says, "*A* is good for *B*," not implying any decision as to whether *B* has worth or not. *A* is good for *B*—if anybody gets satisfaction from or finds a use for *B*. But whether this latter is the case or not, such judgment is not intended to assert. Again; extrinsic value may be ascribed to *A*, relative to *B*, with the implication

that B (or some eventual Z to which B is in turn instrumental) is *sometimes thought* to have intrinsic worth, but without implying that such attribution of intrinsic worth to B (or to Z) is in fact justified. One says, for example, that basswood is good for making burnt-wood bric-a-brac, implying that some people set store on such *objets d'art* but not that they genuinely have intrinsic worth.

Thus any predication likely to be classed as an attribution of extrinsic value to a thing, A, expresses judgment that A is instrumental to or useful for something else, B; but for the rest, such predication may have any one of three meanings: (1) it may be implied that B (or some eventual Z to which B in turn is instrumental) has intrinsic worth; (2) it may be implied that B (or some eventual Z) is sometimes *judged* to have intrinsic value—whether correctly or incorrectly; (3) there may be no implication that B (or any eventual Z) either has or is thought to have intrinsic value.

Most frequently, any ambiguity of this sort could be resolved by reference to the context; and quite often it would in any case be unimportant. But in some instances—and some with which we have to deal—the failure to mark these distinctions could lead to confusions which would be disastrous. However, although all three of these classifications are needed, or others covering the same ground, in order to include the usages of 'good' and other 'value-predications' found in common speech, it is only affirmations having the first of the above three meanings which should be classed as judgments of extrinsic value. Statements having either of the other two meanings mentioned, leave it possible that the thing in question has no genuine worth of any kind. This will be obvious: to say that A is good for B, without implication of value in B, or with implication only that value is sometimes ascribed to B but no decision as to whether such ascriptions are veridical, is to leave undetermined the decisive question of any real value to which A may lead. The machine that produces the thread that forms the canvas that bears the paint that constitutes the pattern pleasing to the eye, has by that train of actual or possible circumstance that much of genuine value in the sense of extrinsic value. And it does not matter how long our house-that-Jack-built story is, provided we can arrive at last at a value which is intrinsic; the first-mentioned thing is thereby shown to be objectively valuable. But if the thread made by the machine should

be such that the paint put on the canvas would peel off promptly and fail to retain any pleasing pattern applied to it, then—unless there should be some other story with the same beginning and a happy ending—the thing first mentioned is not shown to have a value of any sort.

We may, therefore, say that *A* is *instrumental to B,* or *useful for* the production of *B,* without reference to the question of genuine value in *B*; but we shall say that *A* has *extrinsic value,* or instrumental *value,* only if *B* (or some eventual *Z* to which it may lead) has intrinsic value. However, it will be of some importance to remember that there are common modes of speech, sometimes improperly classed as value-predications, which do not in fact imply either intrinsic value or genuine extrinsic value in the thing which is subject to these predications. Particularly, we should note that ascription of *utility* sometimes implies no genuine value in a thing spoken of as useful; and it would be inconvenient if we had no way of referring to this property in a thing *A* of being useful for the production of *B,* without reference to the question of intrinsic value in *B* or in anything to which *A* may lead. We shall, therefore, adopt the following conventions in these pages. A thing *A* will never be said to have extrinsic value or instrumental value, unless it is meant to imply that there is some other thing, *B,* to which it is or may be instrumental, which has intrinsic value.[3] But we shall say that *A* is useful *for* or *instrumental to B,* or merely that *A* is useful or has *utility,* without implying any certainty that *B* or anthing else to which *A* may lead has intrinsic value. Utility is, thus, the broader category, and a thing may have utility without possessing any genuine value; but any extrinsic value or instrumental value in a thing is a utility of it.

We must also give attention to the second ambiguity which has been mentioned—that which affects the phrase 'good in itself' and hence the designation 'intrinsic value'. We have suggested—and intend to abide by—distinction between intrinsic and extrinsic values by reference to the question, "Is that which is valued, valued *for its own sake* or for the sake of something else?" But although this would most frequently be accepted as a satisfactory statement of the cri-

[3] We shall shortly distinguish instrumental value as one specific kind of extrinsic value.

terion of intrinsic value, the application of it is often made in ways which, as we should think, are unjustified. Because frequently this principle of division is entangled with another; the distinction, namely, between values said to be 'in the thing itself' and those which are said to be 'in somthing else'. But what is called an intrinsic value because it is a value 'in the thing itself' does not coincide with what is intrinsically valuable in the sense of being valuable for its own sake. Nor does what is called extrinsically valuable because the value in question is 'in something else' coincide with the class of things which have a value for the sake of something else.

These phrases, 'in itself' and 'in something else', are obviously ambiguous. First, let us mention one possible meaning of them which is *not* pertinent in the present connection, though it is a distinction much discussed in value-theory. Locke called those qualities which are in the object as in our perception of it, primary qualities. And those qualities which, on his view, are not in the object itself though they are commonly thought to be, he called secondary. He also spoke of a third class of perceived qualities which neither are in the object nor are thought to be in it, like the pain we may experience from an object which burns. He did not give a name to this third class; but nowadays they are often called tertiary qualities; and value-properties of objects are sometimes classed as such tertiary qualities. However, we mention this distinction only in order to eliminate it from the present discussion: nobody has classed values as intrinsic on the ground of their being primary qualities of the objects to which they are attributed, or as extrinsic on the ground of their being secondary or tertiary. That sense of being 'in the thing itself' or 'in something else' is not here in question.

Just what the distinction is between values called intrinsic because 'in the thing itself' and those called extrinsic because 'in something else', is not at once apparent. Upon examination, however, we find that the division intended is that which lies between *values which are realized, or realizable, in experience through presentation of the thing to which they are attributed, and values which are realized through presentation of something else.* The work of art, for example, has value 'in itself' in this sense that the ascribed value is one realized in the presence of this object. And the useful tool has a value which is 'in something else' in the sense that it is valuable only

by its instrumental relation to other objects in the presence of which a value-quality may be realized in direct experience.

This distinction is important; and it probably represents the one which most often prevails in the classification of things as intrinsically valuable or extrinsically valuable. Nevertheless it does not coincide with the distinction between what is valuable for its own sake and what is valuable for the sake of something else. And it is this last-mentioned principle of division by reference to which we shall here distinguish intrinsic values from those which are extrinsic. (The other distinction mentioned above, we shall discuss shortly.)

In this sense of 'intrinsic value' as the value of that which is valued for its own sake, *no objective existent has strictly intrinsic value; all values in objects are extrinsic only.* This is so because the end, by relation to which alone anything is ultimately to be judged genuinely valuable, is some possible realization of goodness in direct experience. *The goodness of good objects consists in the possibility of their leading to some realization of directly experienced goodness.* What could by no possibility ever be an instrument for bringing any satisfaction to anybody, is absolutely without value, or the value of it is negative.

Hardly anyone would deny this. And for any who should, it is hard to know in what manner one might persuade them of error. Because this statement is, if true, analytic of an intended meaning. One can only suppose that if those who would deny it still intend the same character as the rest of us by 'good' or 'valuable', then they somehow fail to elicit that criterion of the valuable which actually they observe in practice. (Perhaps because they remark—quite justly—that immediate satisfaction found in presentation of a thing is no proof of its objective goodness. But that is really a different matter; and one to which we must later give consideration.)

At least we ought all of us to be able to agree that, except for the possibility of its leading to some *experience* of goodness, no object can represent the final aim of any sensible action. No sensible act has its terminus in the production of good *objects* merely, but in some consequent realization of goodness in experience. If it be the case that in no conceivable way could anyone ever find satisfaction through the existence of an object in question, then the ascription of value to that object must be either meaningless or false. This rela-

tion to possible experiences of positive value-quality is what makes good objects good; it is constitutive of that kind of goodness which can belong to objects. And by the same token, the value ascribable to objects is, strictly, always for the sake of something else and not intrinsic.

9. We are now in position to return to the previous topic of the difference between ascriptions of *value* to objects and predications of other objective properties than value. Because it is by reference to the fact that relation to some possible realization of goodness in experience is *constitutive* of any genuine value which is to be found in objects, that explanation of this difference is to be found.

If an object is 'really round', we should, indeed, suppose it capable of being seen as round and felt as round, under certain conditions; we should suppose it could be experienced with that quality which represents the expressive meaning of 'round'. But we should hardly say that the genuineness of this possibility is what makes it round: we should be more likely to locate the criterion of objective roundness in some measurement with precision instruments, and repudiate as not really round what should look round but not satisfy these more precise tests. Similarly, we should expect that what is objectively hard will feel hard under normal conditions. But it is not this relation to experienced hardness which constitutes the objective property ascribed. Especially this would be clear if it is hardness in a specific degree which is predicated. In like manner, the possibility of presenting the quality of apparent redness—'red' in its expressive meaning—would be attributed to any really red thing. But again, we should hesitate to define objective color in terms of this relationship, and should prefer other tests as more nearly decisive of the objective property intended.

In the case of value, however, it is such relation to possible experience of positive value-quality which constitutes the objective property meant by calling a thing good or valuable. This relation to what 'good' signifies in the *expressive* sense, is of the essence of that kind of goodness which objective *existents* can have. They are valued for the sake of such possibilities of experience, and that relationship is what makes them good.

The point here is not that the goodness of a good object is dependent upon this goodness of it being experienced, or even upon the

object's being experienced. Both of those theses we would emphatically deny. If there be some "gem of purest ray serene which dark unfathomed caves of ocean bear," still it may be as truly beautiful as any which human eyes will ever behold. The point is that the *criterion* of that beauty is a delight with which it *would be* beheld if it ever *should* be beheld under conditions favorable to realization in full of the potentialities for such delight which are resident in this thing. The goodness of a good *object* is a potentiality for the realization of goodness in experience. But this goodness resident in the object as a potentiality for producing experience of a certain quality, is no more dependent upon the *actual* appreciation of it in some experience than the objective roundness of a round thing is dependent on its actually being measured with calipers.

Specifically the point is that whereas objective roundness is not appropriately defined by relation to the object's being seen as round, nor objective hardness by relation to the object's being felt as hard, objective goodness *is* to be defined by relation to goodness disclosed in experience. It is not to be defined by relation to this object's being itself experienced with immediate satisfaction, because the kind of goodness many objects have is a goodness for production of other good things. But relation between the objective character of a thing and the possibility of some experience of satisfaction—one found in the presence of this object itself or in the presence of some other to which it leads—is definitive of and constitutive of the kind of goodness objects have. While objective roundness is not correctly understood in terms of 'roundness' in its expressive meaning, and the experience of hardness would not be a ruling test of objective hardness, objective goodness *is* to be understood in terms of what 'good' means in its expressive sense, and the ruling test of goodness in an object is some goodness findable in experience.

The accurate manner in which this peculiarity of objective goodness, as compared with roundness, hardness, and other properties of objects, can be explicated, is by saying that objective value in a thing is for the sake of some possible goodness in experience: that is, in the usage of 'intrinsic' and 'extrinsic' here adopted, by saying that *values ascribable to objects are always extrinsic values;* intrinsic value attaching exclusively to realizations of some possible value-quality in experience itself.

10. However, although it would be agreed—with some measure of generality at least—that the only *ultimately* good thing is such realization of positive value-quality in experience, we all of us persistently speak of objects of certain kinds as good in themselves. We say, for example, that the beauty of an art-object is intrinsic to that object; even though we should be prepared to admit that if the object be such that by no possibility could any human who should experience it find satisfaction in it or by means of it, then this ascription of value to it would be either meaningless or false.

What accounts for this frequent mode of speech may well be that, in such cases, we are thinking exclusively of *objective* goodness. And amongst objects, some are good only because they lead to others; but some are good in a manner which does not depend upon their being instrumental to any other *object*. As has been pointed out, those of this latter class present a goodness found in the presence of that object to which it is attributed, and hence not depending on relation to any other *object*, though it does depend on a relation, or at least possible relation, of this object to some *subject*. Consonantly, when we speak of an object as useful or as having utility, or having extrinsic value, it is by reason of a relation of the object in question to some other object; if on occasion the beauty of a thing or its pleasantness is called a utility of it, at least that manner of speech is uncharacteristic.

If any should insist on repudiating our usage here of 'intrinsic value' and 'extrinsic value', and reserving those terms for this distinction between that goodness of objects which may be realized in the presence of them and that goodness which is realized in experience only in the presence of something else, to which the object in question is instrumental, we should of course have no ground of quarrel with that choice of terminology. Indeed, it is perhaps so well intrenched in customary usage that it should be respected; and we would better have chosen some other set of terms for that different distinction, which it is even more important to make, between what is valued for its own sake and what is valued for the sake of something further. That kind of question is hardly worthy of debate. What we find it essential to point out here is that although the beauty of an art-object, for example, does not depend on relation to any other object, still this value does depend on relation to possible experience of sub-

jects. What is *ultimately* desirable is not merely that this object and this property of it called its beauty should exist, but that this beauty of it should illuminate the experience of some beholder. And unless we remark this distinction between what represents our ultimate aim and that which is aimed at for the sake of it, we could not arrive at any clarity whatever concerning value-predications and the authentic facts which they intend to express. In particular, as has been pointed out, the distinction is essential in order to explain the difference between predications of value in general and predication to objects of other qualities than value; the difference which is evidenced by the fact that, for value-terms, their expressive meaning seems to rule the objective use of them, whereas for names of other properties, the expressive usage of them seems to be, on the whole, derivative from their objective meaning.

Furthermore, we do not overlook the other important distinction mentioned, which holds within the field of values in objects exclusively, between those objects which are good only by relation to others and those which are good without reference to any further object. Those values which are resident in objects in such wise that they are realizable in experience through presentation of the object itself to which they are attributed, we propose to call *inherent values*. And those values of things which consist in an instrumentality to some *other object,* in presentation of which a value is directly realizable in experience, we propose to call *instrumental values*.

This usage of the term 'inherent' is meant to suggest that the value in question is one which is found or findable in the object itself to which the value is attributed, in the sense of being one which is disclosed or disclosable by observation of this object itself and not by examining some other object. But this must be distinguished from another meaning which 'inherent' sometimes has, which it is *not* meant here to suggest; that meaning, namely, in which a quality is said to be inherent in a thing if and only if it is an essential character signified by the name by which the object in question is named. In this last sense—not here intended—the hardness and specific gravity of an emerald would be inherent properties, but the beauty of a particular emerald would not, since a stone may be correctly classifiable as emerald without being beautiful. In the sense we here adopt, the beauty of an emerald—or of anything else—would be an inherent

value of that particular object, since it is a quality of it which is disclosed or disclosable in the presentation of the object in question, and not by observation of some other thing to which the object in question may be instrumental.

11. To sum up, then, as regards terminology: the dichotomy 'intrinsic or extrinsic' is here restricted to signifying the distinction between what is valuable for its own sake and that which is valuable for the sake of something else. And since the ultimate aim of every sensible action is some realization of positive value-quality in experience, it is only the content of some actual or possible experience, as such, which will be called intrinsically good or valuable. The value of good *objects* and of objective properties of them, is here classed as extrinsic value, always.[4]

Values which are extrinsic—which includes all values resident in objects—we subdivide into those which are to be found in experience of that object itself to which the value is attributed, and are here called inherent values, and those which are realizable in the experience of something else to which the object in question may be instrumental, which are here called instrumental values.

Further, as has been noted, it is fairly common practice to speak of things as good *for,* or as having utility, if they are or may be instrumental to something further, and regardless of the question whether what they are thus good for is itself genuinely good or not. We shall here never intend to ascribe a value of any sort, or to speak of a value-predication, except where what is spoken of is good at least in the sense of being instrumental to something inherently valuable. However, it is convenient to have some way of referring to this instrumental character of a thing without reference to the further question of genuine value in that to which it may lead, and we shall, accordingly, use the term *'utility'* in this wide sense which implies no decision as to whether what the thing in question is instrumental to is genuinely valuable or not. Thus any instrumental value of an object is a utility of it, but not all utilities of objects are instrumental values of them.

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[4] A property of a thing is called *objective* if it is genuinely a property of that object, and not apparent only, or merely relative to incidental relation to a subject; as the redness of a 'really red' object is an objective property, but the redness of one which merely 'looks red' to a particular person or under special conditions, is not objective.

It should also be remarked that we have not as yet raised the question whether there are other kinds of entities than objects which may have extrinsic value. That question will later become pertinent; and we reserve the right to extend this term of 'extrinsic value' to other things than objects, if that should seem appropriate.[5]

12. There are many other questions concerning value in things which have been omitted here and must later be taken up in some detail As has been mentioned, the modes of value-predication are more various and complex than are the modes in which other properties are predicated to things; and objective value-predications are peculiarly liable to ambiguity on that account. We attempt here only to indicate the generic significance of "*X* has value," and the major and proximate subdivisions subordinate to that generic meaning. However, it may be best to mention briefly certain points which will have occurred to the reader already, in order to avoid misunderstanding of what has been said.

The word 'value' is here used exclusively in the sense of a value-quality, value-character or value-property of something, or of a *kind* of value-quality, character or property. And we use the plural 'values' in the same idiom in which 'utilities' or 'economic values' would commonly be used; that is, to refer not only to kinds of value but also to instances of value in things. As will appear from the whole discussion, the question whether values exist or subsist, apart from any entity which they characterize, is one which is completely empty, when questions which are essentially verbal have been cleared away.

We have been at no great pains to avoid the common ambiguity of 'value' and 'value-predication' as between (1) what has to do with positive value only, and (2) what has to do with value or disvalue, either one. This is so frequent a usage that it hardly needs special comment. Evaluations of course include ascriptions of negative as well as of positive value; and if one speaks of positive value only, the corresponding statement concerning disvalue or the disvaluable will usually go without saying.

It is a slightly more troublesome point that in predicating value to an existent, one often intends to weigh together *all* its potentialities for good and ill both, and strike a balance. But if this is the more frequent usage, still we cannot overlook the numerous modes of

[5] This matter will be discussed in Chapters XV and XVI.

speech in which value-predications are relative, or restricted to a particular context, and predications of utility refer only to a particular use or a specific kind of utility. In calling a thing a good rifle, for example, one does not mean to decide the question whether rifles in general, or this rifle in particular, possesses greater potentialities for realized good or for ill. One speaks of it in relation only to a specific class of purposes, connoted by the name 'rifle' by which the object is called. Perhaps predication in this case, falls in the class of judgments of putative use. But even if we confine ourselves strictly to predications of genuine extrinsic value, we should still find that the varieties and complexities of such value-ascriptions exceed what might at first appear. Examination of these, however, is postponed.

It is another and more obvious ambiguity of value-predications that sometimes they intend ascription to a thing of first-personal value; though more often they intend to ascribe value from the point of view of all who may be affected by existence of the thing in question. And here it is important to separate matters which are mainly linguistic and concern merely the characteristic intent with which statements in a certain mode are made, from any further question of ethical right or of any other kind of validity. It is a question of the most serious importance whether value, in a sense which carries an ethically valid imperative for action, may be ascribed from the first-personal point of view, or whether only that which conduces to the good of others also, or to the good of the greatest number, is validly good in the ethical sense. But that is a quite separate matter from the question what a statement attributing a value means to assert. There is no implication of ethical egoism in recognizing that sometimes people say "This is good" meaning no more than what could also be expressed by "I like it" or "I enjoy it." Nor is there acknowledgment of a moral obligation to consider others equally with oneself in recognizing that ordinarily ascriptions of value to things are dominated by our social sense. Up to this point at least, we have said nothing which bears upon that fundamental question of ethics, one way or the other.

Nor have we meant to touch upon the question of the 'subjectivity' of values, or their 'relativity' to individuals, beyond what is implied in saying that value in an existent consists in its potentialities for the realization of directly findable value-qualities in experience. If one

suppose that statement to constitute a theory of value which is relativistic or subjectivistic, then it will be important to recognize the sense in which it *does* imply a relativity to persons of the quality ascribed by "This existent thing is good," where what is ascribed by the statement, "This existent thing is round" does *not* imply such relativity; and to separate *this* kind of relativity which is here affirmed from a different sense of relativity, with respect to which—as we conceive it—"This is good" and "This is round" are entirely comparable.

Between "This object is good" and "This object is round," there is that difference which follows from the fact that values are either intrinsic or extrinsic, and values in objects are extrinsic only; whereas this distinction has no application to roundness or other non-value properties. We may anticipate later discussion by saying that the final end by reference to which all values are to be appraised, is the end of some possible good life: that the goodness ascribable to objects is, therefore, some possible contribution of them to a life which would be found good in the living of it. And this implies that values in objects are extrinsic only. But we may also admit in advance that we take this conception of final good to be one which will be universally accepted if the intention of it is understood; and if there be those who find it unacceptable, then we can hardly hope that there will be anything in this later discussion which will convince them of error.

As has been pointed out, this fact that values in objects, and values ascribable to objective properties of them, are extrinsic only, is correlative with a certain dependence of "This presented object is good," in the objective sense of the word 'good', upon the truth of "This is good"—or "*would be* found immediately good under certain circumstances"—in the expressive sense of 'good'. But for the rest, it implies no peculiar relativity of value-predications which would not characterize predications of properties in general to objects. Demonstrable truth of all such predications is eventually relative to their possible verification or confirmation in experience: they are meaningful only if they may be confirmed or disconfirmed, and true only if such test of them would have a positive result. But this does *not* imply that what is valuable is dependent on being actually experienced as valuable, or in fact upon its being actually experienced at all. If there be those who find this conception subjectivistic or relativistic,

then at least this issue does not concern anything peculiarly at stake in the conception of values. Just because we draw a line between value or good in the expressive sense of what is immediately *found* good or valuable, and the potentiality of objects for inducing this quality in experience, value in objects, as here interpreted, is as much and as little subjective or relative as is redness or roundness or any other non-value property. This potentiality for experienced goodness which may reside in a thing does not depend on the question whether any particular person *does* find the thing good, any more than the roundness of a round object depends on the question whether a particular subject 'sees it round' or actually finds it round as a result of a measurement with calipers. The thing "is what it is regardless of what anybody thinks or feels about it," as truly in the case of value as in the case of any other objective character. It is for this reason that evaluations represent a form of knowledge, and are liable to error. We *judge* such potentialities of things for contributing to a good life, and sometimes we misjudge them; and this kind of mistake is the most grievous of all possible errors, because of the peculiarly direct connection between value-judgments and our sensibly taken actions and our personal fortunes or misfortunes.

Finally, we may point out that if there be those who set store by the distinction of 'objective' from 'subjective' or 'relative' in the field of ethics; that is, as applied to subjects, and their motives, acts, and so on; then it should be noticed that the sense in which we have so far used the word 'objective' can hardly be prejudicial to this quite different application and connotation of it in which they are thus interested. Because we have not so far said anything about such moral attributes of persons and their acts, but have been concerned with immediate experience and with objects. These further ethical questions are of supreme importance; but we would not rush forward to discuss all issues at once and by so doing perhaps confuse them with one another.

Chapter XIII

The Immediately Valuable

1. The conception outlined in the preceding chapter implies that there is one single kind of desideratum which is the ultimate concern in all valuations; since it takes all valuings to be either direct apprehensions of value-quality in the empirically presented, or predictions of such findings as possible, or judgments of a thing in question as capable of conducing to such realization of value-quality in experience. Prizings and disprizings of the presently given content of experience, are formulatable in expressive statements, the reference of which terminates in the immediate and phenomenal. With respect to these, the subject whose experience is in question can make no mistake, unless a verbal one in the manner of expressing what he finds. By the same token, such value-apprehensions of the given are not judgments and are not items of knowledge, though expression of them is true or false (since false report is possible). Valuations other than those which thus refer to a quality of the presently given, are value-judgments; and are either of the terminating sort which predict some value-quality as findable under certain conditions, or they are ascriptions to some actuality, or to some conceived entity, or to some *kind* of entity, of a potentiality for contributing a value-quality to experience. Thus the conception is that the only thing intrinsically valuable—valuable for its own sake—is a goodness immediately found or findable and unmistakable when disclosed: all values of any other sort, including all values attributable to objects, are extrinsic, and valued for the sake of their possible contribution to such realizations of the immediately good.

In its major intent, this conception is one which has often enough been put forward. Hedonism in general represents one expression of this type of view; since pleasure is a kind of good which is immediate, and concerning which finding or not finding is conclusive. This

is presumably what Mill intended to point out in asserting that the sole evidence of desirability in a thing, is its being actually desired. But the fundamental thesis in point is by no means limited to those who are willing to identify immediate goodness in general with pleasure. All those who would define value in a way which brings it home in the end to a quality directly disclosed or disclosable in experience, and a quality which *when* disclosed is unmistakable, represent the same generic type of conception which is here put forward.

What we would particularly point out, however, is the importance, for any view of this type, of remarking the distinction between value-determination as addressed to that which by being immediate is unmistakable, and evaluation addressed to existents and the objective properties of them, with respect to which there is always possibility of error. Because when it is objects or situations or states of affairs that are in question, it is possible to desire what is *not* in its real nature desirable; to have an interest which is mistaken; to believe that a thing will conduce to satisfaction when in fact it will lead to pain. And it is only by attention to this distinction between what is valuable in the sense of directly *prized,* and what is valuable by contributing to realization of this intrinsically valuable quality—what is valuable in the sense in which value is to be judged or *appraised*—that a view of the type in question can distinguish itself from others with which it will not wish to be confused.[1]

2. Every such view might be called a naturalistic or humanistic conception of values; since it holds that the natural bent of the natural man stands in no need of correction in order validly to be the touchstone of *intrinsic* value. It repudiates the conception that with respect to intrinsic values we are natively incompetent, or born in sin, and can discern them justly only by some insight thaumaturgically acquired, or through some intimation of a proper vocation of man which runs athwart his natural bent. But in repudiating such redemptionist norms of the intrinsically valuable, such a naturalistic view does not wish to fall into the arms of a Protagorean relativism. It does not intend to put evaluations which the fool makes in his folly on a par with those of the sage in his wisdom. Rather it would recog-

[1] These terms 'prized' and 'appraised' are, of course, borrowed from Dewey (see *Theory of Valuation;* Internat. Encyc. of Unified Science, vol. II, no. 4) though they are not here used in exactly the sense Dewey gives to them.

nize that while the natural man does not need any change of heart or any more than natural insight in order to make just evaluations, still he does stand in need of all that can be learned from the experience of life in this natural world. Nor does such a naturalistic view wish to be confused with that neopositivism which, in the realm of values, is cynical or nihilistic, and denies all truth or falsity to valuations, classing them as expressions of feeling or emotion merely, and hence as having no criterion of determinable truth or falsity. In repudiating transcendental norms which would impose themselves as imperatives which must overrule our natural desires, it still does not mean to repudiate the normative significance for action which is implicit in all valuation, and is the reason for our interest in making correct judgments of value as against those which, upon trial, would prove to be mistaken. It intends to recognize a truth or falsity of valuations which is independent of our supposition or our wish, and which, like truth in general, has its imperative significance for belief and for sensibly taken action.

However, we shall not find any middle ground between transcendentalism on the one hand and Protagorean relativism on the other, unless we find a sense in which valuations—or *some* valuations—are judgments; are determinably true or false by reference to the natural consequences of acting in accordance with them; unless some value-predications are assertions which are confirmable but are not beyond the possibility of error when made; unless some things of which value is predicated have this predicated character in a manner not determined by immediate liking or desire or interest, but determined independently of what one may think or feel about them. And similarly, we can find no middle ground between the admission of norms in the sense of transcendental imperatives,[2] having extra-natural sanction, and that cynical repudiation of normative significances of every kind, unless we recognize that some value-statements affirm a kind of truth which experience may confirm, and which stands in need of such corroboration.

In order to be distinguished from transcendentalism, from Protagorean subjectivism, and from nihilism, all three, it is essential for

[2] The reference here is not to that ethical imperative which demands respect for others, but to an imperative which should find no adequate sanction by relation to the actual interests of anybody.

a naturalistic conception of values to hold that some valuations have the significance of empirical cognition. But also it is essential for a naturalistic view to maintain that the quality or character by reference to which, ultimately, all things are to be judged valuable or disvaluable, is a quality unmistakably identifiable in the direct apprehension of it when disclosed in experience. It must hold that such immediately apprehensible value-quality or value-character constitutes the criterion by reference to which, eventually, those value-predications which are subject to possible error and need confirmation are to be attested. Thus such a naturalistic view can hardly attain to clarity and cogency unless the distinction be remarked between value-predications which are merely expressive statements of a value-quality immediately discovered, and those which attribute to some existent the objective property of conducing to such realization of the immediately valuable.

It is amongst predications of objective value to things—evaluations which are judgments and have the sense of appraisal—that the most important and difficult problems of valuation are encountered. Nevertheless it is plain that the nature of value as immediate and prized, constitutes an anterior problem, with which it is appropriate to begin.

3. With respect to value as immediate, there are two kinds of questions. There is first the question of identifying it or locating it, and of expressing it appropriately; of determining what sort of entity it is. And second there are questions concerning the precise import of any statement of the general form "*X* has value," where 'value' is to be taken in this sense of value immediately found.

The problem of characterizing the immediately good is a baffling one; an irritating one even; because, in the first place, everybody knows what it is; and if anyone should not, we could hardly tell him. We here arrive at a point where we realize that between words and what they signify there is a gap; and more words will not build a bridge across it. So we are likely to say that such a quality as immediate goodness is ineffable; or that it is a simple quality, like the redness of a red rose, and being unanalyzable, is indefinable. It has no parts or distinct ingredients, by reference to which and their relations we can convey what is intended. And it stands in no invariant context and has no stable correlations, by reference to which we might locate it map-wise through its external relationships.

And second, men so speak of the intrinsically good which experience may disclose as sometimes to arouse suspicion that they are not talking about the same thing. For some say that it is pleasure, but others that the life aimed at pleasure is "as little dogs biting one another, and as little children laughing and then straightway weeping." And some say that activity that befits a man represents this character of the intrinsically good; but some say the serenity of withdrawal, and some, a blessedness which the natural man cannot know. And some say that it lies in the satisfaction of interests; but some that it is found in Nirvana where all interests fade away.

But if those who thus differ about the intrinsically good were not all the while intending the same thing, then there would be no controversy; and instead of confronting here a final question about the most important thing in life, we should only be wandering in a maze of verbal confusions. If we have no patience to penetrate through such veils of language to what is meant, then we might remind ourselves of what Plato said about misologists, attributing it to the father of western ethics in his last and most serious talk to his friends.[3] There is no acceptable alternative: we must make attempt upon this troublesome problem.

4. Immediate or directly findable value is not so much one quality as a dimensionlike mode which is pervasive of all experience. There is not one goodness and one badness to be found in living but uncountably many variants of good and bad, each like every other most notably in being a basis for choosing and preferring. Value or disvalue is not like the pitch of middle C or the seen color of median red or the felt hardness of steel. It is not one specific quale of experience but a gamut of such; more like color in general or pitch or hardness in general. It is like seen bigness or apparent littleness of things. Or more closely; immediate value is related to the quality-complexes of presentations exhibiting it, as seen bigness would be related to visual patterns exhibiting size if the world were so constituted that from description of the *other* aspects of any such pattern we could conclude, with fair safety, as to its apparent bigness. It seems hardly accurate to speak of value-disvalue as a dimension of experience: a dimension should be a respect in which things can vary independently of other and similarly dimensional characteristics. Whereas

[3] *Phaedo,* Step. 89.

if the content of experience can sometimes vary with respect to value while remaining invariant in other respects, at least this is untypical: more nearly we could say; "Describe the given content adequately in *other* respects than value, and we can make shift to evaluate it from that description."

Also value-disvalue fails to be strictly a dimension of presentation by as much as there can be doubt that the value characterizing our presented content can always be compared with that of any other and decisively found greater or less or equal. On this point values disclosed are like seen bignesses, in that comparison of two sizes may be a trouble because one is the bigness of a triangle and the other of a circle. One could, of course, cut the Gordian knot by the convention that, since we here deal with what is apparent only, that which is not found of greater value or of less is to be taken as equal. But such a conventional determination of 'equal value' should be suspect: equality so determined might not prove to be a transitive relation. The locus represented by it in the order of our immediate valuings might be less like a point on a line than like a stretch within which discrimination fails. In fact, we observe here one of those difficulties frequently confronting the descriptive psychologist, and sometimes inducing him to discard the phenomenal altogether, because of the difficulty of 'being scientific' about it: that is, the difficulty of embracing it in categories drawn from mathematics and physics.

There could also be doubt that value-disvalue is a quite universal aspect of presentation: it would appear that the given content of experience is sometimes a matter of indifference. And again, this 'zero' of immediate value is subject to the same kind of doubt as is the 'equality' determined by the absence of preference. This 'zero' might not prove invariant in different comparisons.

However, these failures of immediate values to fall into a decisively one-dimensional array should not be a matter of disappointment if we do not approach the subject with the presumption that accuracy and clarity imply measurement. There are excellent reasons—which will appear later, and are more decisive than those mentioned here—why any 'calculus of values' must be foreign to the facts and quite impossible. And to be pseudo-scientific at the cost of dubiety in the very foundations of construction, would be nowhere more out of place than here. If there is any topic concerning which no one of us is

better informed than another, this should be it. There are none who are anaesthetic to good and bad in general, or inattentive to this character of things. Concerning the directly valued and valuable, only such errors are to be expected as are due to failures of reflection; and we should do well if, within reason, we concede the doubtfulness of what is doubted.

Perhaps we shall do best here to avoid terms like 'dimension' having mathematical and physical connotations, and say that value-disvalue is a general *mode* of presentation; that it is subject to degree in the sense that for any specific modality—the value-characteristic of a given content—there will be other such modalities related to it as better or worse. But that it cannot be presumed that any two modalities will be comparable with a decisive result; or that non-preference establishes a relation of 'equivalence' that is transitive. However, it is perhaps worth remarking that there would be poor ground in this for thinking that the value-disvalue mode of experience is more amorphous than other modes or aspects. Rather we here confront a *general* difficulty which besets any attempt to formulate the phenomenal as such. Most neat categorizing of the empirically presented is subject to suspicion of being in some measure the product of ingenious conventions and convenient ignorings of what spills over the edges of the verbal containers. And in particular, the passage from the phenomenal or given to the objective, is quite universally accomplished only by the conventional dictum of indiscernible differences. Without that, no general property of things, as directly experienced, will exhibit the order requisite to precise dimensionality.

We here deal with a mode of the phenomenal as such. And we are the less dependent for accuracy upon any conventions of determination in that what we are concerned with is universally familiar and universally regarded. Value-disvalue is that mode or aspect of the given or the contemplated to which desire and aversion are addressed; and it is that by apprehension of which the inclination to action is normally elicited.

5. Any name for the character of being immediately valuable suffers from the difficulty which has been noted: we can only explain one such name by others; and unless those to whom we would express ourselves identify what is intended by *some* name we can use, there will be no manner at all in which our intention can be made precisely

clear. We may attempt to locate what is meant by reference to particular occasions which present it; but then we encounter two other difficulties: first, that since what is here meant is no single and unique quale, but a general character, no single occasion will constitute such an instance as will delimit it; and second, that presence to us of the same object or situation is never a wholly reliable index to community, as between different persons, in what is directly apprehended or apparent. And further, we suppose that idiosyncrasy in value-apprehension is even more frequent than idiosyncrasy in the apprehension of most other characters which things present.

We can only rely upon the improbability that what is so generally exhibited in the experience of everyone, and is so universally of interest and hence so commonly remarked, could fail to be correctly identified by reference to the multiplicity of occasions on which all of us use adjectives of prizing and disprizing. The immediately good is what you like and what you want in the way of experience; the immediately bad is what you dislike and do not want.

Such appellations as these—'liked' or 'disliked', 'wanted' or 'unwanted', 'good' or 'bad', as addressed to the directly presented—are better indices of the immediately valuable or disvaluable than others. And the appelations more frequently found in the history of discussion, namely 'pleasure' and 'displeasure' or 'pain' are poorer ones. They are poorer because their significations in common speech are too narrow, and inadequately suggest the gamut of the immediately prized and disprized. Their connotation also is inapt by suggesting that what is meant is a qualification of 'the subject' rather than of the content of presentation. And if we correct this shortcoming by substituting 'pleasant' for 'pleasure' and 'unpleasant' for the opposite, then we find inaptness in other respects. 'Pleasant' and 'unpleasant' are unsatisfactory by preponderant connotation of the pallid and the sentimental; they smack overmuch of self-consciousness in apprehension. Also 'pleasant' as well as 'pleasure' suggests too exclusively such felt goodnesses as are unsubtle, incomplex, and too exclusively associated with the organic sensations; and such as characterize passivity rather than the goodnesses of serious activity.

The hedonists have not—one presumes—intended such an unduly narrow meaning. They have stretched 'pleasure' and 'pain' beyond an original and plainer application to include all sorts of complex and

subtler satisfactions and dissatisfactions; with the unfortunate result of making their doctrine misleading to the unwary and the unsophisticated. An Epicurus may be clear that no more trustworthy pleasure can be found than that which is secure with a sufficiency of barley and water and the communion of friends; and a Bentham may understand that life holds no better pleasure than that which may come from devoted and successful public service. But those who read them may fail to recognize such goods under the name of 'pleasure', and pass these by in favor of more obvious but less genuinely satisfactory ones.

If 'pleasure' or any other name is to serve as synonym for the immediately and intrinsically valuable, then it must be adequate to the wide variety of what is found directly good in life. It must cover the active and self-forgetting satisfactions as well as the passive and self-conscious ones; the sense of integrity in firmly fronting the 'unpleasant' as well as 'pleasure'; the gratification in having one's own way, and also the benediction which may come to the defeated in having finished the faith. It must cover innocent satisfactions as well as those of cultivation; that which is found in consistency and also that of perversity and caprice; the enjoyment of sheer good fortune, and that which adds itself to dogged achievement. All this in addition to the whole range of the sensuously pleasing and the emotionally gratifying. And the immediately disvaluable has its equal and corresponding variety. Such immediate goods and bads are ill compressed into any single term or pair of them. Attempted synonyms are likely to be misleading just in measure as they appear illuminating; because this sense of calling to mind what was not already clear, is all too likely to come from their aptly naming some one type only, and thus identifying the intended generic character with that of some included species. We do better to call upon our pervasive sense of this mode of all experience, and the multiplicity of its modalities, to correct any chosen name, than we should in depending on the name to conjure up the requisite inclusive sense of the possible goods of life. The variety of our adjectives of prizing is better taken as indicative than would be any one of them; which might well be too narrow. So far as words go, the commonest and widest ascription of all—merely 'good'—is probably best; although that term fails of precision by covering also all manner of extrinsic values, in addition to the directly found good which alone is here in question.

6. The thesis here advanced, that value-disvalue is a mode of experience as it comes to us, and that values so disclosed are genuine and determine an ultimate kind of value-truth, is one which needs to be clarified; particularly with respect to the sense in which values may be such data of experience, and with regard to the relation between value-quality as thus directly found and the presentations of sense. Such attempted clarification is the further topic to which we should wish to give attention in this chapter.

However, this thesis also stands as a central point of controversy between any naturalistic conception of ultimate values, such as we should defend, and various others. It will be immediately objected to by those who hold that kind of transcendentalist view which conceives that any *just* evaluation implies some transvaluation of our natural prizings and disprizings. It is also a point on which we should be criticized by those who maintain that immediate value-findings are merely 'emotive', and that normative expressions of every kind are neither true nor false. Curiously enough, these most opposite kinds of criticism are both of them likely to be expressed in the same way; namely, by charging the conception here put forward with subjectivism.

It is indeed one of the questions calling for further consideration, how far the values directly disclosed in experience are subjective, and in how far they may be objective, and in what important sense or senses they may be either the one or the other. But unless we should first give some attention to the kind of criticisms here referred to, it will be difficult to separate the issues which are germane to that topic from others which are likely to become entangled with them. Let us therefore attempt a summary statement of the position here taken, as it bears upon these fundamental differences in the manner in which values in general are conceived: after which, we may return to questions which more particularly concern valuation as a direct prizing addressed to the phenomenal or presented.

7. We should blame no one who is disconcerted by those tendencies to be found in the present period which are often labelled 'subjectivism' or 'relativism' in value-theory and in ethics, and who sees in them an expression of that immoralism and that repudiation of principle which is a major threat to all our civilization. But it should hardly need to be pointed out that these terms 'subjectivism' and 'rela-

tivism' have come to be so widely and undiscriminatingly used that they threaten to lose all meaning beyond that of derogatory epithets. If it be subjectivism to hold that nothing has really intrinsic and ultimate value except such goodness as might characterize a life found good in the living of it, then the presently defended view does adhere firmly to such subjectivism. We conceive in fact that any denial of that character of final good ought to strike us as ridiculous and morally devastating. And this conception of the *summum bonum* does imply that all values correctly attributable to objective existents are, in the last analysis, extrinsic only and relative to their possible production of some value capable of being immediately realized in the experience of life. Again, if that be subjectivism, then it is subjectivism which is here argued for. But if this is supposed to imply that the kind of goodness which objects and other existents may have is a goodness relative to the individual judgment of it or to the particular character of any person's value-findings in the presence of this object, then we should wish to point out that no such implication of a Protagorean relativity of values genuinely follows.

The exact opposite rather. The conception here is that value-judgments are a form of empirical cognition, directed upon facts as obdurate and compelling as those which must determine the correctness of any other kind of knowledge. Such value-properties of things are as objective as any other properties of them, though the kind of value which external objects have is extrinsic only. (Full consideration of our modes of value-predication to objects must wait upon the development in later chapters; but nothing which we shall there find will bear against this summary statement of the matter.)

Value as immediately found, like any other character as directly disclosed, is subjective in the sense that it has the status of the apparent. Its *esse* is *percipi*. There can be no illusion of present enjoyment or present pain, for example; though the supposition that an enjoyable or a painful state of affairs environs us may be, in any instance, illusory. The illusion of a painful state of affairs, is illusory as regards the state of affairs, but the pain of it is indubitable fact, and is the same as if the apprehended situation were real—except that we may be rid of it in a different manner.

Value as immediate is precisely like any appearance or mode of appearance in this respect: like what I *see* as against the objective

thing present to be seen; like what I *hear* as against the objective air-waves affecting my tympanum, and the cause of them. But to call what is immediately seen or heard, or what is immediately prized, 'subjective' because it has this status of appearance, is to predicate 'appearance' in the unjustified and derogatory sense of 'appearance *only*', and to rush forward unwarrantably to classify it with the non-veridical. There is no apprehension of the empirical whatever except by apprehension of appearances: objective reality can be known to us in no other way. When the content of appearance is considered as such—as appearance—it is more appropriately recognized as neither subjective nor objective, or as both without distinction. Subjectivity and objectivity, in any distinctive sense, are a 'later' classification of apprehended content; a classification by reference to the relation of this content to reality or to further possible experience. If presentation gives rise to belief which later experience bears out, it may then be classed as objective in the sense of veridical: if it should give rise to belief which later is disconfirmed, it may then be classed as subjective in the sense of illusory. But merely in itself it is neither one. And in either case there is the absolute factuality of the given content of presentation itself: without that kind of fact there could be neither illusion nor knowledge; neither subjectivity nor objectivity. Formulation of this given content of presentation as such is thus a kind of truth antecedent to and essential for either veracity or falsity of any objective judgment.

The fact is, of course, that no property of any object—whether value or anything else—is strictly known by the givenness of an immediate presentation. The fact of the presentation together with what is, logically considered, an induction from past experience, gives rise to a belief. And this belief—whether justified by such induction or not—may be further verifiable or may be such as would be found false. Thus, taken together with habitual (inductive) interpretation, the presentation may be misleading or it may be right-leading. But in its own expressively statable character, and apart from such interpretation, it is neither one.

Furthermore, there can be no character of the given as such which *makes* it either right-leading or misleading. If I look across the top of my glasses and 'see two inkbottles', what I *see* is not misleading in itself; does not in fact mislead me now, since no unverifiable belief is

induced. It is the interpretation put upon given appearance which is verifiable or falsifiable. The factuality of the presentation-content is neither verifiable nor falsifiable: the statement of it is now verified in the only sense in which verification could be thought of as pertinent.

It is also true that *every* presentation, and every abstractable item of every presentation, is potentially evidence of *some* objective state of affairs, of which some correct interpretation would take it as a clue. Such correct interpretation would oftentimes require to include a state of the subject—as a physical organism or as in some other sense a continuing thing—as a pertinent item in the state of affairs which the presentation thus evidences. And we should remark in passing that if to be conditioned by and evidence of a state of the subject, is to be 'subjectively conditioned', then the content of every perception, whether veridical or illusory, is so conditioned; and conditioned in the same general fashion in both cases. In the case of illusion, it may be that the state of the subject is the peculiarly explanatory part of the objective state of affairs. But obviously every presentation is conditioned by some state of the subject, as well as by objective existents.

If there is such a thing as empirical knowledge, then the ground for believing the content of it must be something disclosed in somebody's direct experience. And also, the only manner in which empirical belief can be corroborated will be by reference to something findable in experience. One such belief may be supported by others, already in some measure assured; but in the last analysis there can be no basis for empirical belief whatever except through the factualities of presentation. There are no data which can be called upon in support of any objective fact except finally the data of appearance. And if what is relative to appearance is thereby subjective, then everything knowable is subjective; and the word loses all significance.

In all this, there is no basic difference between value-apprehensions or value-predications and apprehensions or predications of any other empirical character. Those who would characterize such a view as is here put forward as subjectivistic must, it would seem, overlook the parallel which holds between value-predications and others. Or, on the other hand, they must ignore the distinction here made—amongst value-predications as amongst others—between those which relate to

what is immediate and is a matter of appearance, and those which express judgments which are further verifiable and which require such confirmation.

All attributions of value to objects, objective properties, or states of affairs, belong to the latter class. These express beliefs which are verifiable or falsifiable. And when taken as basis for a belief in such objective value, a presentation may be misleading and the value apprehended may be illusory in precisely the same sense as in the case of any other property than value.

If I bite an apple, I cannot be in error about the good or bad taste of the present bite; but if I conclude from this directly found value-quality that it is a good or a bad apple which I hold in my hand, then I may be wrong. Whether I am so, is something concerning which the present experience affords some evidence, but also something for further experience to corroborate. Likewise, on first hearing a piece of music, or first viewing a painting, we cannot be mistaken about our present enjoyment of it, or felt indifference or distaste; but any conclusion we draw from that about this musical composition or this picture as a continuing source of possible enjoyments or dissatisfactions, may later prove to be in error. As has already been mentioned, predications of value to objects are somewhat more complex and variable in their intended meanings than are judgments of other objective properties. But such qualifications—which must later be considered in detail—do not affect the present point.

If statements here made about value as immediate should be taken to apply, without further ado, to value-predications in general, then to be sure, the view presented—as so misunderstood—would be a subjectivistic one. For example, if the statement that liking and disliking are decisive of immediate value, be taken to imply that they are similarly decisive of objective value in the thing presented. But there has been no such intent. One's momentary liking or disliking is conclusively indicative of a present value-finding; and unless that fact be emphasized, it will not be possible to make sense of the topic of valuation in general. But as regards the objective value-property of a thing observed, immediate liking or disliking may be non-indicative and the basis of a judgment which is false.

We may momentarily like a picture because it is hung in a poor light which obscures its bad drawing or its crude colors. In so liking

it, we may be as mistaken about the objective value of it as about the relation of its lines or the quality of its coloring; and for reasons which are similar and are connected. When we see it under better conditions, all these mistakes will be corrected, at the same time and in the same way. So far, the parallel between immediately apprehended value as compared with value as a property of an object, and seen redness or straightness as compared with the objective property of redness or straightness in a thing, is so obvious as hardly to call for extended comment; and any charge of subjectivism against the view presented, could only be grounded in some misapprehension.

8. However, it may be a slightly different objection which the critic has in mind; one addressed to the fact that all value in objects is here classed as extrinsic only. We may imagine him to say: "It is here admitted that value as immediately disclosed or apprehended is to be attributed to the occasion of experience itself, or to the content of this experience, which has the status of the phenomenal or apparent only, and is in that sense at least subjective. It is such directly given value which is claimed to be intrinsic. Further; value in any other sense is taken to be ultimately relative to such immediate realizations of value, either actual or possible. Thus all value becomes subjective and relative on this account."

There would be no misapprehension in this statement of the case —though we should repudiate the conclusion drawn as a non-sequitur. Let us elicit the pertinent considerations here by continuing the last example—of the painting which is observed.

If it should be asked *why* this picture is one of small artistic merit, one might make such answers as; "Because it is out of drawing"; "Because the color-contrasts are bad"; "Because the center of interest is misplaced." And in elaboration of these criticisms, one might refer to observable physical properties of the painting on the one hand and to general principles of pictorial art on the other. But if one who is untutored in art should challenge the principles of criticism advanced and persist in asking *why* these objective characteristics of the painting make it a poor picture, then the critic must eventually be driven to make an answer of a different sort: "You may like it now, but I don't think you would if you should live with it a while"; or the ruder observation, "Apparently your color-perception is faulty: those who are expert in such matters, as well as most other people, do

not find that combination and arrangement of colors pleasing." Eventually there must be appeal to facts which are directly discernible and of the order of simple liking and disliking. This is the case because the notion of objective value in a thing which is incapable of conducing, either directly or indirectly, to any immediate satisfaction, would be an absurdity. Value in objects is vested in properties of them which are as little dependent upon any momentary apprehension or any individual judgment for their factuality as are objective squareness and hardness. But this *value*-property is the objective character of the thing as capable of contributing some satisfaction to direct experience; its potentiality for realization of a value immediately disclosed. It is that fact which is indicated in the thesis that all value in objects is extrinsic, in the sense of being a value which is not for its own sake but is for the sake of something else.

This extrinsic character of value in objects does not make the difference between any kind of objective goodness or badness ineffable, or make it a matter concerning which there cannot be mistakes. The difference, e.g., between good and bad painting, good and bad musical composition, or goodness and badness in the tools we use, still remains as much a matter for discussion and conclusion and as objectively determinable as the properties necessary to swiftness and economy in an airplane. They may equally demand study and much experience for their sure discernment; and very likely call for capacities of judgment which are similar. One who wants to make better pictures, or wishes to elicit the utmost in enduring satisfaction which good pictures can give, will perhaps be called upon for study as exacting as one who wishes to design better airplanes or to learn how to assess the qualities of airplanes. The objective and enduring value of any object or other existent will be something as definitely testable, and subject to principle, and calling for developed judgment, as is the property of swiftness in an airplane, and—it may be—as remote from mere momentary liking, as swiftness is from merely 'looking swift'. To neglect this kind of fact would indeed be to fall into a Protagorean relativisim. But it is not here neglected: rather, it is insisted upon, in the distinction drawn between immediate value-apprehensions, which are not judgments and cannot be mistaken, and the judgment of any kind of value in an object.

9. It is a different question, however, if we ask what it is which constitutes an object valuable; what nature or character of objects it is to which value-judgments are addressed. The view here defended is that there can be no other kind of value in an objective existent than one which consists in a potentiality of it for some possible realization of immediate value in experience. Hence that, although various other kinds of tests may be useful and important as indicative, and may even be more reliable as a proximate basis of decision, still the only kind of test of objective value which would be direct and ruling, is the test of finding such immediate value or disvalue, in the presence of, or through the instrumentality of, the object which should be in question.

If it be that feature of the conception against which the charge of subjectivism is brought, then although we should still regard the word used as a question-begging epithet, the issue itself will be genuine and of first importance. To be sure, it is an issue of the sort which, when once it has been freed of possible misunderstandings, hardly admits of profitable debate. Nothing much is involved which is debatable except the propriety of using the words 'value', 'valuable', and the like with one or another signification—though we should do ill to dismiss such issues as merely verbal. The difference which lies between those who recognize a rational end of action only where some potentiality for human satisfactions can be found and those who would allege, as rationally imperative, ends which are independent of any possible human satisfaction, is a very important moral issue. As is also that which divides those who recognize valid imperatives, justifiable by reference to the intrinsic values realizable in human living, from those who, by classing direct valuings as 'emotive' merely, and all normative statements as neither true nor false, destroy the basis for *any* valid imperative. But those who disagree about issues so fundamental are in danger of finding no deeper-lying premises on which they can unite and by reference to which their differences might be composed. We should wish our position on such basic points to be clear and unmistakable. There is a truth about values and, with respect to value in objects, a truth which can be missed. And there is a significance of the rationally imperative in every value-judgment: acting so that the valuable may be realized is the very essence of what it means to be sensible or reasonable; and the opposite manner

of acting is the very essence of foolishness. But the term 'valuable' is to be applied to objects and other existents solely with the meaning 'capable of conducing to satisfaction in some possible experience'.[4]

10. It was almost necessary that the matters considered above should be given attention at this point, even though they constitute, in some part, a digression from the topic of the present chapter. Otherwise there would be danger of confusing together two matters which must be considered separately: (1) It is values as immediately realized or realizable in experience (which are often miscalled 'subjective only') which are intrinsic and for their own sake; and all values attributable to objects are extrinsic and for the sake of these; (2) The *manner in which* value or disvalue may qualify the presentational content of an occasion of experience, may be subjective or it may be objective, or in some part or some manner subjective and in some part or manner objective. And to 'objective' and 'subjective' here, a reasonably clear and common and useful meaning can be assigned.

It is to be suspected that a confusion of these two matters lies at the very root of the reasoning of those who repudiate the naturalistic conception of values. They appear to take as a major premise the thesis: "Whatever valuation is subjective cannot be the apprehension of a value which is genuine." To this they add the minor premise: "The uncriticized valuings of immediate liking and disliking are subjective only." From these two together, it would indeed follow that our immediate value-findings have no validity as veridical apprehensions of value which is genuine. But their major premise here is false—if 'subjective' means only 'directly found in experience'. And whether our likings and dislikings are to be labelled 'subjective' or not, it still remains a fact that an immediate enjoyment is of value on its own account, and an immediate dissatisfaction is intrinsically regrettable. (That is the point we have now endeavored to make clear.) They accept that major premise—one must suppose—through failing to distinguish between the fact that the experience of immediate satisfaction is itself intrinsically desirable, and the different fact that the object enjoyed may not be one which is genuinely desirable.

[4] This is the *generic* signification of this class of value-predications. It is, however, more specific meanings, rather than this generic one merely, which are most frequently exemplified in the ascription of value to objects. In later chapters, various such more specific meanings are to be considered.

It is, however, their minor premise—that immediate valuings are merely subjective—which directly concerns us here. That too is false, when taken universally. Some immediate prizings and disprizings are subjective and some are objective. It is particularly important to make that fact clear because it is a common prejudice—by no means confined to the critics mentioned above—that the value-findings of direct experience are either subjective altogether or at least much more so than the other kinds of data of experience. And it is supposed that such subjectivity of our immediate enjoyments and dissatisfactions, negatives the possibility of basing on them value-judgments which should be objectively valid. It is these matters which we would now investigate. But first we must elicit the meanings of 'subjective' and 'objective' which are genuinely pertinent here.

Value-disvalue as characterizing occasions of experience and the immediate contents of experience, is an empirical datum in the quite plain sense that this value-quality of the immediate content of experience is simply as it is and not otherwise; it is found or disclosed as direct fact of the experience in question. And with respect to such value as disclosed, *esse est percipi*: value or disvalue as thus found is not subject to critique. If it is positive value-quality which characterizes this occasion, that fact marks the experience as good for its own sake; and if it is disvalue which characterizes the occasion in question, the experience is by that fact bad and undesirable on its own account.

However, if we should take the fact that on this occasion, a content of experience having such and such character in other respects, is infused with positive value-quality, or with disvalue, as evidence that on another occasion an otherwise similar content of experience will again be marked by this same value-quality, then we might be wrong. As also we might be wrong if we should infer from this experience that an object the presence of which is witnessed by this given content, is an object having a corresponding value-property; that the presented object is good because the experience is gratifying or bad because the experience is dissatisfying. Or if we should infer that other persons would, in the same situation in which we find ourselves, be affected with this same value-quality in their experience. To put the same matter in another way; the *reason why* this presentational content has this immediate value-quality may be a reason to be found in

our personal make-up or personal history or personal attitude on this occasion, or it may be a reason in which nothing which is merely personal or peculiar to us has preponderant influence, but is to be found in the nature of the objective situation confronting us and in those capacities of apprehension which are common to humans in general. Where this reason why a given presentational content is affected with a particular value-quality, is such a reason which is personal or peculiar to the individual, the value-quality as affecting this given content may be said to be subjective; and where there is no such preponderant influence of what is personal, but the factors responsible are to be found in the objective situation, together with the capacities of apprehension shared by humans generally, the value-quality apprehended as affecting the given content of presentation may be said to be objective. Subjectivity and objectivity in this sense, represent a commonplace distinction, applicable not only to our direct value-findings but also to other kinds of data of experience—to our immediate apprehensions of shape, size, color, and the other qualities of things as they directly appear to us.

Once again; whether a value-apprehension is thus subjective, or whether it is objective, makes no difference to the fact that if the value-quality apprehended is positive, then the experience in question has positive intrinsic value. And if the apprehension is of negative value, then that experience is intrinsically disvaluable. From the *instrumental* point of view, it may be regrettable that we should find a certain content of presentation affected with positive value-quality, if this value-finding is subjective. Because in that way we may be misled about the value-possibilities of like situations in later life and put ourselves in the way of experiences which are affected with disvalue and could have been avoided. But the very *reason why* an experience characterized by positive value-quality may still be thus regrettable, illustrates the fact that it is directly findable and positive value-quality in experience which is *per se* desirable and, apart from instrumental effects on further possible experience, is intrinsically valuable. If only we might *be aware* that the positive value-quality of this given experience is subjective, then the experience itself could be positively valuable both intrinsically and instrumentally; since such awareness may protect us from unwarranted inference concerning the value-possibilities of further like experience. What is regrettable is, thus,

not this given experience of a positive value-quality which is subjective, but only our ignorance of the subjective character of it.

So, too, an experience affected with a positive value-quality which is subjective, could be undesirable from the instrumental point of view if we should unwarrantably infer from it that other persons would find this same value under like conditions of experience. Because we might thus be induced to act in a manner prejudicial to realizations of positive value in the experience of others; or might prejudice social cooperation, and thus impair our own further opportunities for realization of the positively valuable. But here also, it would be the unwarranted inference, and the prejudicial consequences of it, which would be regrettable; and the positive value-quality of the given experience itself would remain *per se* desirable.

The importance of the subjectivity or objectivity of an immediate value-finding does not lie in any question of the value attaching to the experience itself: that question is answered once for all in the value-character of it as found. The significance of this distinction lies in the bearing it may have on the question of the relation between the experience and some object, state of affairs, or other existent to which it is supposedly pertinent. Indeed, in specifying the meaning here attached to 'subjective' and 'objective', we have merely tried to make a little more precise the original and literal significations of these terms: a character of direct experience is objective if it pertains to an apprehended object; and is subjective if it is significant of something about the subject of the experience rather than the object. These are indubitably the meanings which account for the terms themselves, though obviously they are a little too rough and ready to admit of application without some clarification such as we have attempted in expressing them. If there is any point in saying that immediate valuings are subjective—beyond that of calling them bad names—then it must lie in the supposition that what is subjective is by that fact an unreliable basis for the judgment of independent factualities as they truly are; that it is non-indicative or misleading with respect to further possibilities of our own experience, or with respect to the experience of others or—what reduces to the same thing—with respect to the character of an independent actuality.

There are, thus, two questions here; and we shall do well to separate them. First, are immediate value-apprehensions universally sub-

jective; or more frequently or more markedly so than other kinds of empirical data? Second, does a subjective character of direct value-findings make them misleading or an unreliable basis for the judgment of independent value-facts? What the independent value-facts are, of which an immediately found value might—whether justly or unwarrantably—be taken as indicative, we have already seen. First, the kind of fact predicted by terminating value-judgments; that under such and such conditions, including a condition of action, a specified value-quality would be realized in direct experience. Second, the kind of fact asserted by non-terminating judgments of value; that some specified object, state of affairs, or other existent has certain potentialities for leading to realizations of value or disvalue in experience.

11. We may well believe that the likability and dislikability of things; their directly gratifying quality or the opposite; is more dependent on the individual than is seeing green or feeling hard; not only in that there is more variation from person to person in the matter of likes and dislikes, but also in that for the same person, there is more variation from time to time. Further, our prizings and disprizings seem to be more affected by orientation or attitude: one may find a thing more or less enjoyable, more or less endurable, according to the manner in which one goes out to meet it.

It will be admitted, however, that the difference of our value-findings from other aspects of experience, in such respects, is one of degree rather than of kind. Those who would think to discover an absolute difference between value-apprehensions as flatly relative to the individual and other empirical findings as unqualifiedly universal and common, must obviously be very thoughtless or excessively naive. Other characteristics of the discerned-presented are also affected by differences in the individual capacity to apprehend as well as by our different conditioning and differences of attitude. These, likewise, vary in measure from one person to another in the presence of the same objects, and from one moment to another in the experience of the individual.

Partly also, the recognized difference on these points, between immediate value-apprehensions and other empirical findings, is not a difference in the manner of their coming to mind or in the degree of their relativity to individuals, but in the ease with which we detect such relativities, in the two cases, and in the importance of remarking

them when discovered. Certainly we more commonly notice and express our differences of appreciation than we do any divergence in the manner of our apprehending sense qualities of things. But this fact that there is a larger degree of community in the *use of language* when it is color or shape or the like which is in question, and a smaller measure of agreement in our value-ascriptions, may easily be deceitful. It is more imperative in the case of value to be true to the phenomenal and directly discerned, and less imperative that we should arrive at a community of verbal ascription in the presence of the same situation or things. It is usually less important to agree in liking a thing than to agree that it looks green. And it is more important when we *do* disagree in our likings that this fact should be observed. That is the case because, generally speaking, there is a more direct connection between what we prize and disprize and what we choose to do.

Failure to apprehend color as others do, or personal peculiarity with regard to felt pressures, may easily go undiscovered; and there may be approximation to community in the expressive use of color-words, or of adjectives like 'hard' and 'soft', without any corresponding community in our modes of apprehension. We learn to say 'green' in those same situations in which others say 'green'; and by that fact it becomes impossible to discover any idiosyncrasy in the experience of colors except as it betrays itself in some failure to discriminate and relate as others do. But differences of immediate preferring cannot so easily pass unnoticed, because preferring more directly and decisively motivates conduct. Also, individual differences of appreciation are more likely to be reflected in the use of language because failure to induce others to notice and respect our likings and dislikings has more grievous consequences than would, in general, attend upon their ignorance of or indifference to our personal peculiarities in other modes of apprehension. In fact we might almost say—though not quite—that it is *only* as they eventually affect our likings and dislikings, that it is important that idiosyncrasies of any mode of our apprehension should be discovered and expressed.

12. A further reason why personal peculiarity in our non-value modes of apprehension may go undiscovered lies in the fact that such subjectivities may *not* adversely affect our judgments of objective

factualities. We must not fall into the fallacies of the copy-theory of knowledge and suppose we can distinguish objective elements in our apprehension as those which 'are in the object as in our perception of it'; subjective ones as those which are due to the object but do not resemble that character of it which causes them. Not only should we then encounter the old difficulty about the primary and secondary qualities of Locke but, as the history of that conception has taught us, we should be wholly unable to apply such a supposed criterion of objectivity. We must be content to admit as objective any datum which has the character of a normal and common human apprehension in the presence of the object in question, and to regard as subjective only those which deviate from this by reason of something which is a personal or a temporary characteristic of the individual subject. And once we recognize this necessity, we shall be impressed by the possibility that all sorts of idiosyncrasies of apprehension may exist without adversely affecting the power to discriminate and to relate discriminated elements in experience in the same manner that others do; and that in these circumstances, there will be no manner of discovering them. And also by the further fact already mentioned; that some such subjectivities of apprehension clearly do exist without any consequent failure of the individual to make correct judgments of the objective character of things presented.

Consider for example the visual images of the near-sighted man. The different manner in which his eye 'photographs' things is discoverable by the oculist's tests of his powers to discern and discriminate. But he gets on quite well because he is accustomed to his own blurry images; indeed, he has to be cautioned against falling down stairs and otherwise misjudging distances when first they are replaced by normal ones through the use of glasses. The personal character of his visual data marks them as subjective; but this constitutes no bar to a correct interpretation of them as clues to objective fact. At most, it is a cause of mistakes of perception because it obliges the subject to make guesses about things which the man of normal vision determines by clearly seeing. Indeed, there would be a tendency to deny that near-sighted vision is subjective, just because there is nothing about such idiosyncrasy which makes it necessarily misleading as to pertinent objective fact.

Let us omit any further consideration of the hundred and one ways in which subjectivity of apprehension, in other matters than value, is a determinable fact, and the thousand and one further ways in which such subjectivities are conjecturable; and draw the moral at once. There is no necessary connection between subjectivity and any misjudgment of pertinent objective fact. No kind of datum of apprehension is, by itself and in its own directly found character, either misleading or right-leading: it becomes either one or the other only when some interpretation is imposed upon it. In that sense the subjectivity or objectivity is more appropriately attributable to the manner of the inference from given data to the objective factuality of which it is taken as a clue. Derivatively, the datum is called 'subjective' when peculiarly affected by some condition on the side of the subject other than those of common and normal human apprehension, by reason of some likelihood that a datum so conditioned may give rise to a false judgment of objective fact. But if data of experience be classified as veridical or illusory, according to the usually prevailing criteria for application of these terms—namely, that an empirical datum is illusory when it causes mistake as to objective fact, and is veridical when it leads to judgment which is correct—then we must observe that much of individual experience as it comes to us is subjective but nevertheless veridical. Especially where such subjectivity of the data of apprehension is a continuing character of them for the person in question and this subjective character of them is recognized by him, they are no more likely to become the basis of misjudgments than are those apprehensions which are (supposedly) common to humans in general in the presence of the objects in question.

We would not attempt to argue away the larger measure of subjectivity characterizing our direct value-apprehensions, as compared with other aspects of immediate experience—though for the reasons pointed out, the degree of this difference is commonly exaggerated. Our likings and dislikings, enjoyments and dissatisfactions, are more variable from time to time, for the same subject under the same objective conditions, than are our apprehensions of presented sense-qualities. And they are also more variable from one person to another. This is the case particularly because immediate value-findings are more readily and more largely subject to psychological condi-

tioning, and more affected by psychological associations with some mental context. But also there is no phase of our experience with respect to which our individual differences are so well understood and the subject's own peculiarities are so likely to be well known to him. And where we are aware of subjective conditions affecting experience, we both can and customarily do 'compensate for' them in drawing inferences as to objective fact. The general manner in which we make such compensation in our value-judgments is no different than, for example, in allowing for the angle of vision in judging the shape of things, or for distance in determining size, or for the degree of illumination in making judgments of objective brightness and color, or for our near-sightedness in judging visually presented objects, or for the inferior or superior degree of our muscular strength in making assessments of weight.

Thus although our immediate value-apprehensions are probably subjective in somewhat larger measure than are the data of sense, that is not a sufficient ground for supposing them a more misleading basis for objective judgments. In fact, it is to be doubted that our judgments of the value of things exhibit any notable tendency to error on account of subjectivity in our value-data. Those who are wont to emphasize this subjectivity as if it were a prime consideration in value-theory, probably do so for quite other reasons.

First, there is a tendency to be influenced by a pre-scientific psychology. Common sense is naively empiricistic and naively realistic. It tends to make a flat dichotomy between data attributed to the external senses and all other phases and aspects of consciousness. Thus it tends to regard sense data as if these were ordinarily or normally unaffected by anything but external stimulation and were direct revelations of the object causing them. And all 'internal' factors—including any affective elements in consciousness—it tends to dismiss as if they either had no influence upon cognition or else one which interferes with and betrays apprehension of objective facts. (Perhaps scientific psychology still lends itself in measure to such naivété by retaining a too nearly flat distinction between 'perception' and 'affection'. But if so, it is possible to think that these categories must hereafter be subject to some further modification; and that the complex interrelations of affection, conation, and cognition must be even further recognized.) If it should be thought that we unwarrantably

suspect here a persisting influence of unexamined modes of thinking in value-theory, let it be asked on what more cogent ground one could build an elaborate theory of empirical cognition, at the same time dismissing valuations as merely 'emotive'? Is it that setting too high or too low a value on a thing are quite meaningless expressions; or that such judgments could find no test in experience?

Second, so far as it is recognized that the influence of conditions on the side of the subject must be admitted in *all* mental phenomena, there is still a tendency to confuse the dichotomy subjective-objective (including reference to community or idiosyncrasy) with the different one, veridical-illusory. So long as our directly apprehended data do not mislead us, we are prone to *explain* such contents of consciousness exclusively by reference to an apprehended object, of which they are taken to be significant. And it is only when the character of empirical data leads to some mistake of judgment and is thus non-veridical, that we are wont to look for explanation of them in some subjective factor affecting our apprehension. Thus we tend to beg the question whether a lack of community in our value-findings renders them cognitively non-significant or non-veracious, by failing to look for any instances of possible subjectivity amongst those direct value-apprehensions which are validly indicative of objective value-facts. If we avoid this fallacy and look for them, we shall find that instances of this type are very frequent.

Finally, we should observe that to regard immediate value-findings, as a class, as being subjective in the sense of having *no* valid cognitive significance, is an absurdity in view of the plainest facts of life. If our direct value-apprehensions should have *no* correlation with the objective value-properties of things, then it would be totally impossible for us to learn from experience how to improve our lot in life; because our pleasures and displeasures on earlier occasions must then utterly fail to teach us what gratifications or what pains we are to expect on later like occasions. And if there were a complete absence of community in our value-findings on given occasions, or if communities of value-apprehension in the presence of the same object should be mere matters of chance, then no one could, with the best will in the world, learn how to do anybody else any good—or for that matter, how to do him harm. It may be in fact more difficult to prognosticate our future value-findings than other aspects of future ex-

perience—that matter admits of doubt—but if there were no discoverable correlation between them and objective properties of things, then it would be quite impossible. And if there *is* such correlation, then the law of it will determine what kinds of objects, under what circumstances, possess potentiality for conducing to our enjoyment or our pain—their objective value-qualities. If there is any hope that we can, by our reasonably directed efforts, effect any improvement in the quality of living, for ourselves or for anybody else, then there must be a solid core of what is both veridical and common, underlying the personal and the inter-personal variabilities of our value-findings in the presence of external things.

13. It will be further important to consider the sense in which and the manner in which value-quality may characterize what we should ordinarily speak of as a *presentation*. That term does not commonly designate the whole content of any given experience, but rather some abstractable item in it; particularly such an item as we take to signify the presence of some object, situation, or objective state of affairs. The tendency to single out by attention, such items in the field of consciousness, is undoubtedly something inculcated by our past experience and indicative of some forward-looking interpretation. But however much this tendency of the field of consciousness to separate into focus and fringe, or to break up into some collocation of separate unities, may be significant of past or of portending experience, it nevertheless represents a native character of experience as it comes to us. Such items—presentations—do not wait to be marked off by our deliberate analysis or interpretation; they distinguish themselves within the experience as given.

It is, further, a native character of experience that the value-qualities found in it mainly attach themselves to and characterize such items of presentation.

This is not, however, completely and universally the case. There can be a diffuse and general value-aspect of experience which belongs to the background rather than to any item which stands out in it; one which the psychologist would attribute to the complexus of undiscriminated somatic sensations. Presentations are preponderantly mediations of the external senses, or memory or imagination, or else organic sensations which are specific and discriminated. But there is likely to be some vague remainder of the felt, not definitely localizable

either in or out of the body. The sense-quality of this inchoate remainder of given experience is relatively unformulatable even to ourselves, and the only clearly recognizable aspect of it is likely to be its value-character. When such background feeling rises to the level of attention, it most frequently does not attach to any presentation, but remains simply a general value-level of the experience as a whole. Even where it becomes predominant, such a euphoric or dysphoric condition is likely to be attributed vaguely to 'ourselves', or to 'things in general': *we* are happy and life is good, or we are blue and the world is a terrible place. Such a general level of value-feeling may indeed invade specific presentational items; and where this happens, it appears of course as a notably subjectivistic tendency of immediate value-apprehension. But even so far as this is the case, this fact is in some measure balanced by another; namely, that the value-quality characterizing a presentation tends to be determined by the difference that it makes. Whatever presentational item enhances the value-character of experience as a whole in coming before us, presents itself as being immediately good; and any item which enters the field of consciousness with depressing effect, presents itself as immediately bad. We are not here laying down a rational rule for assessment of value to presentations, or to the objects presented; though just this rule of such assessment might commend itself. We but report a native fact of experience as it presents itself. Any item which stands out in consciousness is directly characterized by a value-quality which mainly reflects the differential effect of it upon the general value-level of experience. Whatever gives us a lift is directly found good, and whatever depresses us is by that fact directly disvaluable.

14. The facts of this order are too complex for our examination here, and must be left to the psychologist. But two considerations should be noted on account of their special importance for us. Not only do value-apprehensions in direct experience tend to characterize specifically those items which distinguish themselves as presentations, but it is those value-qualities which thus attach to presentation which —like the presentations themselves—tend to acquire a sign-function. It is such value-character of presentations in which our deliberate interpretations find a significance of value in objects; and they already appear as possessing such a quality of signification in advance of any act of reflection or interpretation. By contrast, a background level of

general value-feeling which does not become focussed on such foreground items, does not generally appear with this quality of a reference beyond itself.

Second, although the value-quality thus directly characterizing a presentation, has the same character of immediate datum as does the presentation itself, this *value-quality is not simply a function of the presentation, but tends to be determined in some part by the relation of that presentation to the context of it.* It is for this reason that we have generally avoided speaking of directly found value-quality as being *given.* Application of that term to the value-character of presentations might have been misleading; because while this value-quality is as much native to experience and as directly found, and has, when taken as qualifying the content of experience itself, the same status of uncriticizable fact, still there is no one-hundred percent correlation of this found value-quality of a presentation with the character of it as otherwise describable. What is, in its other characters, qualitatively the same abstractable item of content, in different experiences, may on one occasion be characterized by one immediate value-quality, and on another occasion by a value-quality which is different. The value found in it depends in some part on the experiential context of the presentation on these different occasions. There are indeed exceptional instances of presentations whose value-quality approximates to simple correlation with the given sense-qualities of them; for example, certain geometric patterns in black and white, which can be used to illustrate principles of the pictorially pleasing and displeasing; or the mere juxtaposition of certain colors against a neutral ground. Such simple and relatively abstract sense-patterns may have a relatively invariant value-quality. But even for these instances, small modifications or complications, such for example as would introduce an element of the representational, show how easily the value-quality of what is strictly presented to sense can be altered by a context of association. Another kind of example—illustrating a different type of context—is given by the fact that the appearance to us of water to drink comes with one immediate value-quality when we are thirsty and with a quite different one under other circumstances.

Let us pause here to interpose at once one *caveat*: we must not confuse such variability of the immediate value of the sense presen-

tation in different contexts, with a subjectivity of these value-findings. The last example illustrates that fact: the different value affecting presented water under different conditions of the body, is not due to any personal peculiarity but represents one of the fundamental communities of human experience—though it is true that this variability of the value-quality of an item of presentation, in different contexts, does give rise to interpersonal differences of directly found value in the same circumstances of sense experience. We must not rush ahead to charge our objective valuations of things with any lack of verifiable truth or falsity, on account of their being based upon direct value-findings which may be thus variable. The road from our direct value-apprehensions to value-judgments directed upon objective things and facts, is one which is long and complex. Speaking generally, such judgment, being one of the *potentiality* in a thing for conducing to direct realizations of value-quality, must have reference to the multiplicity of circumstances and occasions affecting such possible contribution by this object of a directly findable value-quality to experience. And we do not generally require to be warned against the variabilities of value-appearances: these are too familiar and obvious. Although the *immediate* value which characterizes presentation of water when we are thirsty, is one indispensable factor of an objectively correct valuation of a body of water near a city, nobody is misled into supposing water a more valuable commodity because he happens at the moment to be thirsty.

15. In order to give concrete illustration to some of the considerations mentioned above, let us take one commonplace example. The smell of coffee in the morning has for me a pleasantness due in part to the manner in which my olefactory sense is affected, but in part it is the result of habitual association. At the moment, also, it is conditioned by my organic state of appetite, as well as by my explicit recognition that this odor signalizes coffee for my breakfast. For this occasion, however, this value-quality affecting it is as much an immediate datum as the odor itself, and inseparable from it. Though originally I may have disliked the smell of coffee—I cannot remember—I have now been so conditioned that it is always agreeable, even though the doctor should have forbidden me coffee, or I should know that our own coffee-ration has run out and it must be the neighbor's coffee that I smell. If I should be recovering from illness, however,

it might be that I should find this odor immediately and notably disagreeable.

So far, whether I am in good health and find this smell of coffee pleasing, or am ill and find it displeasing, this value-quality affecting it is, in either case, indissolubly bonded to the odor itself on this occasion, and might not only be called a datum of the experience but also be said to be given in the same sense as the odor itself. The connection between presentation and immediate value-quality is, so far, one which is uncontrollable, for this experience at least, and independent of any sign-function of the presentation or any interpretation I may put upon it. That the value-quality may be conditioned by my temporary organic state, will not affect that fact. It is comparable to the seen yellowness of things which results from jaundice, or the felt coldness of the air which is due to one's having come from an overheated room.

However, there may be looser and more controllable associations of this odor which nevertheless affect the value-quality with which it greets me. On normal occasions when I smell coffee in the morning, the degree of pleasantness of the experience will depend in part on my anticipations, or even upon the manner in which I may choose to dwell upon it. Whether I expect that it means coffee for my breakfast or think that it is the neighbor's coffee and that I shall have none, will make some difference. The anticipation directly qualifies the value-quality of the presentation itself; and qualifies it differently according as the anticipation is different. Or again, it may be that I am an inveterate day-dreamer, and this odor sets me off on some private dramatization in which coffee figures—a comedy or tragedy as suits my mood or whim. And the felt quality of this odor may in some measure take on the pleasant or unpleasant coloring of my day-dream. Such supposition is a bit extravagant with the odor of coffee as *pièce de résistance,* but a similar one might be less fantastic in the case of heard music or one's contemplation of a picture. Qualifications of the value-quality of the presentation which are effected by such looser and more variable contexts, could not appropriately be spoken of as given, though they remain data of the experience in the sense of being qualities directly affecting the felt character of its content.

Such contexts of a presentation, affecting the value-quality with which it presents itself, may be divided roughly into three types. And it will be useful if we consider the sense in which and extent to which found value-quality, as affected by these three, tends to be objective or to be subjective, in the sense of those terms which has been indicated.

First, there are the influence of a background of organic sensations and conditioning; exemplified in the above by our usual morning appetite or by the result of illness. The effects of this kind of context tend to be objective or subjective according as they are themselves 'normal' conditions or 'abnormal', and in very much the same way as the effect which this same kind of condition may have upon our perception in other respects. Abnormal organic conditions on the whole tend to mislead objective judgments affected by them, whether it is judgment of values or of anything else. And normal conditions of the organism are in general conducive to correct judgments of objective fact, whether it be of values or of other properties of things.

Second, there is the type of context represented by anticipatory associations, whether merely habitual or explicitly cognitive. This kind of context is exemplified above by the sign-function tending to attach to the odor of coffee in the morning. It is a general and an important fact that what is originally a value attaching to something signified by a presentation tends to become fused with the immediately found value-quality of this presentation which normally operates as sign of it. At the level of explicit cognition, as well as below it in the habitual associations inculcated by past experience, what was originally a value attaching to something signalized, tends to become a value immediately found in the presentation which operates as signal of it. Contexts of this type, representing experience-induced association or cognitive interpretation, so far as these affect the value-quality with which a presentation is directly characterized, affect it in a manner which is subjective or is objective just to the extent that objectivity or subjectivity could be attributed to these associations themselves or to these cognitive interpretations.

We may further observe that while in the case of other animals it would appear to require considerable time and approximation to invariance in the correlation between presentation and what it signifies, in order for the value-quality directly found in the presentation to be-

come modified by such context, this is mainly true because animal learning is itself something which requires repetition and relative invariance of the association. With ourselves, qualification by such context may be effected quite abruptly, and as promptly altered, correlative with our capacity for rapid learning and for swift discernment of actual relationships. As soon as we 'see the connection' by which some presentation signalizes some further satisfaction, we tend to find our immediate satisfaction in the presentation itself thereby enhanced; though in measure there is likely to be, for us as for other animals, some persistence of value-fusions by earlier and now *un*-learned or replaced associations.

Third, there is the notably subjective kind of context, exemplified above by the relatively free associations of the day-dream. Modifications in the directly found value-quality of a presentation which are so effected, are likely to be as private and personal as the associations themselves. But also we should note that they are normally so taken: one dismisses them as non-significant of an actual value in any object taken to be presented.

Finally, we may observe that the kind of context whose effect upon the value-quality of presentation is likely to have weight in our *judgments* of value in objective things, is that kind of context to which a signification of the objective would normally be ascribed. The types of such context are principally two. First, the experience-induced associations which may be presumed to reflect actual connection of objective things or facts, and are either habitual or represent an explicit recognition of objective relationship. Second, there is a subtler kind of association which may be due, not to connections in nature and hence reflected in experience, but to social habits and a consequent community of understanding. This also may establish a relationship of sign (or symbol) to thing signified which is objective and valid. For example, while it would be extravagant for us to ask the reader to find any notable pleasure—or, let us hope, displeasure—in his confrontation with this page of print, he may perhaps identify some passage which immediately affected him with a mild positive value-quality of the interesting or with a negative value of the boresome or difficult. If so, then we may observe that there is presumably nothing in the grosser aspects of the page which accounts for his feeling of satisfaction or the opposite. This attaches

to something here presented and effects the presentation of it to him; but it is no physical quality of the page or of his merely sense-imagery which determines this direct value-apprehension. Rather this reflects something present to his mind on account of what he associates with these ink-marks on the page. And this context is associated, not by way of cause-effect connections in nature, but through his well established language habit, representing, in its origin and control, certain communities arising from social convention. If he is later called upon to make a value-judgment of these pages, he will do so in some part by reference to the direct value-qualities of his experience in reading them. And he will aim to be objective in his judgment; and will, thus, retrospectively attach genuine objectivity to certain value-feelings characterizing this confrontation in his experience. Uncomfortable as this illustration is for us, it may serve to emphasize the fact that a value-aspect of given experience may still be objective though it attaches to the presentation through a context of associations which, in large measure, the subject must himself bring to the experience. Particularly this may be the case wherever the manner of such association represents a sign-function genuinely attaching to the presentation in its character as a symbol, and controlled by rules which determine correctness or incorrectness of interpretation.

These considerations concerning values which may attach to a presentation, but are governed not so much by the sense-character of the sense-presented object as by the context of possibly *objective* associations which it has, will be of importance especially in connection with esthetic judgment. The values attributable to esthetic objects are peculiarly presentational, but nevertheless are such as cannot be determined exclusively from the sense-presented characters of them.

Chapter XIV

Inherent Values and the Esthetic

1. All value in objective existents is extrinsic; it consists in a potentiality of the thing for conducing to realization of some positive value-quality in experience. When this realization of goodness to which the object conduces is one found in the presence of that object itself, the value attributed is here called an inherent value. Values which inhere in the nature of the object in this sense of being realizable through presentation of it, contrast with the instrumental values of things, which are potentialities for conducing to some positive value-quality not disclosed in the presence of that object to which the value is attributed but through presentation of some other object to which it may lead.

This distinction of instrumental value or any utility from the inherent value of an objective existent, is one which is clear. But it may not be equally clear why there should be distinction of the inherent value of an object, disclosed or disclosable in the presence of it, from the intrinsic value which is attributed to the experience itself. It may appear that in attributing intrinsic value to the realization of the quality of immediate goodness in the experience, and inherent value to the object in the presence of which this goodness is realized, we count the same value twice over, calling it now by one name and now by another. This point has already been covered, by implication at least; but let us make sure of the matter before proceeding further.

This distinction of intrinsic from inherent value is necessary for two reasons. First, because the ultimate aim of a sensible action can never be merely the existence of a good thing, but is always some realization in experience of that positive value-quality to which this object may conduce; the occurrence of this value-quality as an ingredient in human life. And second, because the quality of experi-

ence realized in the presence of an object may not be demonstration of a corresponding value attributable to the thing as an objective property of it. As also, the failure of experience to include any positive value-quality in the presence of a thing, is insufficient as demonstration that it is not objectively and inherently valuable. Intrinsic value, which is that for the sake of which all other things are valued, belongs exclusively to occasions of experience as such; and value in objects consists in their potentiality for contributing goodness to such occasions. But this value-property in an object, whether it be a mere utility or an inherent good to be found in presentation of this thing, is still something which belongs to it objectively, whether disclosed in any particular experience or not. There can be no such thing as failure of correctness in the apprehension of a value-quality characterizing immediate experience. But with respect to the values resident in objects, as with respect to their color or shape or any other observable property, appearances may be deceitful. If one should experience delight in the presence of some artistic monstrosity the enjoyment itself would be an absolute good,[1] and would prove—if one choose so to put it—that the object experienced had that much of genuine goodness; that it possessed the potentiality of conducing to just that positive value in experience. But that would not demonstrate its potentialities for experience in general, or even for one's own further experience: any more than looking red or round on one occasion, or under particular circumstances, would prove objective redness or roundness of the thing observed. The value immediately found is indubitable; but the value-property of the object—the potentialities of it for further experience or for experience in general—is something which has to be judged; and may be judged erroneously on the basis of any single experience.

It may be a part of the difficulty surrounding this distinction between the intrinsic value in the experience itself and the extrinsic value resident in the object experienced, that it does not appear what 'substance' it is of which the values immediately found are to be predicated. As suggested, the subject of such predication of intrinsic value is the occasion of experience itself, or the phenomenal content of

[1] Apart from any influence which this enjoyment itself might have on further experience—a topic which will be considered in Chapter XVI under the head of 'contributory value'.

this occasion. It does us no particular good to predicate experienced content, as distinct from the objective properties of physical things presented, to a mind-substance, after the fashion of traditional dualism. What is more in point is to recognize that occasions of experience are real in their own right and with their own particular kind of reality. The difference of an actual such occasion from one merely thought about, or expected but never realized, is an absolute distinction, as much as is the difference between a physical thing having a place in space and time and one which is imaginary or supposititious only. Strictly, such phenomenal content of an experiential occasion is never simply identifiable with any character attributable to an object: the corresponding property of the object presented is something else in any case; although, where the experience is cognitively veridical, there is a highly important connection of the two. This distinction must be maintained between the value-quality in the content of experience itself and an objective property of value in a thing, for the same reason that we must distinguish between apparent hardness or squareness and the objective property of being hard or square. As also for the additional reason that realization of positive value-quality in an occasion of actual experience is an end in itself, whereas objective value in a thing, even when inherent and to be realized in the presence of it, is still a means only to this further end of a satisfaction found in human living. For clarity, however, the most important point is simply that inherent value is an objective property of the thing to which it is attributable, even though this property consists in the potentiality for conducing to experience of a certain kind —as, indeed, other objective properties, like hardness or squareness, could also be construed.

2. Esthetic values are a subclass of inherent values: all esthetic objects have a value disclosable in the presentation of them; but not all inherently good things, having a value so disclosable, are such as would ordinarily be called esthetic.

In the whole area of philosophic studies there is probably no other topic which is marked by so much unclarity and so little unanimity as is exhibited by the subject of esthetic theory. In part this is due to the failure of those who devote themselves to it to come to any agreement as to the precise delimitation of the field of phenomena to be included, the classifications amongst these which are to be set up, and

the terms in which the distinctions and relations involved are to be conveyed. There is, thus, no well-settled usage of the term 'esthetic' itself. There are some things which all would agree in so classifying, and there are some things which all would agree in refusing so to classify; but there is another large class with respect to which no such agreement will be found. And even to the extent that there is agreement in the classifications made, there is no corresponding unanimity as to the basis of them. Insofar as this is the case, any delimitation of the esthetic as one class of values must be in some measure arbitrary. But we here deal with one of the universal and vital interests of mankind; and if it is in some part unavoidable that distinctions should be drawn here by convention, it is still of first importance that we adhere—if by good fortune we may—to what is dictated by the nature and direction of these common human interests.

It is a part of the difficulty that the distinction thus indicated is a subtle one, and cannot be drawn by reference to any single and simple principle of division. But as a first approximation we may observe that esthetic objects belong to the class of those the value of which is *peculiarly* an inherent good of them.

Things which have value in the sense of utility only, and are useful for production of other good things but not gratifying in themselves, are fairly common—though secondarily and derivatively, a thing which is reliably or highly useful tends to acquire by association some degree of value-quality found in presentation of that thing itself. But in contrast to the utilities, there are relatively few things which are good exclusively in the sense of inherent value, and do not possess in addition some usefulness. Partly this is because the category of utility is itself so wide: there are few things which cannot be put to some use—and even to some *good* use. But this bare possibility of some incidental use is not sufficient to mark a thing as a useful *object* in the ordinary sense: for that, this potentiality of it must be typical, characteristic, or preponderant. Usefulness of an object is not, of course, a question simply of the *number* of occasions; nevertheless it may illustrate the point to observe that a thing which proved useful on a few occasions but definitely obstructive to our purposes on an equal or greater number of occasions, would not be accounted useful on the whole. The larger part of the explanation

of this fact that most things classifiable as inherently good are also useful, lies in the consideration that occasions on which any particular kind of thing will be directly gratifying are, for the most part, special and not too frequent. No music, and hardly any picture or other work of art, will be such that whenever and wherever we should come upon it, some direct satisfaction will be found in this encounter. And there are many things whose presence might afford incidental gratification or be pleasing under some circumstances, but to which we remain indifferent on the whole: they are hardly worth bothering about or cluttering our lives with. Thus in order to qualify as an object which is good on the whole, a thing must usually possess some instrumentality to other good objects, in addition to its potentiality for direct gratification, or else the inherent value findable in the presence of it *must be of a high order.*

A garment, for example, should look well and feel comfortable. But this inherent goodness of it is hardly sufficient to mark it as a good garment; because the main value of garments consists in their utilitarian function of protecting us from the weather and, by keeping us warm, conserving the vital energy for other expenditures. Those things which are of little or no utility but still are accounted good by being especially reliable sources of direct gratification or affording gratification in high degree, represent the class within which we must look for the peculiarly esthetic objects. That is; since there are two main types of value to be found in objects, inherent value and instrumental value, and since a single objective existent may be good in either or both senses, we have three classes of good things: those which are preponderantly or exclusively useful; those possessing some degree of inherent value and also some use; and those which by being preponderantly or exclusively good in the sense of being directly gratifying, are candidates for the label 'esthetic'. (There is, of course, the fourth class of objects also, which neither afford direct gratification nor have any use, and are worthless altogether.) However, this distinction of possessing inherent goodness to a degree which by itself is enough to mark them as good things on the whole, and of being useful only incidentally or not at all, is not sufficient to mark an object as esthetic: the considerations which have weight in determining this classification are more complex.

It would also be futile to look for any sufficient ground of this dis-

tinction in some quality of the esthetic experience merely. There is no peculiar exquisiteness which marks experience of the esthetic, as distinct from that positive value-quality with which the potentialities of inherently good things in general may be realized in the presence of them. Or perhaps we would better say that there is no clear distinction of the esthetic experience unless it be one of the *degree* of positive value-quality found in it, or one derivative from the prior distinction of esthetic *objects* from other inherently good things, or from the distinction of the esthetic *attitude* or orientation toward objects.

There is, to be sure, a glory of great music and in the presence of great art or of the majesties of nature, which is not otherwise to be found—unless it be in moral exaltation or in love or in the religious experience. And there is an attitude of absorption in the content of presentation, free from all preoccupation and ulterior aims, which contrasts with that practical attitude of concern which is commonly more imperative for daily life. There is also the moral difference between the satisfactions of those who in their folly choose the transient goods, and indulge in those experiences which bring some aftermath of dissatisfaction or of pain, in contrast to the gratifications which are pure and may be lasting. Good taste holds an imperative for the good life; being that discrimination by which the purer, the more fecund, and the more durable inherent goods are selected.

It is in terms of these comparisons—of the *degree* of positive value-quality, of *attitude* toward the presented, and of the natural *associations* of one experience with another—that the distinctively esthetic may more surely be marked off. And we should grant that there can be no such distinctions as these which will not be reflected in the quality of those experiences which they affect. But except as derivative from these, there is no peculiar and original quality of experience which is the touchstone of the genuinely esthetic, and by which the innocent and unwary might be warned of their difference from other intrinsic goods which still do not deserve to be called esthetic goods.

3. There are three typical attitudes or orientations toward what is presented to us, the moral or active, the cognitive, and the esthetic. These are not of necessity mutually exclusive, but one or another of

them is likely to be preponderant and determining on any particular occasion of experience. 'Esthetic' here connotes, first and foremost, the aboriginal empirical apprehension of what is directly presented and is contemplated in its value-character as given. The esthetic attitude is directed upon what Prall has called the 'esthetic surface'[2]; and in this it stands in contrast with that commoner concern which takes what is presented as sign of or clue to something further; also it stands in contrast with those evaluations which are determined by reference to the ends of action. Again, it stands in contrast with attention to and any appreciation of the utilities of things, which are not values realizable in presentation of the object having them but find their fruition in the experience of something else. Thus the esthetic attitude is that orientation which peculiarly conduces to discernment of the quality of the given as such, and is distinct from that which prepares for action and from the prevailing attitude of prediction and cognition.

The active attitude is directed upon absent goods; goods which are pursued or aimed at, not those now enjoyed or now enjoyable. Such concern for the attainable but presently unattained repesents the moral orientation, in the widest sense of 'moral'; the attitude which bestirs itself about a possible future and is filled with the anxiety to achieve. Such regard for what may come and for what action may secure, is subserved by looking upon what is before us, not in the given quality of it on its own account, but in its signification of unrealized potentialities or the character of it as instrumental. Thus for the active and moral attitude, the presented is grasped in its practical and predictive significance of a clue to what lies beyond.

Esthetic values are not the goods of action; and the attitude which elicits them is amoral and free of such concern. They are those which are grasped by absorption in the presented in its own inherent quality and for the sake of the value so realizable in immediate experience. It is inimical to esthetic apprehension that in our confrontation with the thing we should be distracted by the thought of something else or something further.

One could not, of course, take such characterizations of 'the moral' and 'the esthetic' as indicative of classifications which are strict and non-overlapping. In a broad and literal sense, all direct

[2] See *Aesthetic Analysis, passim.*

apprehensions are esthetic—until they are qualified by that context of interpretations which thought would add. And all evaluations are broadly moral in significance: whatever is justly valued calls to be realized or maintained, and holds some imperative for conduct. Further; action has its own immediacy of transience and of movement: the dance, for example, is an esthetic form. And again, the moral *end,* however delimited, will have its esthetic significance. Whether the *summum bonum* be conceived as happiness or as self-possession; as activity befitting the nature of a man or as the intellectual love of God; it will in any case be projected as some ideal wholeness of self-contained living; some blessedness to be steadily maintained; some perduring experience having its self-justifying quality as esthetic.

But as William James pointed out, experience has its flights and perches; its transitive phases and its phases of arrest; its character of activity or of passivity. 'The esthetic' carries with it some connotation of pause, of contemplative release; as 'the moral' has its connotation of the attitude which looks toward action and which, in its orientation to the present, is preoccupied with what is signalized as further possible. The two are not wholly exclusive of one another or incompatible: nevertheless the esthetic attitude is at odds with the normal active attitude which, like walking, preserves its equilibrium by continually moving forward. The one would appreciate the given in its own given character; the other would make use of it as a cognitive clue. Thus esthetic apprehension calls for suspension of this forward-moving élan of life and a recovery from the continual distraction of it from the present. And although all experience is esthetic in the broad sense of being presentation of some quality-complex in which value or disvalue is directly findable, it becomes esthetic in the narrower sense which is more appropriate, only if it becomes object of the esthetic attitude; only if the experience is marked by absorption in the presented content on its own account. Correlatively, it is that character of presented content which solicits such absorption, and does not arouse concern and distract us toward ulterior ends and action, which marks what is peculiarly esthetic. In this, the esthetic experience may be distinguished from others which also may contain some direct gratification and represent realization of some value inherent in the object presented, but still do not solicit absorption and quell the interests of action.

The comfort of a well-fitting shoe, for example, is a direct satisfaction; so, too, for the man who habitually uses such tools, the feel of a well-balanced axe affords immediate gratification. And it would be special pleading to urge that masterpieces of the shoemaker's or the axe-maker's art play a less important role in life than masterpieces of painting. Nor would it be a valid ground of distinction of the esthetic from other inherently good things, that satisfactions like the comfort of good shoes are vulgar values, easy of discrimination and attainment; whereas works of art present values which are rare and are not readily open to discernment by the uncultivated. On the contrary, it must be the claim of fine art and its products that they answer to a human interest which is universal; and precisely the nature and ground of this universal interest, is one consideration which the esthetician would seek out. He would repudiate with horror the supposition that his criterion represents some class interest, or that the esthetic is tainted with any snob-value, such as might mark a discriminating taste in wines but not an equal discrimination exercised amongst the various brands of canned beans. If the enjoyment of wine is more nearly esthetic than the satisfaction of beans to the hungry man—and that could be doubted—the reason would be that beans are normally appreciated for their utilitarian value, as sustenance, which wines lack. The esthetic must at least call to our discerning attention by the immediate quality of it, rather than being an object of utilitarian appraisal. The good shoe best performs its office when we are able to forget it; whereas a work of art which should not draw and hold attention would exercise no function in human life whatever. The distinctively esthetic things must not only possess a goodness which is inherent but possess it in such wise and in such degree as to solicit the esthetic attitude of absorbed contemplation, and hold us free from all distractions of further and utilitarian aims.

The cognitive attitude lies closer to the esthetic than does the attitude of action; because cognition mediates between the directly given and the ends which action seeks. Nevertheless esthetic apprehension differs from that which characterizes the most frequent and most typical examples of empirical cognition, in somewhat the same manner that it stands in contrast to the orientation of action; and for reasons which are similar. Knowledge typically is imbued with

the interests of action, and serves them. And though the interest of action itself lies in the possible realization of some later value, it is possible and eventual values to which it is addressed and not those now presented. Thus the cognitive attitude which subserves activity, is directed upon what is immediately before us, not in consideration of the value-quality it contains in itself but as significant of something further, having value or disvalue, which may be realized. Knowledge typically looks at the given only momentarily and in order to look away from it and forward. It does not appreciate but interprets what is present to us. Esthetic apprehension, by contrast, is appreciation of the given in its native quality, and does not look beyond this: it is a prehension freed from apprehensiveness; an *inspectio* freed from expectancies and from the urge of doing.

There is, however, a respect in which the typically cognitive and the esthetic attitude may be alike: both require to be impersonal in the sense of being unclouded by desire; to be dispassionate in the sense of grasping something as it truly is, regardless of any wishes and of our hopes and fears. Esthetic apprehension requires to be thus disinterested in order to be just, and to be free of sentimentalism and pathetic fallacy. In it, the subject must be assimilated to the object, not the object to the subject; and the empathetic infusion of what is contemplated with subjective inclinations spoils it. Likewise the cognitive attitude must be dispassionate in order to be just. If by its utilitarian purpose, cognition is a thinking which is motivated by our wishes, still it must, in order to serve them, refuse to be a wishful thinking. The predictive attitude of common knowledge must, in order to attain validity, be uninfluenced by our inclination or aversion. It requires to determine a relation between what is given and a consequence of possible action affecting what we hope or fear; but recognition of this relation must stand fast against our wish and will. Thus the purely *cognitive* interest in validity and truth, is to be distinguished from those ulterior interests which knowledge serves. And it is in this sense of being directed upon that which our desires may not affect, that knowing must be objective, impersonal, disinterested, and contemplative. It is also in this that the cognitive attitude may approximate to the esthetic, which also requires to be disinterested, impersonal and contemplative.

However, interest in truth for its own sake—the pure and undistracted purpose to know—is not the characteristic final purpose of knowing. Knowledge for its own sake, and the contemplative life, represent an esthetic or near-esthetic ideal rather than one normally attributable to cognition. It is merely a professional fallacy of the scholar to impute his own peculiar interest in finding out the truth to human cognizing in general, as if that were the aim which rules or should rule it. He who is disinterestedly interested in finding out and knowing; who subordinates the desires and interests of action to discovery of the truth, and to contemplation of it; likewise divests knowledge of its natural and pragmatic significance. By the same token, the ideal of the contemplative life is mildly abnormal, however valid and indubitable the values to which it is addressed. The ivory tower is characteristically the refuge of the practically defeated and of those who become disillusioned of the utilities of action.

We may also remark that the esthetic orientation verges toward the cognitive so far as contemplation of values in the given is a *self-conscious* appreciation, marked by the deliberate intent to pause and apprehend, and to enhance the quality of direct experience by savouring what is presented, rather than by unmotivated self-surrender in the presence of that which by the immediate quality of it solicits us. And perhaps there are those who confuse esthetic apprehension with critical discrimination, and would think such deliberateness of appreciation the more truly esthetic attitude. But this deliberate intent, characteristic of the esthete, must always dilute a little the immediately realized value it would enforce. It is always in danger of tainting the purity of esthetic experience with sentiment or with the avidity of personal desire, or of displacing it in measure by the conceit of one's own discernment. Those who would overmuch roll their esthetic gratifications upon the tongue, must remind us of Carlyle's charge against the romantics: that having drunk the good liquor, they say to themselves, "Come, let us eat the glass." Esthetic satisfaction, like other enjoyments, can be at its height only when it is unself-conscious, and is an absorption unqualified by the cognitive intent of objective appraisal and analysis, or by the deliberate intent to seize and retain. By an irony of experience itself, both the esthete and the esthetician may, through their preoccupation, lose a little of that which they would seek or would portray. In one sense

at least, the fullest glory of the esthetic is open only to the innocent or to those who approach it with humility and for whom it is a gift of the gods.

In the broadest sense, the esthetic might be marked off simply by reference to this esthetic attitude of disinterested interest in the presented; and no class of peculiar esthetic *values* need then be recognized, within the general category of that which possesses a value realizable in presentatiton of it. The directly apprehended is esthetic when we pause upon it; contemplate the quality of what is given in and for itself and in abstraction from that other significance which it has as cognitive signal for action and sign of the further realizable but not now presented. And the characteristically esthetic objects will then be recognized simply as those which, by the positive inherent value resident in them and by the relative absence of any apprehensiveness of the future aroused in presentation of them, typically induce this contemplative arrest instead of the response of action.

We must, however, avoid the fallacy of supposing that there is anything in this esthetic attitude by which it could be constitutive of what is apprehended. The contemplative pause is in measure essential to the esthetic *enjoyment,* but not to that quality which is enjoyed. This attitude is merely one of attentiveness to the given in its own right, as against that passing apprehension which looks to it in order to look beyond, by interpretation of it as cognitive signal. So habitual is this concern for the future that cognitive interpretation normally 'does itself': to discern the given in its immediate quality often requires a suspension of and recovery from this cognitive activity, somewhat as we frame a landscape or a picture within our hands to see it more clearly as an esthetic object. It is by reason of this that so often we can only approximate to the pristine clarity of esthesis by some dispelling of other interests. We are more or less obtuse to the given in and for itself, just because it requires this suspension of the habitual leadings of action and of the interpretation which serves them. We can easily give ourselves up to what is directly and simply before us only in childhood, or insofar as we may have preserved this capacity for absorbed and unmediated apprehension as the artist does. For the rest, it requires us to recover from that watchfulness for and against which nature begins to instill in the

first animal that hunts or is hunted; to recover from the earnestness of living by removing ourselves, for the time, from all concern beyond the moment. The esthetic attitude is, thus, only the attitude of undistracted attention, and it does not invest the object with significance but, on the contrary, abstracts the presentational quality of it from any cognitive interpretation and from its character as sign.

In passing, we may also note that it is by reason of this fact—the fact, namely, that presentation is normally accompanied by and infused with interpretation, dictated by the interests of action—that the primordially given in general requires to be discerned within, and abstracted from, the characteristic content of our usual attentiveness; which is directed upon the realities signalized and not on what is present to direct awareness on its own account. And it is one result of this that we are driven to speak of the immediate, in contrast to what it cognitively mediates, in terms of 'sense data' or 'experience', thus seeming to imply—against our intention—a coloring of the 'subjective'. Judiciously speaking, what is given is empirically aboriginal, and neither subjective nor objective. These terms have no application until what is given is weighed in relation to the interpretation put upon it. That which induces expectations which later experience will confirm is by that fact 'objective'; and that which leads us to believe what further experience would disprove, is by that fact 'subjective'. But the content of unmediated awareness, abstracted from any supplementation by the interpreting attitude, is significant neither of the subject nor of the object. It is apprehended, not by introspection nor by extrospection, but simply by *spection,* unqualified by any further relationship either to the external world or to those dominant interests and that cumulativeness of conscious content which mark the continuity of the self.

4. We might, thus, refuse to delimit the esthetic in any narrower fashion than merely by reference to the esthetic attitude. In these terms, we should first remark that esthesis in general is simply the apprehension of the primordially found, abstracted from all further accretions of thought and the interests of action. And that the esthetic orientation is only that contemplative pause of undistracted attentiveness by which this abstraction may be effected. We should then go on to note that value and disvalue represent a universal or near-universal aspect of the presented, and are those qualities by

reason of which it may be poignant. It is only this value-disvalue aspect of the given which has power normally to arrest the movement of attention and dispel the distracting concerns of action and interpretation. Pain may absorb us, or ecstasy; and a milder value or disvalue has always some call to contemplative pause. But the relatively indifferent is relatitvely unattended for its given quality, and is noted only in its sign-significance of a possible future and of indicated action. Pain, too, and the unpleasant in general, turn us away toward action—unless they should be overwhelming. We are averse, literally, to the disvaluable. It is positive value only which holds inducement to the esthetic attitude. Values thus clearly discerned in the given by this contemplative pause, as distinguished from the utilitarian and instrumental, which merely attach to what is presented by association and by way of expectation, are the esthetic values.

This would be a broad sense of 'the esthetic' which we shall not take as final. Nevertheless, it is salutary to remark the justification which might attach to such broad classification. There is no higher criterion than this for distinguishing that kind of goodness called esthetic nor any which is more basic, even though there are further qualifications marking a narrower category of esthetic values; and these further limitations also answer to human interests which are universal. Esthetic values are not distinguished from others by any peculiar quality or goodness of the experience with which the esthetic object greets us—unless, as has been said, in the *degree* of it, or in the attitude on our part to which it answers. The good, like gold, is where you find it; and any goodness directly found is absolute. The good is what you like and what you want—provided we read this statement in both directions, and do not forget that what one likes and wants is a matter which can be subject to the most serious of blunders.

Even at the level of direct perception, there is possibiilty of such error. Recognition of the real value-quality can be obstructed by perversity or wilfulness. The man who 'does not understand art but knows what he likes' may be innocent, and the values he apprehends may be genuine, even if not the most important ones embodied in what is before him. But on the other hand his attitude may be merely that of perverse refusal of real attention, which robs him of

a value within his reach. Or he may be betrayed by unconscious falsity in formulation: to elicit and justly express the quality of the given can be a matter of some difficulty; and one who merely says whatever easily suggests itself may fail of accurate self-expression, and then be drawn into the error of believing what he says. 'What one likes' is easily subject to such failures of discernment; and for such reasons esthetic apprehension and mere liking may better be distinguished than identified.

But apart from such perversions of discrimination and expression, there is no more fundamental kind of test of the esthetically good than the likability of things in their presented quality. Wherever some directly found goodness solicits our attentive regard and rewards it, what is disclosed has that same basic type of value which characterizes the esthetic. So far as the quality of experience goes, there is no notable distinction between the transient value of a passing odor of honeysuckle and the enduring value of a symphony; between the appetitive value of a beef-steak and the spiritual value of a Gothic façade; between the innocent value found in a little red wagon and the cultivated value one may find in a sonnet or a Grecian urn. The symphony and the sonnet may be higher values—may be things which justly rank higher in the scale of comparative value; and their character as enduring, cultivated, spiritual, may be the valid ground of such preference. But it is the same scale of goodness to which they all belong.

5. There is, moreover, nothing which is at odds with this in our setting up of some narrower category of *distinctively* esthetic goods, answering to some more *complex* criterion. Unless these further limitations should be arbitrary and fail to conform to any interest which is universal and to represent any manner of evaluation which is just, then they must likewise be governed by an eventual reference to what is valuable in the sense of affording immediate satisfaction. The critique of taste, directed upon immediate satisfaction, would have no justification at all if it were merely some search for the exquisite and rare, and a nose-wrinkling disdain of the common and vulgar. Rather it finds its validity in the intent to set high those directly disclosable goods which are enduring, and are free of entanglement with what may spoil our satisfaction, and to set relatively low those things our satisfaction in which cannot well be main-

tained. It is still an interest in the immediately satisfactory as such which rules. But concern for the possibilities of the good life demands consideration of the *economy* of values. It is in this that, as has been suggested, esthetic discrimination is touched with the moral.

Such consideration of the economy of values and such critique of the distinctively esthetic implies two things: first, a concern for that cultivation of taste which the wisdom of experience will dictate if we are not to invest our attention in the relatively unworthy and, in the long run, not genuinely rewarding; and, second, concern for the creation of objects and the provision of occasions in which the peculiar qualities answering to such cultivated taste may be found. These concerns will direct some reappraisal of the relative values determined by our uncriticized value-findings. They will also render complex any adequate depiction of the category of peculiarly esthetic objects; both because they introduce these further criteria of discrimination amongst values as immediately disclosed, and also because such concern for enlarging the opportunities for esthetic satisfaction will itself give rise to secondary and reinforcing interests—such as interest in the technique of artistic creation and in the technique of esthetic discrimination itself.

Such economy of values will direct, for example, that we should not put high those satisfactions anciently called pleasures of the body and called by Bentham impure pleasures: as Plato counsels, these should be indulged only as necessary and incidental, or for the purgation of desire. That is, a sensible interest in the relative possibilities of immediate enjoyment, dictates that we should relatively disregard, or at least not typically pursue, those occasions of immediate satisfaction which are essentially transitory and inimical to other and more lasting realizations of value. And also—though this has been a less frequent theme of the moralizing estheticians—it dictates that we should not choose, as objects particularly affected with directly findable value, those things toward which the esthetic attitude cannot well be maintained because they are incidental to situations calling for action, and hence do not reasonably allow us to pause upon and rest in the value of them simply realizable in presentation. Conversely, the rational economy of values dictates that we particularly seek what Bentham calls the fecund pleasures; those directly realizable values which give rise to or enhance our realization of

others also, or are connected with and reinforced by secondary and derivative goods. Satisfaction of the natural appetites is certainly an intrinsic good. But it cannot be esthetic, in the narrower sense we now consider, because such goods are essentially transitory, and overmuch concern for them means the loss of other and more enduring values. Eating and drinking could at best be a very minor art—or an art at all only in the utilitarian sense—both because appetite is soon sated, and because these functions are naturally instrumental and have an end more imperative than the satisfaction found in indulgence of them. We must eat with due regard for health; and by that fact are disbarred from directing this activity to realization of that good directly found in it.

That a utilitarian interest in a thing is imperative, is not contradictory of the different interest in it as a source of immediate satisfaction. That what is useful possesses also some inherent value, directly found in presentation of it, enhances our just appreciation of it on the whole. Nevertheless these two interests look opposite ways and can easily be at odds with one another. There is no reason to keep beauty out of the workshop or kitchen, or to ignore them there: the contrary rather. But workshop and kitchen must remain devoted to their imperative utilitarian purposes; and where utility thus rules, the object and the activity will not be classed as distinctively esthetic, because they cannot be subordinated to realization of a direct and contemplative good. That must remain incidental and secondary.

It is another limitation sometimes imposed upon the peculiarly esthetic, that they must be goods which are essentially spiritual and non-material. The intent of this requirement is obscure, or at least not immediately apparent; especially since esthetic values can only be actual when embodied in physical objects. And sometimes the explanation given of it is one which is metaphysical and abstruse and, so far as it is clear, seems to mean only that esthetic values are universal essences. That contention we must grant at once, since all qualities which can be found in things are universals: but by the same token there is no distinction of the esthetic which could be based on that. But whatever may be intended by this restriction of esthetic values to the non-material, there is one possible significance of it which would be well justified—though perhaps it is a minor rather than a major mark of the distinctively esthetic. Peculiarly

esthetic objects must be those toward which the attitude of contemplative discernment can be maintained. Not only is preoccupation with utilitarian ends inimical to this, but also any interest too easily affected by considerations of *meum* and *tuum*. *Any* positive evaluation marks the object of it as calling to be realized and in that sense possessed: but the desire of exclusive possession and the urges of competitive activity spoil esthetic satisfaction by being incompatible with the essentially disinterested and impersonal character of the esthetic attitude of absorption in the presented. Esthetic values should be non-competitive in their realization.

There are those goods which by their nature must be divided in being shared: enjoyment of them by one militates against or even precludes a like enjoyment on the part of others. But there is the different class of goods which are not divided in being shared but enjoyment of which may even be enhanced by sharing. The distinction here is obviously not one between goods incorporated in physical things and those which are not. Rather, the competitive goods are 'material' in the nineteenth century sense of connoting the 'material' wants of man and the economic.[3] This line of division is one which becomes more difficult to draw precisely, the more closely we consider it; and is not so much between objects or things of different kinds as between different attitudes toward them and different satisfactions to be derived from them. But the distinction is nevertheless a real one, and broadly speaking is obvious. The non-competitive goods, even though resident in physical objects, are non-material or spiritual in the sense that realization of their value in experience may be non-exclusive, and hence impersonal or superpersonal. *Every* object socially denominated good must answer to some common interest of mankind; but these objects have a peculiar character of community in that the common interest in them is not one which may set one man against another but on the contrary one which may bind men together. Possession of such goods is free of entanglement with questions of the moral relation to others, and from intrusion of

[3] Incidentally, metaphysical explications of the non-material or spiritual significance of the esthetic are likely to be reminiscent of the profound moral opposition between that nineteenth century materialism which said that man is what he eats, and that all other human and social categories are derivative from the economic, and that idealism which likewise had its birth—or revival—in the same period.

any desire to have and to hold. Such values are pure; the enjoyment of them may be serene, and their contemplation free from practical care. By contrast, the competitive goods have the character of 'necessities', which must be saved against a future occasion, and our attitude toward them must be in a measure utilitarian and active. It might be dubious to regard this non-competitive character as essential to esthetic values, and this quite moral amorality as a feature of the truly esthetic orientation. Nevertheless this type of consideration undoubtedly has its weight in marking off the distinctively esthetic attitude and the peculiarly esthetic objects.

6. It is another and a different kind of consideration affecting the distinction of the esthetic from other inherent values in things, that the original interest in the directly and highly and purely enjoyable leads to an interest in multiplying those objects which afford such satisfaction; and that artistic creation directed to this end may itself give rise to further and secondary interests in the objects of art and in the technique of their creation. Indeed such secondary interests sometimes threaten to displace the original one, and 'esthetic' might be in danger of coming to signify exclusively what pertains to the fine arts, if it were not that preoccupation with the artistic can never quite run to the extreme of forgetting that nature too presents us with objects having inherent value and worthy of the most sensitive appreciation. There has always been a bit of a boggle on this point; and theorists of esthetics, in the desire to reduce their topic to one final and ruling consideration, have sometimes been tempted to take the beauties of nature as somehow an eject of our own artistic creativity, or a sort of miraculous simulacrum of values natively resident in the spirit of man; or on the other hand, to subordinate the goods of art to natural esthetic values, taking art as primarily representative of or otherwise derivative from the natural. But such reductionism is uncalled for; and these opposite manifestations in esthetic theory of the human tendency to harp on one string, are essentially fallacious. Romanticism, classic realism and transcendental idealism are all of them unnecessary answers to a question which should never have been asked. Some directly findable goods have their source in nature and some in the artificially produced; but that fact indicates no need to conceive of Nature as a great artist, or of artists as a kind of exquisite naturalists. Nor does it call for conception of some

transcendent idea in which mind and nature find an ideal meeting point. One supposes that, in the history of man, the first esthetic objects must be found in nature, and that the first art will in consequence be imitative, so far as it is more than merely utilitarian. Also, the artist's vision can be given permanent form only if somehow embodied in a physical thing, under the restrictions of natural law. And the multifarious suggestions of the natural can never be far from the mind of man in any mood, but must of necessity largely dominate his imaginings and provide what Schopenhauer called the bass notes on which his artistic counterpoint is built. But a pattern of line and color which is pleasing to the eye has by that fact inherent goodness, and satisfies the only final criterion there can be of esthetic value. And this kind of goodness, disclosed to direct contemplation, is independent of any question how the object in which it is embodied happens to have been produced.[4]

Interest in art as an activity directed to production of immediately pleasing things, is derivative from interest in the values directly realized in contemplating such objects. But as has been suggested, one thing which makes esthetics a complex subject is the fact that art-activity and concern with the products of it, inevitably lead to a variety of secondary interests, capable of reinforcing the primary interest in directly apprehensible and contemplative values, and likely to become more or less fused with these. They are even—unfortunately—capable of displacing them in measure, and substituting the merely technical for the genuinely esthetic.

The artistic activity directed to the production of such goods, though it is utilitarian in being pursued for the sake of a value as yet unrealized, still has its value (or disvalue) on its own account; and satisfaction found in the activity itself is, characteristically, infused with the anticipatory good of its projected end. Technical excellence and virtuosity in art, though determined ultimately by

[4] Hardly any pattern of line or color, however, can be free of all suggestion and interpretation. The trouble with 'abstractions' ordinarily is that they are *not 'abstract'*, but by their suggestion of the incongruous distract the mind from the contemplative attitude. Indeed, except for what is obviously pure design, the absence of meaning can itself be distracting. Abstractly pleasing composition of line and color best allows our absorption in it when the representational suggestions of it are familiar and harmonious. It is only music which, being relatively remote from nature, easily allows our absorption in abstract pattern, independent of all interpretational significance.

their utility in leading to objects which are reliable sources of esthetic enjoyment, may afford a derivative satisfaction in the attainment and practice of them. Similarly, the technique of discerning such reliable sources of esthetic enjoyment may give rise to a satisfaction in cultivation and connoisseurship itself; satisfaction in the exercise of just discrimination, or satisfaction in discerning in the object the marks of technical excellence in its production.

It is, perhaps, a rather common fallacy—a professional fallacy—amongst estheticians and artists, to confuse virtuosity, or the evident result of it, with primary esthetic quality. The untutored but esthetically sensitive wonder a little—humbly, as a rule—why certain paintings or statuary or musical compositions are specially appreciated by the connoisseur. And sometimes they have a right to wonder, because the esthetic objects in question are not genuinely superlative. They are merely meritorious artistic productions by virtue of having surmounted difficulties of the medium or of the artistic technique. Or they are of peculiar interest by virtue of some novelty or ingenuity in the technical manner in which the artistic end has been achieved. The esthetician and the artist get a special and added pleasure through observing the results of such technical competence; and a peculiar fillip to their interest in recognizing novelty and ingenuity in meeting the problems of artistic creation. Particularly so, if their professional preoccupation has led to some measure of boredom with the reliable and familiar procedures and the usual excellent results.

However, it is for such reasons that, although connoisseurship commands its due respect, we must insist that esthetic judgment is not a matter of professional authority but the common prerogative of us all. If such technical and secondary esthetic values displace the primary one of a direct and contemplative good, then we are on the way to sterility and decadence in art, and to pedantry or philistinism in esthetics. When art-products begin to be appreciated by the cognoscenti in proportion as the values in them are not open to the lay discernment; and when we are presented with the bizarre and monstrous in art, and begin to be told that there is no essential difference between the beautiful and the ugly or that art has no concern with this difference, then such decadence is always to be suspected. Even the most cultivated satisfactions are subject to a psychological law of diminishing returns. It is a first dictate of cultivated taste

that life should not be too exclusively devoted to the mere exercise of cultivated taste, lest everything should become tasteless to it. Even the artist or esthetician is not to be trusted too far in his evaluations unless he is first a man of balanced wisdom and sound moral judgment. When individuals reach the point where their appreciation of esthetic objects requires some technical novelty to arouse it, or they get more pleasure from their own articulate analysis of music than from listening to it; from their critical preoccupation with pictures than from looking at them; then it would be salutary to recognize that the artistic appetite has become jaded, and that one might be better occupied, for the nonce, with a field to plow or a load of bricks to lay than in further pursuit of deliberately achievable esthetic satisfactions.

On the other hand, there is no sin in appreciation of virtuosity or of cultivation on its own account. Without some satisfaction in technique itself, it would be a rare artist who could have real enthusiasm for his particular kind of activity, or find it in himself to persist in striving toward his projected goals. Nor could the direct contemplative enjoyments be well sustained unless reinforced in measure by such secondary satisfactions, incidental to esthetic pursuits or made possible by the cultivation of taste. Since life cannot be maintained at the level of ecstasy, our immediate gratifications must be mild and a bit casual if they are to prove more than episodic; and our more purely esthetic values are all the better preserved in such a matrix of creative activity and of satisfactions which are intellectual rather than merely sensuous.

7. There is another and somewhat similar consideration by reason of which the values found in distinctively esthetic experience cannot be identified with the whole class of those which are intrinsic and immediate. We have just observed that values which are primarily intellectual, or active rather than contemplative, may be assimilated to the esthetic through their intimate association with those primary felt value-qualities which are directly disclosed and sensuous. We should also remark the opposite kind of fact: that there are intrinsic values, directly characterizing experience, which are extruded from the esthetic classification by reason of their close connection with purposes which lead us away from the presented and with activities which are utilitarian. This has already been noted

in the case of those things the inherent values of which are incidental and subordinate to some utility of them. But there is another kind of exemplification also, which is more important. Much of what is good in life fails to have the distinctive character of the esthetic experience because, although this goodness of it is an unmediated quality, it is incapable of being elicited as explicit object of our contemplation at the moment, or it is such that the peculiar value of it is dissipated by the attempt at such self-conscious regard. The greater part of life must be active; and active in the sense that neither the activity itself nor the proximate aim of it is pursued for its own sake, but both of them for the sake of some further end. To be absorbed in action and with a purpose itself utilitarian, is incompatible with the esthetic attitude of contemplation directed upon the immediately presented. Yet such absorbed activity may have its own characteristic goodness; and in the reflective hour we may decide that this activity of work, forgetful of the moment itself and of the quality of experience, is one of the important values and perhaps the surest. In the nature of the case, however, that activity would not possess this quality of goodness if pursued merely for the sake of satisfaction in the doing. Honest work must be intent, unself-conscious, and bent upon the aim of it rather than on the act itself. This intentness of it may infuse the moment with a quality of immediate goodness; but it is a goodness which would be lost if directly aimed at, and one which is essentially incidental and derivative from the believed-in value of the further end which is pursued. Thus the value that may be resident in practical activity could be classed as esthetic in the broad sense: it is an immediate goodness of life which inheres in the living of it. But it will not be esthetic in the narrow sense, because this value of it inheres in no object nor in anything directly contemplated. Only those values are distinctively esthetic which are resident in the quality of something as presented or presentable, and are explicitly enjoyable in the discernment of them and by that pause of contemplative regard which suspends the active interests of further purposes. The peculiarly esthetic goods are pay-day goods, not work-day goods. Or perhaps better; they are the goods of those fortunate moments when both work and pay may be out of mind.

Thus the purely esthetic values are not the whole class of those which are immediately disclosed and may characterize experience

directly. And they are not necessarily those which stand highest in this class, and which are the most reliable. If the moral man, bent upon good works, and the active man, bent upon solid achievement, should be heedless of the esthetic or even a little disdainful, that surely is to be accounted a blindness in them and one which must result in a serious and unnecessary deprivation. If life is to rise higher than scratching when we itch, then the esthetic goods are needed, as well as the moral and active ones. But still this attitude might have some color of justification, in view of the necessary and possible character of a life good on the whole. In its repudiation of first claim upon us of the esthetic values, it is probably correct. Nature hardly allows the distinctively esthetic goods to be pervasive of experience; and even if they should be those which give to life its flavor, and in that sense stand topmost, still they could hardly provide the substance of it. They are principally distinguished from other values, not by relative importance or their place in the scale, but by being a peculiar class of values.

We have attempted the difficult task of eliciting the considerations which have weight in marking off this class, and account for the actual usage of the term 'esthetic'. If we have been right in our conclusions, then there is no simple quality of felt value which distinguishes esthetic experience from other disclosures of the immediately good. Nor any single character of objects, marking off those which are esthetic, and not to be found in other things possessing value. Rather the criterion of this class of goods is complex and represents a confluence of desiderata differing from one another in kind. First and obviously, esthetic objects are those the value of which is an inherent goodness, consisting in a potentiality for affording satisfaction in the presentation of them. Further, this must be their preponderant quality and not too much mixed up with merely instrumental value. Also, in order to be accounted good on the whole, independently of any utility, it is not sufficient that the object should afford some incidental and occasional direct gratification: this potentiality must be a distinctive and reliable character of it, and possessed in high degree. Second, esthetic objects are marked off by reference to the manner of our typical orientation toward them. They must be capable of soliciting and rewarding that atten-

tive regard to the presented quality of them which is the esthetic attitude; and not such as, by their sign-significance of further portending experience, distract us from contemplation and turn us away toward action. And third, peculiarly esthetic things are subject to the moralistic consideration that they should be such as afford gratifications which are pure and the good of them enduring, and are spiritual in the sense of being non-competitive goods, the value of which is not divided in being shared.

If these criteria are mainly to be applied by reference to qualities of our experience in the presence of objects, still such quality is no direct and untutored sensuous delight: truly esthetic values are criticized values, and the determination of them calls for some wisdom of life and a developed discernment.

Chapter XV

Esthetic Judgment

1. We have, so far, been mainly occupied with what might be called the phenomenology of the esthetic; with the nature and conditions of the esthetic in experience. And little has been said, except incidentally, about esthetic *judgment.* Immediate prizings of the directly presented as such, are not judgments. If expression is given to them, then what is expressed is a value-quality of the experience as given, or of the merely phenomenal content of it. The direct finding of positive value-quality may be evidence of an objective value-property in the thing presented; as felt hardness in experience or seen redness may be evidence that the thing presented has the objective property of being hard or being red. And if we pass readily and thoughtlessly from apprehension of the phenomenal qualities of experience-content to a judgment of the objective properties of the thing, that is commonplace and understandable, in the case of value as in these others. It represents a habit of interpretation, due to and in large measure justified by the general character of pertinent experience in the past. But however unmarked and however well warranted this transition from the disclosure of intrinsic value in direct experience to attribution of esthetic or otherwise inherent value in the object, it is one which is validatable only as an inference. The value found in the experience is *evidence* of value in the object; it is even the best possible kind of evidence, since such value-findings represent the ruling confirmations of value in the thing (whereas for non-value properties like hardness, the apprehension of felt hardness upon contact would not constitute such a ruling confirmation). But the single value-finding in experience would never be *conclusive* evidence of objective value in the thing: in any instance, a value-judgment so based may be in error, and it is always subject to possible correction by later experience.

It is precisely at this point that value-theory can so easily go wrong by failing to distinguish between the intrinsic value which lies in the quality of experience itself and the property of inherent value in the object, which consists of a potentiality for such experience in the presence of it. A wrong decision here makes all the difference between the conception of value as subjective and merely relative to particular persons and occasions, and hence of value-predications as merely 'emotive', non-cognitive and lacking any objective truth or falsity—between that, and the recognition that evaluations of things are objective and cognitive, and are not relative to particular persons or circumstances or occasions in any fashion which differentiates them from attributions of other properties to objects.

Any property of an object is something determinable through experience, and in that sense definable in terms of the experience which would sufficiently assure it. It could thus be said to be a potentiality in the object for leading to experiences of a specifiable kind under suitable conditions; and could even be said to be relative to experience if one should choose to use this phrase 'relative to' in that somewhat dubious fashion. But a property so specified is not relative to any *particular* experience, or to experience of any particular person, but is an independent character of the thing, inasmuch as any particular experience may fail to be indicative of the character of experience in general to which it is capable of conducing. Further, a property defined as a potentiality of experience is independent and objective in the sense that any potentiality of a thing depends on what it would, could, might, lead to, but not necessarily on what it does effect in actual fact. An actual trial of it may happen to be inconclusive or misleading as to the objective potentiality tested; and at best will be confirmation or disconfirmation only and not a final verification. Furthermore, what potentiality is resident in a thing, is independent of the question whether in point of fact it is tested at all.

Thus the conception of esthetic or inherent value as constituted by the quality of the particular experience in the presence of the object, represents such a value as relative to the individual subject. And failure to distinguish between the quality of the experience and the value-property attributable to the object, must inevitably lead to such subjectivism. But the conception of it as a potentiality for

conducing to certain positive value-qualities in experience, represents esthetic or inherent value in an object as an independent property of it; one which, like other properties, is tested by experience, but is not relative to any particular experience or to the value-findings of the individual.

Nor is it any mark of the subjective in esthetic or otherwise inherent value that there are variable conditions on the side of the subject which affect the apprehension of such value. Remarking such conditions is important in the discussion of esthetics because they notably affect the practice of the arts and the necessary discipline of those who would enlarge their capacity for esthetic enjoyment or cultivate that discernment by which they may more surely and accurately judge, from a single inspection, the potentialities of an object for their own further value-findings in the presence of it, and those of other persons. That is, such subjective conditions are important for esthetic evaluation, not because they are conditions of the value in the presented *object,* but precisely because they are conditions of any reliable *test* of a value whose authenticity is still independent of any such single value-finding.

Those who emphasize such 'subjective conditions of esthetic value' as if they were peculiar to this particular property of things and to situations in which value is disclosed, would seem to forget that other properties also have their test-conditions in terms of the subject or observing organism. That we cannot reliably determine temperature with cold hands, or judge of shape without reference to our spatial orientation, or tell the weight of things by looking at them without lifting, is not a consideration affecting the independent reality of color or shape or weight in things, or the potentialities of the objects in question for experience in general. And one who should express the fact that we cannot observe colors with our eyes shut by saying that open eyes are an essential condition of those situations in which alone color occurs, would at least be using language in a strange fashion. One who makes the corresponding statement concerning esthetic value in objects, is likely to be similarly misleading. He stands, moreover, in some danger of the fallacy of subjective relativism, which says that beauty is in the eye of the beholder and that concerning tastes there is no disputing.

That value in objects is a potentiality of them for conducing to experience of positive value-quality, has no such relativistic implication: this property of the object remains just what it is regardless of the question whether the further conditions for such value-realization in experience—those on the side of the subject—are met in any particular case or not. It likewise avoids any suggestion that the arithmetic of counting noses has any relevance to an inherent value like the esthetic ones.[1] That a sentimental picture like The Doctor is more widely appreciated than Still Life with Apples, has no bearing on their esthetic rank. And even if the inherent value of tea has no higher significance than that of democratic appreciation (which our Chinese friends will not admit), still there are such people as tea-tasters, whose discrimination affords a better test of the properties in question than others can make. In measure, the same social process which we rely upon to elicit the truths of natural science works also in the assessment of esthetic values: there are those who are especially to be relied upon for judgment, because they have a greater breadth of pertinent experience, and perhaps some higher degree of the requisite powers of discernment, as well as their special place in the continuity of a tradition which represents the social working of a human critical capacity. Their judgment may stand as against any number of contrary votes gathered indiscriminately, because it is something objective which is judged, and not something relative to the particular and perhaps undiscerning experience. If this social process is less essential and works less reliably with respect to the esthetic than in the natural sciences, and the connoisseurs are a less surely distinguished class, that fact too has its explanations: on the one side, the subjective conditions for apprehending the beautiful are somewhat more commonly satisfied than are those for the appreciation of truth in quantum mechanics; and on the other side, there are no crucial experiments in art. In art as in science, there are subjective conditions of the disclosure of the properties of things which are in question; and these conditions of discernment are satisfied in varying degree in different experiences and the experience of different people. But in art as in science, what these subjective

[1] Economic value is peculiar in this respect: being definable in terms of salability, it is thus relative. Certain other social values would also have a similar character.

conditions affect is the discovery and discrimination of the properties of things: they have no part in creating the objective character which is to be discerned and assessed. If it were not for this independent status of the esthetic qualities of things, training and cultivation of our capacity to discern them would be pointless, and mistakes in the determination of esthetic value would be impossible. And there can be no implication contrary to this objective character of esthetic value in objects, in the fact that this objective character consists in a potentiality for the disclosure of positive value in the presence of the object. As we have observed above, other properties than value are likewise interpretable as potentialities in the object for leading to experiences of a predictable kind; and for other properties also, there are subjective conditions of such experience which confirms the predication of them to the object.

The contrary conception that subjective conditions exercise some creativity in the case of values, commonly arises from one of two mistakes; either there is confusion as to what it is which is judged in a value-judgment, or this term 'value-judgment' (or some synonym) is applied where in fact there is nothing which is judged. If what is to be reported is the value-quality in a present experience, such as our confrontation with an art-object, then no judgment is called for. This value-quality resident in the phenomenal content of the experience itself, is merely found. Applying the term 'judgment' to such a direct value-finding is simply a poor and misleading use of the word. This same experience may also have cognitive significance as a clue to or a confirmation of a judgment as to the potentialities of the object for *further* experience. But such predictive judgment based upon this experience must not be confused with the immediate value-finding within the experience itself: the potentiality judged is a property of the object, and the judgment of it is something calling for confirmation; but the value immediately disclosed belongs to the given experience itself, and the attribution of it neither calls for nor could have any confirmation.

There are, however, certain complicating considerations which require to be observed—even though they do not, in the end, imply any qualification of what is said above. First, there is a certain sense in which the value directly disclosed in given experience may still be said to be *assessed;* and second, there is a further sense in which the

esthetic quality of an experience may be *judged.* Third, the object of esthetic judgment is oftentimes not a physical thing but something ingredient in it which is easily confused with a quality of experience, or with a mental entity. The first two of these considerations will be taken up in the order mentioned. The third of them is incidental to the larger and more important topic of the laws or specific principles of esthetics.

2. We frequently evaluate experiences as such; because having or not having experiences of a particular character is a matter over which we have partial control, and in which we have a ruling interest. One experience is better than another; characterized by a positive value-quality which is higher in degree; and we are concerned to make such comparisons of different experiences. Such comparative evaluation is clearly an assessment of a particular kind. Whether or not we call it a judgment, will be a matter of no great moment, provided we are clear as to its nature.

Let us first consider an analogue here, which is somewhat simpler. If we are presented with two apples at the same time, we may observe that one is redder than the other; or more accurately, what we may observe directly is that one is redder-*looking* than the other. We may make direct comparison of the phenomenal or presentational quality of apparent redness and assess the degree in which this characterizes one of these presentational items as compared with the other. Whether such assessment should be called a judgment, is doubtful: the comparison being direct, and the items compared being directly given, the decision, "This is more red-looking than that," is subject to no possible error, unless it be one having to do with linguistic expression and not with what is expressed. Perhaps we would best say that no judgment is involved but only recognition of a presentational fact.

The case might, however, be slightly different: the appearance of a presented apple might be compared with that of one seen yesterday. In such a case there definitely would be a judgment, though one of a peculiar sort, because one of the two presentational items to be compared is not now given, and its present memorial surrogate may fail to coincide with the actual character of what it stands for, in the respect which is pertinent. If, then, I decide, "This apple looks redder than the one yesterday," I have made a judgment which is

subject to possible error. But the element of judgment in this comparison concerns the *absent* member of the pair compared. The relation of the now-given item to this absent one calls for judgment, not on account of any possible dubiety about the red appearance presently given but only because it is related to something not now given. The redness of this present appearance is indubitable; but its *comparative* redness is something judged because related to something which can be determined only by a judgment.

Or the case may be of a third sort: one apple only may be now presented, and I may assess it as a very red-looking apple—implicitly by comparison with the whole class of apple-appearances in my past experience. This assessment of a *degree* of redness of the present appearance, is plainly a judgment, or involves a judgment. But again, it is, in an obvious sense, the class of other apple-presentations, mnemically presented, which is subject of the judgment, and the red character of the given presentation is not judged but is indubitable.

The assessment of a degree of value in a present experience, differs from assessment of the degree of redness in the presentation of an apple, in two respects. First, if we should say that the red-appearance of a presented apple is only *apparent* redness, then we must observe that the *value*-appearance in a present experience is not merely apparent value, but actual and intrinsic value; that kind of value in the light of which all other values are to be determined. And second, while two presentational items within a single given experience might be compared as as to their immediate value, the value-quality of one experience cannot be directly compared with that of any other, since no other can be present. When we assess the value-quality of a present experience, we do so in the manner of the second or the third of the above cases. Thus in assigning a *degree* of value-quality to present experience, or to the phenomenal content of it, we make a judgment. Yet in the sense pointed out, it is not the present and indubitable value-quality which is judged, but rather the value-quality of other and absent experience with which, explicitly or implicitly, we compare it, which is the subject of the judgment.

This kind of consideration has its pertinence tc assessments of esthetic value. Even in cases where what we wish to judge esthetically is not the directly given presentation but the objectively real thing presented, we may make this judgment of the object mainly or

exclusively from the character of our experience in the presence of it. Thus our attribution of esthetic value to the object may be based on and reflect an assessment of comparative value as characterizing our direct experience. And these two somewhat different assessments—of value found in the experience and of value in the real object presented—may fail to be distinguished.

Thus the directly found value-quality disclosed in an experience may, first, be confused with a comparative assessment of it; and second, this comparative assessment of a value in present experience may be further confused with the objective value-property of the presented object; with the result that the value-quality which is found in experience and not judged, comes to be identified with the objective value of the thing observed, which is a property which has to be judged—and may be erroneously judged—because it is not given but only evidenced in some measure by the quality of immediate experience. Perhaps this failure to make distinctions which are required, plays its part in the inappropriate extension of the word 'judgment' to direct apprehensions of esthetic quality, as well as in the fallacious supposition that the esthetic character of an object is somehow created by the nature of experience in the contemplation of it, or characterizes the subject-object confrontation only, and cannot be attributed to a presented thing in the same sense as color or shape or other properties.

But one thing at least should remain clear in this whole matter. Wherever there is a judgment of esthetic value in an object, based on the value-character of an immediate experience, or on an assessment of comparative value in the experience itself, it still remains true that the value disclosed in the experience need not be judged. The value directly found need not be assessed in order to be disclosed and enjoyed, nor compared with any other in order to have its own apprehended quality. It is this immediate value-quality which is the fixed and indubitable element in any comparative assessment of it: the dubitable element or elements, by reason of which evaluation of it may be a judgment, is not the value attributable to this experience which is given but the value attributable to that with which it may be compared.

3. Turning to the second point mentioned above: we may observe that even in the sense in which the value of the phenomenal as such,

is one which is found and not judged, the *esthetic* quality of experience may still be a matter of judgment. If our account of the manner in which esthetic experience is marked off from experiences characterized by other intrinsic values should be correct, then there is no purely presentational quality which, for example, is sufficient to distinguish genuinely esthetic experience from the non-esthetic satisfaction of an appetite, or the child's satisfaction in some novel and intriguing noise, or the writer's satisfaction in seeing his name in print. Immediate enjoyments, though various in quality, are still too nearly of one kind to afford any sure indication of the purely esthetic. For that, we must have recourse to criteria which are indirect and reflect, for example, the fact that this kind of experience is one which can be well-maintained instead of exhausting itself soon and leading to dissatisfaction. We learn, in measure, to recognize immediately in experience the signals of such enduring character or the opposite, which admit or rule out an enjoyment from the category of the esthetic; but it is not the enjoyability itself—not the direct value of the given experience—which constitutes this criterion. The artist and the connoisseur doubtless acquire in high degree such ability to determine from directly given clues whether the satisfaction in a painting or a piece of music is the kind that will endure or one which will soon fade; and their apprehension of the enduring ones doubtless is infused with a subtle and derivative immediate quality in their cultivated enjoyment itself. But—to use a comparison—if the tea-taster's experience has developed his capacity to forecast that the tea will soon lose its bouquet, and such tea does not taste quite right to him, still it is the predictable fact signalized and not this subtle immediate signal of it, which marks the tea as not good-quality tea. And if the esthetician's sixth sense of the enduring in art enables him to classify enjoyments as esthetic or non-esthetic by clues which are immediate and immediately affect his own enjoyments, still it remains true that it is not the immediate enjoyability but the signalized endurability of enjoyment which constitutes the sufficient criterion of genuine esthetic character in the experience. Such judgment is directly an assessment of esthetic quality in the *object,* and only indirectly of the genuine esthetic character of the *experience.*

In this sense, the distinctively esthetic character of experience is not simply disclosed but has to be judged. But the judgment in question is one of its classification as esthetic (which calls in some measure for a prediction), and is not the judgment of an immediate value as such. Thus even if, or insofar as, the esthetic quality of experience must be determined by judgment, it still remains true that the directly disclosed value in an experience, whether esthetic or not, calls for no judgment but is indubitable when found. And such values directly disclosable in experience are the final basis and the ultimate referents of all judgments of value.

4. It is no part of our task in this book to attempt any contribution to the science of esthetics. Our concern is with the analysis of esthetic judgments; with the question, "What does it mean to say that x has esthetic value?," and with further problems subsidiary to that. The positive science of esthetics concerns a different and a further question; namely, "By what specific criteria, or by reference to what laws, is the esthetic value of a particular thing to be gauged?"; or "What principles must govern the creative activity of the fine arts, in order that their esthetic purposes may be realized?" As a preliminary let us observe the difference of aim which must govern the attempt at analysis of esthetic judgment and the attempt to determine the specific principles of esthetics, as well as the relation between these two different objectives.

We may help ourselves out on this point by observing the analogous distinction in the case of two other sciences, logic and physics. With respect to the topic of validity in inference, there are similarly two different kinds of questions. First, "What does it mean to say that a piece of reasoning is valid: in what does this character of validity consist?" That question belongs to analysis; to the *theory* of logic. As we saw in Book I, we may return to it the answer; "An inference is logically valid if it can be certified by reference to intensional meanings alone." Second, there is the question, "By what specific principles may particular inferences be adjudged valid; by what laws should our procedures of inference be governed in order to attain validity; by what specific criteria may validity be attested in case of doubt?" The answer to that question is to be given by a sufficient canon of inference; by a body of principles belonging to the positive science of logic. The connection between these two

different questions lies in the fact that a correct answer to the first, the analytic question or question of theory, determines the underlying and general criterion by reference to which it can be determined whether a particular statement put forward as a rule of logic, is in fact a true law and affords a specific test of valid inference. Any mind which grasped this general nature of the logically valid, would thereby be in position to proceed to solution of the second problem of finding laws of the positive science of logic. However, something more than such grasp of the meaning of 'logically valid' would be required for this; namely, acquaintance with more specific meanings in terms of which such positive laws of logic could be formulated.[2]

So too in physics, we have first the general questions of theory, which concern the meanings of attributions of the various essential properties of physical entities: what it means to say that a thing is so long; that a physical particle has a certain position and a certain velocity; that two events are simultaneous; and so on. Such questions belong to physical theory, and are to be answered by analysis; by adequate and accurate explication of physical concepts.[3] It is, implicitly, on the basis of such theory that one can proceed to discovery of the laws of positive physical science (those which are not disguised definitions or merely logical consequences of them.) But for this second question of the specific laws of physics, observation of physical phenomena is also requisite. And for the sake of comparison with esthetics we may also note in passing that these positive laws of physics exercise a normative function in engineering and other creative activities which operate with physical things.

However, a fundamental difference is to be observed between logic and physics with respect to the phenomena acquaintance with which is essential for the positive science. The phenomena of logic are themselves phenomena of meaning only, and of relations of meaning. And any meaning is expressible by some statement the truth of which is analytic and *a priori*. No recourse to empirical facts (unless facts of the use of symbols to *express* meanings) is required for the

[2] As was observed in Book I, there is also a still further question in the case of logic; "What statements capable of attesting validity of inferences are of sufficiently frequent use to be regarded as principles of logic?"; and to this question, there is none but a conventional or pragmatic answer.

[3] As examples of physical theory, in the sense of 'theory' here used, one may cite Bridgman, *The Logic of Modern Physics;* Lenzen, *Physical Theory;* and the early chapters of Eddington, *The Philosophy of Physical Science.*

science of logic. Its investigations can be inductive only in the Aristotelian (or Socratic) sense of eliciting from instances something which, when elicited, can be attested 'by reason'. But assuming correct answers to the questions of physical theory, which call for an analytic answer, the second kind of question, of the positive laws of physics, can only be answered by inductive generalization in the usual sense. Logic is an *a priori* science, and by that fact continuous with logical theory; but physics is an empirical science; though determination of the overall criteria of the various physical properties is analytic and *a priori,* and could not be otherwise, however much it looks to something implicit in the unself-conscious practice of physical science for those meanings which it is called upon to explicate.

In esthetics similarly, there is the first or theoretical question of the meaning of esthetic attributions. The answer to this is to be determined analytically and *a priori,* however essential it may be that, in arriving at it, we should look to and be governed by something which is already implicit in practice and in particular evaluations. But assuming a correct answer to this question of the nature of esthetic value—for example, the answer we have hazarded, that it consists in a quality which solicits contemplative regard and affords a relatively enduring enjoyment for such contemplation—there is the second kind of question also; *"But what particular character or characters of things makes them sources of enduring contemplative enjoyment?";* "By what marks, universally present in objects which offer such enjoyment and universally absent from those which do not, may we recognize the esthetically valuable in case of doubt?"; "To what specific principles shall we look for guidance in activities directed to creation of the esthetically valuable?" And that kind of question can be answered only through induction: it requires generalization from observed instances of the esthetically valuable. The answers to this kind of question belong to the positive science of esthetics.

Here, as in logic or in physics, the definitive explication of what is meant in attributing esthetic value operates as the basic criterion of those phenomena which are pertinent to determination of any specific law, and thus represents the basis from which, either explicitly or implicitly, investigations of the positive science must proceed. But esthetics, like physics, is an empirical science; and the positive

laws of it require to be elicited by inductive generalization from particular instances of esthetic phenomena. Thus the nature of esthetic value is a question to be answered by analysis and *a priori,* and constitutes a topic for philosophic investigation. But the laws of the positive science of esthetics are a question which must be left to those who possess sufficiently wide acquaintance with esthetic phenomena and are sufficiently expert to be capable of arriving at trustworthy empirical generalizations in this field.[4]

There are, however, certain generalities in the field of the positive science of esthetics which it will be well for us to consider. Some of these have important bearing upon those epistemological problems with which we are primarily concerned; in particular, upon the distinction between the subjective conditions of esthetic *experience* and the objective conditions of esthetic value in things. For this reason it will not be out of place here to observe briefly, in conclusion, certain facts having this kind of pertinence, even though full discussion of them would lie outside our province.

5. It is an obvious fact—and no criticism of anybody need be read into the observation of it—that the science of esthetics remains largely undeveloped. Subsidiary principles—'principles of composition' in one or another of the fine arts—are available in considerable number and fairly well attested. But these are about the only positive content of it which is presently assured. As has been observed, there is not even as yet any general agreement amongst estheticians as to the categories in terms of which such positive laws of the esthetic should be formulated. This indifferent success is doubtless attributable in part to the marked diversity which obtains amongst objects of esthetic interest, and to the fact that some classes of them at least are phenomena of extreme complexity.

Consider, for example, what entity it is which is termed 'Beethoven's Fifth Symphony'. A musical composition is not a physical object: any particular rendition of it is a physical entity of its own complex sort; but between the rendition and the thing itself, there

[4] It is of course true that particular esthetic judgments do not necessarily wait upon the development of the positive science, nor presume command of it. In any field, the development of positive science requires an antecedently determined body of particular truths. There were correct logical judgments before Aristotle, geometrical determinations before Euclid, and attested physical facts before Galileo or Newton. Had there not been, these positive sciences could never have arisen.

is an obvious difference. The rendition may not, and presumably will not, realize exactly the musical intention of the composer or the esthetic possibilities represented by the composition. And in the case of a sonnet or other product of the literary art, there is an even wider gap between the thing itself and the apprehension of it. Here we must ordinarily provide our own rendition; and in so doing we may not only miss a part of the intended meaning but inadvertantly introduce certain grace-notes and variations of our own. Also, that most complex of all esthetic things, the drama, is in some of these respects like music, and in others like poetry; but at least it is clear that a drama cannot be identified with any physical object.

On these points, a painting, a cathedral, or a piece of sculpture seems to differ from a musical composition or a literary product. A picture, edifice or statue may likewise fail to incorporate fully the intention of the creator. But at least esthetic objects of these classes are embodied once for all in physical individuals; and the distinction of any entity so incorporated from the physical embodiment of it seems uncalled for. On second thought, however, this difference can be viewed as one of degree rather than of kind. For example, when we stand before a masterpiece of painting or of sculpture, we may be reminded of something which is common to this physical object and various more or less adequate reproductions of it, some of which we may have observed before. Is it this canvas or this marble which is the object of esthetic contemplation, or is this only the 'original' and most adequate incorporation of it; the thing itself being an abstract entity here embodied or approximated to, in these fading pigments or this stone which already shows the marks of time? Even in the case of objects found in nature, the esthetic orientation may be directed upon an ideality not physically present: if the landscape should be intriguing, still the sketcher will at once begin moving this a little in his mind's eye and eliminating that; and in any case the eye of the beholder performs something of the same office. Do such considerations allow the simple identification of any kind of esthetic object with a physical thing; or must we rather say that even the artist's original is an instance and an 'imitation' only of an entity which itself is abstract and ideal? And between those physical conditions which qualify presentation of it and those further and psychological conditions which likewise qualify its appearance

to any subject, is there any fundamental difference of kind or only one of manner or degree; the true object being separated from our apprehension by a whole series of accidents of phenomenal appearance, some outward and physical, some inward and psychological?

It seems philistine to lay rude hands of logic on thoughts so edifying. However, there are at least three different kinds of things suggested here: first, the intention of the artist or the ideal which that intention projects; second, the kind of abstract entity which may be instanced in two printings of a poem or two renditions of a piece of music; and third, the physical individual which incorporates this abstraction or approximates to this ideal, and serves on some occasion as the vehicle of its presentation. Each of these requires at least passing attention because any one of them may be taken to represent the basic category of esthetics—*the* esthetic object.

First let us consider the ideality which is aimed at in any purpose of artistic creation, and which might be taken to be the object of our esthetic contemplation in any presentation. Confronting an art object of any kind, one may, and possibly should, seek to penetrate beyond the actual incorporation to the intent of its creator. This is especially important in the case of music and the drama, because a truer rendition may thus be brought about. And a similar attempt in the case of esthetic actualities of any kind may have its value for those who would learn, from the contemplation of past achievements, concerning the possibilities of future ones. Further, it is obvious —or should be—that if we were to discover the completely accurate and adequate laws of esthetics, these would project, as their exemplars, idealities rather than actualities, whether art-produced or natural.

However, neither of the two considerations mentioned reveals any compelling reason for conceiving of esthetic objects as transcendental entities. In other things than the fine arts, it is likewise true that we apprehend on occasion the intentions of another, which he does not fully achieve and may not even envisage adequately. And what it is that he thus fails to actualize, still has its own standing as the object of a purpose and perhaps as realizable though unrealized. Our 'interpretation' in such cases, is something rendered possible by an act of empathy and through the use of creative imagination. It is possible because such purposes are capable of being shared. To

be sure, such attempts to penetrate beyond the actual thing to an intention behind it—in esthetics as in other matters—lies always in some danger of ending in a romantic deception instead of genuine understanding. And in the case of objects in nature, the setting up of such intentions behind the presented object is sheer pathetic fallacy—either that or a mystic faith the validity of which should not be a question for the science of esthetics. The projected entity ideally realizing any specific attempt at esthetic envisagement or artistic creation is indeed an intelligible kind of thing, subject to esthetic comprehension and to esthetic critique. But there is no need to erect a metaphysical mystery upon the fact that human purposes are marked by a considerable degree of community, enabling us on occasion to pass beyond actualities achieved to the esthetic purpose of them, and —in the case of music and the drama—to recreate from symbols the actualities which will approximate to and convey such intentions. These facts provide no better ground for being transcendentalist about esthetic goals than there is, for example, about economic ones or those of engineering; nor any better reason to invent an empyrean habitat for the esthetically ideal than there is to believe in some New Atlantis as a metaphysical reality.

Nor does the fact that the exemplars of the laws of esthetics would be ideal entities rather than actualities, lend credibility to the transcendentalist point of view in esthetics, or distinguish that science from others. It is likewise true in physics, for example, that the understanding of its laws projects the conception of certain ideal exemplifications—the perfect vacuum, the frictionless surface, the perfectly elastic solid, the one-hundred percent efficient engine, and so on. Also, in any application of physics—which being practical will be directed to a purpose—those who are concerned with such creative endeavors must look to some projected ideality, though they must also have an eye to the limitations of materials and of human workmanship.

6. It is more important and more profitable to consider that kind of abstraction which may be literally actualized and exemplified by physical occasions—and not merely approximated to or 'imitated' by physical things. First, because some esthetic objects definitely are thus abstract, and others may plausibly be so considered. A sonnet, for example, cannot be identified with any physical individual. Not

only is it one and the same thing which we and our neighbor may read in different books, but what is essential to the thing presented is not physically there on the printed page, but only conveyed from one mind to another by a pattern of physical symbols. The relevant meanings are associated with this symbol-pattern by a complex and common and strongly enforced social habit. Even the rhythm and cadence of the language used, which lie within the esthetic phenomenon, are not presented to the eye but only associated with what is thus physically present. It is like the score of music rather than the rendition. Yet this poem is actual, as against those as yet undreamt of, solely by the fact that this language-pattern has its concrete and physically occurrent instances. Given the language-habit which makes it possible, these are the presentations of the esthetic object; and without them there would be no poem presented or presentable.

It requires also to be observed that this abstract entity which is the esthetic object itself in the case of literature, is not literally embodied in the physical thing which serves on any occasion as the medium of its presentation. Rather this abstraction, or its instance, is to be located in a context of the physical object—in this case, a mentally associated context. Yet this consideration would be poorly taken as evidence of any subjective character of the esthetic reality in question. What poem it is which is actual, is controlled and to be determined by the factually instanced pattern of language. To be sure, this fact that the esthetic actuality has to be recreated by the subject, in accordance with the conventions of language and other implicit rules of interpretation, leaves the literary object peculiarly liable to subjectivities of apprehension. We might even doubt the possibility of any completely common and perfectly objective interpretation of it. As someone has said, the aged man and the child by his side may both read the same responses from the prayer-book; but these words cannot have the same meaning for the two, because in the one case they are freighted with a lifetime of experience. That kind of consideration has its weight for any language-presented phenomenon; and especially if it be an object of esthetic apprehension, because in that case the meanings conveyed will be predominantly expressive in significance.[5] But that fact does not condone any

[5] The line of division between *belles lettres* and literature of the more prosaic kind, probably is to be drawn with some reference to the predominance, or the importance in it, of expressive meanings which convey something for the imagination rather than for the intellectual kind of understanding.

subjectivistic interpretation of the phenomenon itself. A poem is like a law (a legal enactment), which similarly depends upon community of language for its actuality, but is not thereby open to the wilful interpretation of the individual. What is here implied is, rather, that this actual poem, like any other artistic product, will be better grasped by some than by others; and that it may require experience and capacity in order to understand or judge it. But these conditions on the side of the subject are conditions of the *presentation to him,* not conditions of what is actually there for his apprehension. They are conditions of the esthetic experience but not of the esthetic object.

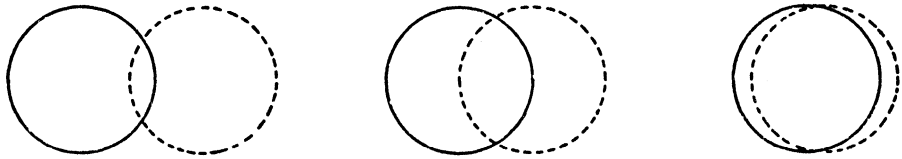
What needs to be observed here is that the esthetic actuality—the poem—is *physically presented,* when conveyed by the printed page or by a reader's voice, but that this esthetic entity is not, either spatially or in any other appropriate sense, to be located within the physical object or event which serves to present it. Some of the properties of the poem—the language pattern of it—genuinely characterize the print on the page or the temporal sequence of the sounds. In much larger part, however, the 'poem itself', being constituted by the meanings thus physically symbolized, lies in the *context associated with* this physical entity which presents it. Second, it needs to be emphasized that what genuinely belongs to the character of the poem but is found in the context of what physically conveys it and not in that physical entity itself, is still not subjective but as fixed as law. And it is fixed in the same general way; that is, by understood conventions governing both the creation of it and its interpretation. Comprehension of it (or miscomprehension) has its conditions on the side of the subject; and the extent of these conditions is the greater according as less of the thing presented is literally disclosed by the physical properties of the physical object which serves to present it. But whatever the subject *must* bring to the presentation, in order correctly to understand the poem presented, belongs to the *poem.* Insofar as he fails to bring this associated context, or brings some other, the esthetic object presented fails to be apprehended in its actual esthetic character—is either misapprehended or not apprehended at all.

The poem is an abstraction which is actualized in the instances of its presentation, through the medium of some physical vehicle. It

is an entity essentially repeatable in, or common to, different physical events or things which instance it. But it must be observed that this abstractness of it is *not* the kind by which universals like triangularity or honesty or incompatibility stand in contrast to anything which is sensuously qualitative and imaginal. It has the literal character of esthesis: we shall call it an esthetic essence.

It will be fairly obvious that, with respect to the points here in question, not all esthetic objects are like poems. The different classes of them form something like a series, in which products of the literary art represent one extreme. From these we pass on down through drama and music to the pictorial and plastic arts, and finally to esthetic objects found in nature. (Detailed examination of each of these classes would be essential for any full discussion, but must be omitted here.) But though this order suggests itself at once, the principle of ordering does not. A poem is an abstraction, actualized by physical occasions which instance it. But a sunset or a mountain is a physical individuality. And between the abstract and the concrete there can be no intervening stages.

The principle of order here will be found in the extent to which what is esthetically essential is simply the physical characters of the physical vehicle of presentation, and the extent to which this esthetic essence is to be located in an associated context of this physically present thing. In that respect, the objects of esthetic interest can and do differ in degree. Perhaps this can be crudely suggested by a diagram, in which the solid line bounds the esthetic essence and the broken line the physical vehicle:



Literary objects Pictures and sculpture Natural objects

Further, if we are prone to say that an esthetic object disclosed in nature is wholly concrete, then we must be reminded of two facts. First, there is no natural object which would inevitably solicit and reward esthetic contemplation if we merely open our outward senses to it. *Something* is essential which is not literally a physical property of it but associated with these: it is by that fact that genuinely

esthetic values are to be distinguished from inherent values of a 'lower' order, like the gratefulness of water to the thirsty man. (We do not say that 'lower' values are sheerly physical properties of what presents them, and independent of any context: we do say that esthetic values *additionally* depend on context.) Second, we must observe that in every physical object of esthetic interest there will be some characters which are irrelevant to the esthetic quality of it, and could be different without in any way affecting its esthetic quality or value. Thus even insofar as the esthetic essence should be contained within the physical object, it is still a literal abstraction from it, and theoretically could be identically presented by some other.

7. We can, therefore, say without exception that the entity contemplated in esthetic experience is actualized by presentation through the instrumentality of a physical object. But the direct object of contemplation is an esthetic essence; an abstraction which theoretically could be identically presented by another physical thing. This esthetic essence includes, in all cases, something not resident in the physical thing which serves to present it but in some context to which it stands related, *in some manner which is not arbitrary or subjective.* And the extent to which such contexts of the physical thing which serves as vehicle of presentation are essential to the esthetic nature and value of what is presented or conveyed, is different for different types of esthetic objects.

When esthetic or any other kind of value is ascribed to anything, it is important to observe just what thing it is which in fact is the subject of the intended attribution. It may be an actual entity of the usual sort: a poem, a drama, a musical composition, a painting, a piece of statuary, a landscape. But also, as has been indicated, it may be the ideal and unactual object projected by a purpose. Or again, it may be a particular *rendition* of a piece of music or a drama. Or it may be the physical object which serves as vehicle of the esthetic presentation. Or it may be the esthetic experience itself to which the value is attributed. When we ask whether what is judged valuable is an abstract or a concrete entity, then the factualities of the intended predication must be observed. When we value a poem, we are not judging any concrete thing, because—typically at least—we are not even thinking of the printed page. If we judge music,

then it will have to be decided just what the intention of the valuation is; whether it is directed upon what could be common to or approximated by many physicial renditions, or upon the musical content of this particular occasion. Similarly—even if less obviously—when we judge a painting, it will have to become clear whether the intended object is this canvas and the physical pattern on it, or is instead what this canvas could have in common with some reproduction of it. In the case of the landscape or other object disclosed in nature, it may seem fantastic to suggest that what is valued is anything other than just this concrete physical thing. Yet there is that qualitative and abstract essence which is here incorporated, and is theoretically repeatable in some other physical object. Indeed there may be question, for any type of valuation, whether it is the concrete entity or the embodied qualitative abstraction which is the object — e.g., whether it is the apple we are enjoying, or the *flavor* of the apple, which it might share indistinguishably with another. Finally and most important: whatever the kind of thing it is which is presented, we must be careful to consider whether it is some objective entity to which the value is ascribed, or whether the subject of the attribution is the experience itself. Many highly regrettable errors have crept into esthetic theory through ascribing to objects the kind of value which could belong to experiences only. Lumping esthetic judgments all together, as if there were one type of object only, indicated in all of them, can only result in confusion.

That we may evaluate esthetically a concrete physical thing, in no wise contradicts the fact that there can be no physical object the esthetic evaluation of which is altogether independent of its relations to some context. The physical thing may be valued as the *instrument* of esthetic embodiment. *All* values in physically objective things are extrinsic only. The esthetic values attributable to concrete objects are a class of inherent values. But to say that a value is inherent in an object, is not necessarily to locate this value in the physical properties of it. By our definition, a value is inherent if it is one which is realized in experience through the presentation of the object in question, and not through presentation of some other object. Thus a physical thing has esthetic value if it serves to present positive esthetic quality. But if it should be said that, on such conception, no *abstract* entity could have esthetic value; because an abstraction,

being incapable of being presented, could not have any kind of inherent value; then it needs to be observed that this reasoning contains a false premise. The kind of abstractions which, like poems and musical compositions, have esthetic value, *can* be presented through the medium of physical things: they are sensuous or imaginal though repeatable in different exemplifications.

What can be said concerning all classes of objects of which esthetic value can be predicated, is that this value of them *depends upon* a complexus of properties constituting an esthetic essence, in some part literally embodied, or capable of being embodied, in some physical thing which is the instrument of presentation, and in some part belonging to a context of this object, which is associated with it in some manner which is not subjective merely. Whatever the nature of the entity which is direct object of the esthetic judgment, this esthetic essence by reason of which it has or lacks esthetic value, is an abstract entity. This kind of abstraction thus represents the basic category of esthetics.

These hastily summarized suggestions are plainly insufficient to the topic of them, and may be unclear. Still they will serve to indicate the general nature to be expected in any body of specific principles sufficient for the positive science of esthetics. As is independently suggested by such advances as have been made in the direction of this science, the key to the laws of it is probably to be found in what we have referred to as the complexus of properties constituting an esthetic essence; in the character of this as a phenomenal *Gestalt;* in relationships of constituent elements which make it some kind of configurational whole.

The overarching test by which such specific principles are themselves to be elicited, must be the test of a value disclosable as a relatively enduring enjoyment in contemplation. And where the more specific and empirical principles remain undetermined or doubtful, it is directly by that kind of test that correctness in esthetic valuation is principally to be assured.

Chapter XVI

The Moral Sense and Contributory Values

1. There is no value of anything except a goodness or badness directly realized, or one which is relative eventually to such possible realizations of good or ill.

But if the previous discussion should leave us with the conception that the final test of correctness in all evaluations is the test by reference simply to values as immediately found in particular experiences, then it would be by that fact at fault. It would be thus faulty by failing to consider that although the good or ill in particular experience is a final datum and uncriticizable, still such immediate value does not determine the final evaluation of that experience, because particular experiences themselves have relation to future possible ones, and hence to values further to be realized. The quality of good or ill immediately found is not to be reassessed: no mysterious sublation can make a final good out of felt evil; and no sadistic moralism can make evil the fact of present joy. But such immediate experiences are not only something found, and as found final; they are also something instrumental to our further living and contributory of goodness or badness to life in general. In this instrumental or contributory character of it, every experience requires to be further assessed in its relation to a possible whole of experience.

Thus we may have failed, so far, to emphasize sufficiently one aspect of human living the implications of which are all-important and must qualify the whole depiction. Life is temporal; and human life is self-consciously temporal. Our ultimate interest looks to possible realizations of value in direct experience; but the immediacies so looked to are not what is immediate now but extend beyond that to the future.

It is thus that human life is permeated with the quality of concern. The secret of activity is to be found in such concern; of activity, that

is, so far as it goes beyond unconscious behavior and animal compulsions, and attempts some self-direction of the passage of immediacy. It is only by such concern and such attempt of self-direction that we entertain any clearly conscious interests and seek to make appraisals. This is also the root of what we call our rationality and of that imperative which attaches to the rational. It is through such concern that we are constrained now to take that attitude, and now to do that deed, which later we shall be satisfied to have taken and to have done.

2. If we inquire what it means to be rational, the reply is likely to be given, in terms of our tradition of western thought, by some reference to inference and logical validity. But perhaps we should do better to consult our own sense of ourselves, and should then find an answer in terms of our capacity for foresight and the direction of our action by it. To be rational, instead of foolish or perverse, means to be capable of constraint by prevision of some future good or ill; to be amenable to the consideration, "You will be sorry if you don't," or "if you do."

Rationality, in this sense, is not derivative from the logical: rather it is the other way about. The validity of reasoning turns upon, and can be summarized in terms of, consistency. And consistency is, at bottom, nothing more than the adherence throughout to what we have accepted; or to put it in the opposite manner, the non-acceptance now of what we shall later be unwilling to adhere to. We are *logically* consistent when, throughout our train of thought, or our discourse, we nowhere repudiate that to which we anywhere commit ourselves. Thinking and discoursing are important and peculiarly human ways of acting. Insofar as our actions of this sort are affected with concern for what we may later think or wish to affirm, we attempt to be consistent or rational; and when we achieve this kind of self-accord, then we are logical, and what we think or say, whether true or not, has logical validity.

The conception of *principle,* as implying, at one and the same time, a consistency in what we think and consistency in what we do, and consistency between our thinking and our doing, reflects this same consideration; this same attempt to avoid any attitude of thought or action which later must be recanted or regretted.

Consistency of thought is for the sake of and is aimed at consistency in action; and consistency in action is derivative from con-

sistency of willing—of purposing, of setting a value on. If it were not that present valuing and doing may later be a matter of regret, then there would be no point and no imperative to consistency of any kind. No act would then be affected by relation to any principle, and no thinking by any consideration of validity. Life in general would be free of any concern; and there would be no distinction of what is rational from what is perverse or silly.

To act, to live, in human terms, is necessarily to be subject to imperatives; to recognize norms. Because to be subject to an imperative means simply the finding of a constraint of action in some concern for that which is not immediate; is not a present enjoyment or a present suffering. To repudiate normative significances and imperatives in general, would be to dissolve away all seriousness of action and intent, leaving only an undirected floating down the stream of time; and as a consequence to dissolve all significance of thought and discourse into universal blah. Those who would be serious and circumspect and cogent in what they think, and yet tell us that there are no valid norms or binding imperatives, are hopelessly confused, and inconsistent with their own attitude of assertion.

There is no need to look under the table for some source of such validities in general, and then exclaim because we do not find one. The final and universal imperative, "Be consistent, in valuation and in thought and action"; "Be concerned about yourself in future and on the whole"; is one which is categorical. It requires no reason; being itself the expression of that which is the root of all reason; that in the absence of which there could be no reason of any sort or for anything.

In ethics, it is the Cyrenaic who, in words, repudiates this categorical imperative. He repudiates concern for any future: tomorrow is another day. Of course, he contradicts himself—not formally but pragmatically. There would be no logical inconsistency in his hortation, "Have no concern for the future," if it should be found engraved by lightning on a rock. But for us to take seriously one who puts it forward, or for anyone to take himself seriously in accepting it, would imply exactly such concern as this injunction advises that we repudiate. The content of the injunction is incompatible with giving heed to this—or any other—injunction. If, *per impossibile,* there could be an otherwise human being who was born a per-

fect Cyrenaic in native disposition, we could not persuade him to mend his ways by any conceivable argument. One who lived *in accord with* this Cyrenaic principle, but *not from* principle, would commit no inconsistency; and no consideration we could put forward would bother him. By native bent he would be impervious to all bother. But he would not preach Cyrenaicism—or anything else. He would represent a continuing mode of being; not an attitude or point of view. That is; the validity of this categorical imperative to recognize genuine imperatives of thought and action, does not rest upon logical argument finally. Because presuming that the one to whom the argument is addressed will respond to considerations of consistency and inconsistency, presumes the validity of precisely what is argued for. The basis of this imperative is a datum of human nature. If a creature should be impervious to any concern for the future, and hence for consistency in his thinking and acting, then there could be no *in*consistency in any of his momentary attitudes; and we should not address arguments or hortations to him any more than to a fish or a phonograph-record.

We do not in this book attempt discussion of those problems of mine and thine which are the peculiar questions of ethics. But in passing, we may observe that the fundamental dictum of justice, "No rule of action is right except one which is right in all instances, and therefore right for everyone," is likewise not a principle acceptance of which either requires to be or could be inculcated by argument where natively the recognition of it should be absent. Logically considered, it is a tautology: it merely expresses a formal character of the correct or justified, implicit recognition of which is contained in acknowledgment of the distinction between right and wrong. Given this moral sense, recognition of the principle is mere self-clarification; and where the moral sense should be lacking, argument for this or any other principle of action would be pointless. This moral sense may be presumed in humans; and creatures who lack it can only be lured by some kind of bait or driven by some kind of pain.

We must not pause upon such further and peculiarly ethical problems raised by consideration of this nature of human life, and of its goods and bads, as predicated upon action and imbued with concern. It is certain implications only which are directly pertinent to our

problem of values and the validity of evaluations. In particular, there are three such which are simple and obvious. First, that if in one sense the determination of values must be eventually in terms of the value-qualities of direct experience, still in another sense no immediately experienced good or bad is final, but rather is further to be evaluated by its relation to the temporal whole of a good life. Second, that a life good on the whole, which is our continuing and rational concern, is something whose goodness or badness is at no moment immediately disclosed, but can be contemplated only by some imaginative or synthetic envisagement of its on-the-whole quality. There is no good or bad of it which does not come by way of some goodness or badness found in living; but the manner of this synthesis—the manner in which a life is constituted good or bad by the goodness or badness of its constituent parts—is a question which does not answer itself. And the correct answer to it will disclose the final criterion of all values in experience. And third; since a life imbued with concern must be preponderantly active, the more characteristic and pervasive goods of it will hardly be those of passive enjoyment or those which are merely contemplative and, like the esthetic, require some suspension of the active attitude. Both the more typical ingredient values which contribute to a good life, and the manner of their synthesis in constituting its overarching goodness, must be expected to reflect the characteristics findable in goods of action.

That the good life represents the *summum bonum* is, as we have said, not to be argued. It is the universal and rational human end; the end we aim at so far as we approve of our aims and of ourselves in aiming, and do not recognize some perversity or foolishness or weakness of will in our motivations and our doings. That fact is a datum of the human attitude to life. It is not a datum of the sort commonly called psychological: we recognize in ourselves the perennial liability to the weaknesses mentioned, by which we are solicited to depart from this ideal of ourselves which still we cannot set aside. It is that norm which can be repudiated only by repudiating all norms and the distinction of valid from invalid in general; by reducing all that we can purpose or accept with the sense of rightness or correctness or validity, to the status of the non-significant—to mere 'psychological data'.

Humans are subject to concern and to imperatives because future possibilities present themselves to us, but do not present themselves with the poignancy of what is immediate and now. The lower animals—at least as we commonly think of them—are subject to no imperatives because in part nature looks out for their future by equipping them with instinctive and irresistible impulses adapting their behavior to what is to come; and for the rest, they have no inkling of this future and are at the mercy of it. A god-like creature also, would be subject to no imperatives because, being 'wholly rational', he would be as readily moved by consideration of the future and absent as by the present, and hence suffer no tendency to wayward sacrifice of a possible good life to immediate desire. Man, being higher than the animals but a little lower than the angels, is permanently liable to a kind of schizophrenia, and can neither be wholeheartedly impulsive nor whole-heartedly rational. The sense of the future moves him, but not sufficiently to make him automatically responsive. He has to 'move himself' in order to come into accord with the dictates of the reasonable. Hence the sense of the imperative.[1]

By this imperative of rationality, the future, so it be certain, should weigh with us as much as the present, and possible goodness in the whole of life must continually outweigh consideration for goodness in any part of it. But by itself this would never dictate any critique of present possibilities of satisfaction by reference to the

[1] However these facts of human nature should be expressed, they are more evident and certain than any scientific psychological account of human motivations is likely to be. The moralists have always been hard put to it to provide for a possible motivation by reason without making the 'free moral agent' superfluous by portraying this motivation as impulsive, like that of desire and instinctive drive. And the psychologists may also have trouble over the point —if they do not ignore it—because, like the rest of us, they are prone to interpret causation in general in terms of an animistic metaphor, according to which natural causes *compel* their effects, and psychological laws compel psychological events to comply with them, as the police power of the state compels our conformity to enacted legislation. Plainly, nothing but a creature with a will can be compelled, since compulsion is doing what is *against* one's will. And *ipso facto* no cause or law compels us when we do what we choose or decide. Hence the denial of 'self-determination' on account of universal motivation by psychological causes, would be the absurdity of first setting up this animistic metaphor and then turning it against that kind of fact which alone gives it any content.

Assimilation of motivations *by reason* to self-determination, merely reports a patent fact of experience, however that fact should be scientifically formulated.

future if the experience of each moment were insulated from that of every other and had no cause-effect relations with what lies beyond its own immediacy. If no present experience could be prejudicial to any future one or have any influence upon the whole of life, then there could be no criticism of a present enjoyment implied in our concern for the future it could not affect. Our reasonable desire always to maximize the present satisfaction and our continuing concern to achieve the same in future and in general, would never be at odds with one another. The familiar fact that concern for the future requires a critical eye to present satisfactions, turns upon the obvious consideration that an experience may be unqualifiedly good within its own boundaries but a regrettable constituent in life on account of causal relationships of it affecting the future; and that what is, by itself and as experienced, disvaluable, may still be a desirable ingredient of life by reason of its influence upon further experience and hence by the contribution it may make to a life good on the whole. Any experience may have such instrumental value or disvalue, which is not an intrinsic quality realized within it but is found in the further experience to which it leads. And since experiences in general have both such intrinsic value and such instrumental value, the *final* assessment of the value of any experience must include reference to both.

There is nothing in this which is contradictory to the fact that intrinsic values—the value of that which is valuable for its own sake—are values found directly in experience, and that such intrinsic value of any given content of experience is a datum of the experience itself. The simple and obvious fact which calls for recognition is only this: that while the experiences of which life is made up have each its absolute and not-to-be-cancelled goodness or badness when and as realized, the value of *having* that experience has reference *also* to the instrumental effect of it upon the future. Value as immediately found is subject to no critique. But the *aim to realize it,* and the value of *having* that particular experience, are still subject to rational criticism by reference to the value which it may contribute instrumentally to any whole of experience in which it is included. Such instrumental value of having an experience is something over and above what it contributes merely by being an included moment of experienced good or ill.

Wholes of experience take precedence to distinguishable and momentary experiences included in them—that, again, merely expresses the rational imperative itself—and the value of experience as momentarily found is subordinate to the value which having that experience may contribute to the whole. The final and ruling assessment of value in an experience must answer to the continuing rational purpose directed to the comprehensive and consummatory end of a life found good on the whole.

3. This value characterizing a whole life is also intrinsic: there can be no goodness or badness of it except a value or disvalue to be realized in the living of it. But if it should appear that this value is the mere summation of the values immediately found in the ingredient experiences which make it up, then one reason why that conclusion does not in fact follow, is just this reason that the relations of good or bad experiences in constituting a good or bad life is not that of a series of temporally juxtaposed and externally related moments but is that of ingredients which affect and qualify one another; the relation of components in a temporal *Gestalt*.

One experience may have such instrumental or contributory relation to another in any one of three senses. First, the two experiences may be causally related, not in themselves and directly, but indirectly only, through the objective states of affairs they signify. For example, the laborer may drudge for his weekly wages for the sake of the satisfactions to be got by spending them. But, let us say, he works as a matter of habit and because he knows he must: the experience of working is not alleviated by any quality of explicit anticipation, and the later spending is no more and no less a satisfaction to him than if he had received the money as a gift or found it in the street. Here the two experiences, of working and of spending, are causally related through the money earned, but the value-quality of neither is in any notable degree or manner affected by the other. In such a case we may say that the earlier experience is instrumental to the later one, but we shall not say that it is contributory to it.

The case might be different, however: the small boy may work long and hard for the price of a circus ticket, but his labor will be infused throughout with the value-quality of vivid anticipation; and his later satisfaction at the circus may also be enhanced by honest pride in having earned his own enjoyment. Here the one experience quali-

fies the other not only causally and instrumentally but also directly and in the manner of ingredients in a temporal *Gestalt*. Or to choose another example; the shy man may, by submitting himself to experiences which at first are disconcerting, acquire the more satisfactory social adjustment he desires. And the similar relationship characterizes learning in general as affecting later experience involving what is learned. Learning of any sort is an *experience*—or if there are senses of the word for which that would be false, then we should wish to exclude them. And the point is here that it is these experiences themselves, and not merely the objective causes or physical effects of them, which are essential to the value-character of what is later realized.

In these last two examples, we may still distinguish two slightly different relations of experiences involved, or speak of their relationship in two different ways. We may consider only the relation of an earlier to a later experience, whose value-quality is affected directly and not merely indirectly and causally; or we may speak of the relation of these ingredients to a whole passage of experience which includes both, and in which this qualification of the value-quality of one by the other may be mutual. We shall use the word 'contributory' for either of these two relationships; that is, we shall say that an earlier experience such as learning contributes to a later experience which is thereby rendered more satisfactory, and we shall also say that an ingredient experience contributes to a temporal whole of experience the value-quality of which it affects throughout by being thus included. This slightly ambiguous usage of 'contribute' and 'contributory value' is the better justified by the fact that the one of these two relationships hardly occurs without the other.

However, it is the second of these—the relation of an experience to a whole in which it is included, and in which the distinguishable constituent experiences intimately and mutually qualify one another, with respect to their value-quality—which we would here stress. Working and achieving, for example, is a different total experience than achieving without working, and it is not a foregone conclusion that the effortless attainment of desire will be on the whole more satisfying. And either of these two may be a total experience which is differently valuable than that of getting something wished for and

then having to pay the piper. It is in such wise that the value of an experiential whole may be affected not only by the values immediately found in its separate and included moments but by the relation of these moments of experience to one another. It may be that a life which begins badly but ends well is better than one which begins well but ends badly, even though the ingredient experiences which make it up should be as nearly comparable as could well be imagined and should differ only by what is involved in the different temporal order of them. It is by this kind of fact that the value realized in any whole of experience will reflect the character of it as a temporal *Gestalt*.

4. Some would attempt to assess the value realized or realizable in any whole of life by a 'calculus' of values; by the conception of a 'sum' of goods and of a 'balance' of goods over ills. According to this conception, every good or bad is to be taken as it is or would be immediately found; the value directly disclosed in any moment of experience is to be accepted not merely as an absolute datum but as fixing the correct final appraisal of this immediacy as an ingredient in any experiential whole. A good life, or any life, is conceived to be a whole whose value can be adjudged by judging it as an *aggregate* of constituent experiences, each having its own value as directly disclosed within its own boundaries, and the value of the whole life is conceived as the sum or aggregate of the values so found in its constituent parts. It is recognized that these particular experiences which make it up not only have such value or disvalue directly found in them but may also have their instrumental value as affecting the goodness or badness of later experience; but such instrumental value is taken to be correctly assessed simply by assessing the effectiveness of the given experience in leading to such later realized values, and by gauging the values found in later experience to which the given experience may lead. Thus, regardless of the fact that value or disvalue in one experience may conduce to value or disvalue found in another, it is taken as still true that the value in any whole of experience is simply the aggregate of the values in the separate experiences which make it up.

This is the general conception by which final assessment of all values is supposed to be reducible theoretically to the arithmetical procedures of Bentham's hedonic calculus. And there is much at

least in the general method of it which does not depend in any essential way upon the conception of pleasure and pain as the sole modes of value-realization and the only final and intrinsic goods or ills. For that reason if for no other, we must examine this proposed procedure; but since the matter is familiar we shall endeavor to be brief.

For one person by himself, Bentham considers the value of a pleasure or a pain, taken by itself, to be greater or less according to (1) its intensity, (2) its duration, (3) its certainty, and (4) its propinquity or remoteness. When the effect of having this pleasure or this pain upon further experience is to be gauged, he refers to two further circumstances, (5) its fecundity, or the chance of its being followed by sensations of the *same* kind, and (6) its purity, or the chance of its *not* being followed by sensations of the *opposite* kind.[2] Where the interests of a community are in question, the further circumstance of the extent, i.e., the number of persons affected, must also be taken into account.

It is a supposition of the calculus not only that a pleasure or a pain can be measured, in respect of these various circumstances or dimensions, but also that the total value of a pleasure or a pain is determinable by multiplying together the measures or coefficients of it in each of these dimensions. Also it is essential that the total value of the consequences of an act or other event should be determinable by adding together the separate values of the pleasures, and of the pains, and subtracting the sum of the pains from the sum of the pleasures, or the reverse, to find the balance.

Only the first two dimensions, of intensity and duration, affect an immediate experience: certainty or uncertainty and propinquity or

[2] This and following references are to *Principles of Morals and Legislation,* Chap. IV. Of fecundity and purity, Bentham says (par. ii): "These last two, however, are in strictness scarcely to be deemed properties of the pleasure or the pain itself; they are not, therefore, in strictness to be taken into the account of the value of that pleasure or that pain. They are in strictness to be deemed properties only of the act, or other event, by which such pleasure or pain has been produced . . . ." We do not in fact have two dimensions here but only two names for a single one: a painful consequence of a *pain* being called fecundity, and a painful consequence of a *pleasure,* impurity; and a pleasure being called fecund if followed by other pleasure, and impure if followed by pain. In another respect also, logical clarity is here prejudiced. The *chance* of such consequences belongs under the dimension of certainty or uncertainty of the consequence, and should be separated from the degree or amount of pleasantness or painfulness in it; which last alone should be included under fecundity or impurity.

remoteness characterize only what belongs to the future; and fecundity and purity also have reference solely to pleasure or pain in future consequences.

Confining our attention to intensity and duration, it has to be observed, first, that numerical measure cannot be assigned to an intensity of pleasure, or of pain, unless arbitrarily. Intensities have degree, but they are not extensive or measurable magnitudes which can be added and subtracted. That is; we can—presumably—determine a serial order of more and less intense pleasures, more and less intense pains, but we cannot assign a measure to the interval between two such.

This is true of 'intensities' in general. For example, given half-glasses of water with different amounts of sugar dissolved in them, we shall have different degrees of sweetness to the taste; and we could arrange the glasses in the order of this relative sweetness. But if we should say, "The contents of glass *B* are exactly twice as sweet as the contents of glass *A*," there would be no clearly determinable and objectively testable meaning of that statement. And if we *could* arrive at and adhere to some unique determination on this point, it still would not follow that taking two sips from glass *A* would mean experiencing the same amount of sweetness on the whole as taking one sip from glass *B*. Addition would still have no meaning here, unless that of some arbitrary convention, which would be likely to lead to inconsistency when tested by the required accord between results of further arithmetical operations and the application of these to the intensities of sweetness as gauged by direct experience.[3] That is, if we should take glass *A* as our base and select three others, *B*, *C*, and *D*, which—we decide—are respectively twice, three times, and six times as sweet, it is altogether doubtful that results found in experience would answer to the law that $3\times2=2\times3$; that what is three times as sweet as the contents of glass *B* would be what is twice as sweet as the contents of glass *C*, and that the answer would be given by the contents of glass *D* in both cases.

[3] We pass over the complexities involved in consideration of the series of just discernible differences intervening between two intensities of the same quality.

Entirely similar considerations would hold if we should be concerned not with the sweetness but with the pleasantness (or unpleasantness) of the taste of the contents of our various glasses.

Especially we should observe that the combination of two pleasures or two pains in one single experience is no calculable mathematical function of their intensities when taken separately. For one reason, because that would presume a kind of articulation of the experience and separation of its elements from one another which experience itself does not reflect. The pleasure of good company *and* the concert is not the pleasure of the company *plus* the pleasure of the music, but is the pleasure found in the total state of affairs including these constituents. The trouble with the calculus on this point is that it advances *two* criteria for gauging the pleasure or the pain of such an immediate experience as a whole; the criterion of direct finding, which by its principles should be subject to no further critique, and the criterion of arithmetical operations. And the results of these two do not agree in general, insofar as we are able to apply the second of them at all. The pleasure we *find* in the experience combining experiential items A and B, may not accord with the result of summing them.

Quite similar considerations affect the dimension of duration, and the attempt to combine the considerations of duration and intensity in the evaluation of pleasures and pains.

Durations are objectively measurable—though no end of subtleties could be introduced if we should care to question whether it is durations as felt or durations by the clock which are pertinent to the 'measure' of pleasure and pain. In any case, it can be questioned whether having a toothache for twice as long is just twice as painful, and is just half as painful as having a toothache and an equally painful headache both at once. It is also doubtful whether we should be completely indifferent to the alternatives of having these two pains at the same time or in succession.

If anyone should be minded to object that if our valuations of immediate pleasures and pains do not conform to arithmetic, at least they ought to, the answer has two parts. First, that our enjoyments and sufferings cannot be dragooned in that fashion. And second that even if they could be, there would be no rationality in it: in accepting the principle that the values in direct experience are simply

the values of them when and as found, the hedonists are entirely consistent. But the consequences of that are at variance with the proposals of the calculus.

With regard to experiences which are past or future, we can of course be in error by remembering incorrectly or anticipating incorrectly; and this is true with respect to the immediate value in them as with respect to their other qualities. Also as has been noted, we can fail of just appreciation in the sense that absent goods and ills, since they present themselves with less poignancy, do not automatically move us with the same effectiveness as present ones, and must by that fact be subjected to the critique of rationality. Again, there may be a value or disvalue of *having* an experience, over and above the value directly found in it; an instrumental value as contributory to further possible experience. But with regard to value when and as realized within a given experience itself, there can be no principle of correct calculation; such values are data which must be accepted as found.

Bentham does not overlook the considerations of rationality and of the instrumental or contributory value of experiences. Rather, the just appreciation of them would appear to be one desideratum of the calculus. The dimensions of fecundity and purity are introduced particularly on account of these considerations. Yet Bentham falls into a curious minor inconsistency here, which should be noted before passing to considerations which are more important. In assessing value in the consequences of an act or event, he introduces the dimensions of certainty or uncertainty and propinquity or remoteness. If an expected consequence of an act or event will have a certain value in case it occurs, then the rationality of the act or desirability of the event is not measured simply by this value of the consequence, but by this value as qualified by the probability that it will follow, in accordance with what is called in probability theory the mathematical expectation. So far, there is accord with the dictates of rationality, since one who should act on this principle would in the long run achieve anticipated values in general to the maximum possible extent; just as one who laid his wagers according to mathematical expectations would in the long run win the maximum possible amount of money. With respect to propinquity and remoteness, however, Bentham's intention is not so clear. One cannot be sure whether

he means us to assign to nearer pleasures a higher value just on that account, or whether he has it in mind that nearer pleasures are in general more certain. But if it is this latter consideration which is the pertinent one, then he is merely repeating under this head of propinquity or remoteness what is already taken into account under the head of certainty or uncertainty. It is to be feared that what he intends is the anomalous conception that, although we should rationally be concerned about the future, we should be less concerned about it according as it is more remote—and this quite independently of the greater doubt which attaches to the more remote in general.

This might be called the principle of fractional prudence or of prudence mitigated by impulse. It is not Cyrenaic repudiation of concern for the future; but neither is it the rational principle that concern for the good in a whole life should rule our conduct. The only sanction which suggests itself for such qualified prudence is the psychological one that it expresses an attitude which humans do tend to take, instead of acting wholly from rational grounds. As has been indicated, the issue between the principle of rationality, as an imperative, and any such alternative to it, is not arguable. But one thing is quite clear and certain: supposing that we should be equally accurate in our foresight of the future, and equally lucky in what we cannot foresee, the man who should deliberately sacrifice distant goods to near ones, would by that fact fail to achieve as good a life as he might upon the whole; and the greater weight he gives to nearer goods over more distant ones, the greater will be his eventual loss.

If Bentham really means what he seems to, one who followed his prescription would be sure to miss the best life possible for him, by being only part-way prudent. But this defect is of secondary importance, and could be remedied simply by striking out this dimension of propinquity or remoteness from the calculus. Let us dismiss that aspect of the matter, supposing the view corrected so as to be fully in accord with the ideal of a maximum balance of goods over ills in the whole of whatever stretch of time our decisions may affect. Let us also set aside—so far as we can—the difficulties arising from the fact that values and disvalues cannot be treated as measurable quantities to which arithmetical operations will apply. Again, let us dismiss the point that 'pleasure' and 'pain' are inadequate names for the goods and ills of life in general, and may betray our relative valuation

of them. The most fundamental and important point underlying the calculus will still remain. The conception will still be presented to us of a good life, or of the goodness of any whole of experience, as something the value of which is determined as the simple aggregate of the goods and ills found in its constituent experiences, or constituent items of experience, taken separately. Though it becomes difficult to express this point without the use of mathematical language, it is in fact independent of the question whether mathematical operations apply; since the notion of an aggregate does not require the further notion of a sum of quantities. We can at least phrase this basic conception negatively, as the statement that there is nothing in the value of any whole of experience beyond the values found in its experiential constituents severally; that if this whole is constituted by experiences *A*, *B*, and *C* together, then the value of it will be simply the values found in *A*, *B*, and *C*, with no addition or diminution by reason of the relation of these experiences to one another. And this implies a canon or rule for our assessment of the goodness of a life or whole of experience. It says to us; if you find a certain value in experience having such and such a character, and another value in experience of another sort, then the value you *should* find in the whole constituted by two such experiences together, is simply the aggregate of these two values, without reference to any further fact.

It is exactly this thesis which must be denied. It must be denied, first, because constituent experiences do not combine in any whole in this external manner of adjunction merely, but in such wise as to qualify one another, particularly with respect to their value-character. And second, it must be denied that our assessment of value in an existential whole is subject to the critique of this rule. A mainly valuable contribution of Bentham and his school lay in their intent to repudiate alien and external criteria of goodness in favor of the immanent ideal of a life to be found good in the living of it. But in both the ways just mentioned, the basic conception of the calculus is untrue to that intent. Life, or any stretch of living, is not an aggregate of separate moments. And with respect to any whole of living, the rule must be that the value of it is the value realized *in it* on the whole. This is subject to no critique unless criticism in the light of some more adequate comprehension of the character which

it genuinely has or will have. If one should, without illusion of memory, find a life worth living though the greater part of it be spent in suffering, there could be no prescribed manner of evaluation which could overrule that finding, or convict one of error in it. And no rule could be of assistance to us in so evaluating a whole of experience beyond the rule that it should be envisaged adequately and truly as a whole, and no part of it omitted from our concern.

The kind of values human life may realize could never be understood by a creature who could adequately envisage any and every moment of experience, and appreciate any value to be found within a single specious present, but could never put these experiences together in his mind. Presumably we could not imagine a good life or a good year or any other temporal whole of experience, as having positive value, which should be constituted by a succession of exclusively ill experiences; or such a whole that was bad, as constituted by a succession of immediate satisfactions. But we can quite well imagine that two such wholes might be made up of constituents separately comparable in their immediate and momentary values, and yet that one might be better than the other. Or perhaps it would be more accurate to say that we cannot imagine any life in which the constituent experiences of it should not, in their values momentarily found, interpenetrate and qualify one another by the temporal and other relations of them. The value attaching to a whole of experience is not independent of the values realized in its constituent parts, but neither is it determined by them without reference to the manner of their composition.

5. For a creature which lives a self-conscious and active life, no experience momentarily given says the last word about itself, because its significance for him is never merely of and for that moment. What is immediately given now, has its own fixed and absolute character, with respect to value as in other ways: "The moving finger writes and having writ moves on." But there is no moment whose quality and value fails to have a further significance as contributory to or subversive of further and more inclusive aims and values. There could be no good life, nor any bad one, independently of momentarily found or findable goods and ills. Living itself is a continuum of immediacy, and could hardly present a value independent of the qualities of the comprehended immediate experiences. But it

is a self-conscious, self-concerned, and self-affecting continuum, no moment of which looks merely to itself and contemplates only what is now and within its own felt boundaries. Its included moments, in their regard and intent, and in their value-significance, interpenetrate and modify one another.

Time as the passage of life experience is not that aggregate or heap of moments which a calculus of felt satisfactions and dissatisfactions might suggest to us. It does not lend itself to counting and arithmetic or the weighing of measurable quantities. Nor is the passage of experience merely transience and a direction of serial order. As self-concerned and self-affecting, experience is cumulative and consummatory. And the values to be found in it have a character inseparable from this kind of fact. One could no more appraise any whole of experience justly without respect to such considerations than one could evaluate a piece of music from hearing it played backwards.

In fact, music offers a kind of example which typifies in certain respects this consummatory character of experiential wholes and the values of them. A musical composition or rendition discloses a kind of value which comes as near to being purely esthetic and directly found in the experience of it as one could well discover. But the goodness or badness of a piece of music is not constituted out of the goods and bads of its separate notes or even of its separate phrases. One cannot compose a symphony of sour notes—let us hope—or out of exclusively dissonant passages: the momentarily experienced qualities of constituents are not indifferent for the value which characterizes it as a whole. But neither are they decisive; their temporal and other relations are likewise essential. One could not, for example, by selecting from amongst Beethoven's symphonies the three movements which are rated highest, and juxtaposing these, create a better symphony than Beethoven ever wrote. Musically juxtaposed passages qualify one another.

Not only is the quality which is valued in a musical composition one which is dependent upon the order and progression in experience, but the *realization* of that value also is progressive and cumulative. One does not hear the symphony in its opening passage, nor in the middle of the second movement, nor in the finale: one hears it and appreciates it as a progressive and cumulative whole. Yet this value

of it as a whole is as directly realized in the progressive experience of it as the beauty of the opening chord was found in that moment. And further, the value disclosed in it is consummatory. If one cannot stay through the second movement, one prefers to leave at the end of the first. And if by some accident, the rendition should be broken off in the middle, one would 'lose more than half the value' of it: indeed one might find this interrupted rendition a musically unsatisfactory experience altogether, and regret hearing any of it under the circumstances.

We find the similar thing exemplified in drama and in the novel. And these examples are the more pertinent in that it has its measure of truth to say that the drama and the novel imitate life, merely emphasizing, by their selectiveness and their exclusion of the irrelevant, the kind of significances and values which life may present. To be sure, the values presented in the novel or the drama are not identically those which would be found in first-person experience by those involved. In spite of that empathy which is essential to appreciation of them, psychic distance and the spectator attitude are also essential to realization of the peculiarly dramatic values. Life is never dramatic in the living of it: the seriousness of intent would be spoiled by any self-conscious sense of drama. It is only the comedy values which can be appreciated in the first person. And comedy lies in the self-frustration or self-betrayal of the unexpected denouement; never in the realization of active and serious purpose. Nevertheless the significances portrayed in the drama and the novel are such as life also might present. And the values found in life-experiences resemble them in being fundamentally affected by the characteristics of anticipation, temporal passage, and realization or frustration in what is expected—values which peculiarly attach to experience as cumulative and consummatory. One cannot justly assess such values realized in the passage of experience by looking to those values only which could be found in momentary constituents, any more than one could see the picture in the little pieces of the jig-saw puzzle without reference to the manner of their relation, or find dramatic meaning in some string of incidents which were separately intriguing but essentially unrelated.

6. Most particularly of course, the values of life as active must be affected by these characteristics of experience as progression and

consummation and of temporal wholes as configurations of significantly interrelated temporal parts. The goodness of pursuing and attaining is not the goodness found in striving, regardless of the end pursued, plus the goodness found in having something desired, regardless of how it is attained. It lies peculiarly in the relationship between the active intent, the conation, and the realization. The goodness of the end to be realized infuses the activity; and the goodness belonging to purposive action, and not to be found in mere good fortune, colors the realization of the end attained. Even our active recreations—for the value of which a goodness found in the end merely, is patently not enough—exhibit this character of the consummatory experience. A tramp in the hills is the more enjoyable for having an objective, and the attained objective is the more enjoyed because it has been so reached. Even more obviously, this will hold of those activities the goodness of which depends upon a goodness in the end: struggle can be blessed with the foretaste of achievement, and the goods we set our hearts on can be sweeter because they have been won.

It is mainly in failure to be true to this character of active life that the falsity of Schopenhauer's pessimism lies. Either the good of willing and achieving—he would seem to tell us—must be found in the moment of pursuit, or it must be found when the projected end has been attained. But it is not found in the initiation of action, or in continued pursuit, because only an absent good—or a present ill—can move the will. And it is not found in achievement, because the insatiate will then sets itself to some other and still absent goal. But the dilemma is a false one; just as it would be false to say that the beauty of the symphony must be found in the opening passage or in the middle or in the finale. What is overlooked is the fact that, particularly where life is active, the flight of time's arrow is not correctly portrayed as a succession of disjoined instants but—more nearly at least—in the manner of Bergson, as a *durée* characterized by the tension of an *élan vital.* The characteristic good of willing and achieving is not one found in this or that passing instant merely, nor in an aggregation of the goods thus momentarily and separately disclosed, but in the temporal and relational pattern of a whole of experience whose progression is cumulative and consummatory.

The goodness which can infuse a life pervasively active must be

lost to view if we attempt to discover it piecemeal within the separate and successive instants of the passage of activity. As also it would not be found if the moment of attained desire came first, and then had to be paid for by effort and endurance. And likewise the characteristic good of action is missing in that other kind of enjoyment which comes through some unexpected gift of the gods. Nor can we cancel out, as irrelevant or something which detracts, the fact that the end of action is an absent good. Action becomes play-acting if the end of it is something ready to our hand and needs but to be grasped. And likewise it ceases to be serious, and the whole nature of the experience becomes transformed, if the goal of it is not genuinely something for the sake of which it is undertaken but is merely a target set up for the sake of having something to aim at and of being active. The distinctive good of purposive action disappears if in fact the doing is the end and the value of it is one simply to be found in it as the moment of immediate activity. This is brought home to us occasionally when our doing has had, in passing, its own peculiar satisfaction as purposive and valid, and the end aimed at is also reached and found good, but is then discovered to be one for which our business was non-essential and which would just as surely have been attained without any active concern on our part. The action is then robbed of its value in our eyes, being colored with the quality of the stupid or the fatuous. Or it is reduced to the trivial value it may have as comic interlude, such as we find in the episode of the man who earnestly peers about for his spectacles and finally discovers them in his hand.

The end must be valid on its own account, and even without its being our chosen goal; and the activity must be essential for the attainment, which would not come about without this payment in advance; otherwise whatever incidental goods there may be in this passage of active experience they are not those which are typical and characteristic of an active life. But given this prerequisite and independent goodness of the end, and this character of real purpose in the intent, and given this essential and genuine connection of the two in the temporal sequence of experience, a goodness of the moment of initiation and pursuit may be genuinely findable in it by its relation to the good which is absent and is aimed at; and the good attained may be fraught with the additional and peculiar value of achievement.

7. This characteristic consummatory value findable in action is not confined to cases where the end is justified by prudential consideration. We shall not here discuss, in the full scope of it, that final riddle of ethics that if duty be done toward another for *one's own* sake, then the peculiar significance of morally just action is lost to it; but that if it be done without regard to self-interest, then there may accrue to it a value findable in the first person. We omit here the question of validity in the imperative to other-regarding and self-sacrificing acts. But we may point out a certain parallel between what is done from such other-regarding and distinctively ethical concern, and what is done from motives which are merely prudential and a concern which is exclusively first-personal. Equally, in the two cases, the projected good of the end to be attained is one which is absent from the momentary self which acts. And as has been remarked, if that momentary self should challenge this imperative to action, or all such imperatives, then we should equally be at a loss how to impress it upon him in either case. And it is further true that given a validity in this absent end which is accepted and which will not later be repudiated as irrational and stupid, a goodness may accrue to the moment of action by its relation to the end accepted as being thus valid. It is, in fact, a general character of the values open to a creature with a will, and capable in some measure of a self-conscious control of life, that there may be a good in accomplishing what he sets out to do because he has set out to do it; a goodness absent from what accrues by good luck only, and one which by the character of it as consummatory infuses the act which leads to this success with its own peculiar quality of value.

There is one often-recurrent mode of interpretation in ethics—historically best represented by Hume—which affords a good occasion to observe such facts by the manner in which it comes close to the truth and yet misses the main point.[4] Such analysis is bent upon breaking down the clear distinction between the benevolent and the merely prudential or egoistic—with the intent, most often, to assimi-

[4] "And it would be difficult to show how a man is more the loser by a generous action, than by any other method of expense; since the utmost which he can attain by the most elaborate selfishness, is the indulgence of some affection"; Hume, *The Principles of Morals,* Sect. IX, Conclusion, Part II.

The point to be illustrated here, as well as the illustration to be used, first came to my attention in a lecture by George Herbert Palmer to his class in "Philosophy 4."

late the former to the latter. And it asks, so to say, how, if a man put a penny in the beggar's cup, he could otherwise purchase so large a satisfaction by so small an expenditure. What we are supposed to observe is that, since all men are endowed by nature with sympathetic feelings, the spectacle of wretchedness affects us with uneasiness in the first person; and to be rid of such discomfort is, thus, an immediate felt good outweighing any we should easily come by in exchange for a penny. Or possibly it is intended that we should observe that all of us are subject to the weakness of self-approbation on trivial grounds, and can thus purchase such harmless pleasures at small cost.

But however intended, the point so made is mildly cynical in its effect, and in its cynicism false. A first requisite of the kind of satisfaction referred to, is acceptance of an independent validity in the end toward which the action is directed. The object is relief of another's suffering, not alleviation of our own uneasiness. If the latter should be the genuine end, then recognition of that fact would dispel the peculiar quality of satisfaction felt in the doing, and would remove any ground of self-approbation also. This kind of analysis thrusts to one side of the vital point, which does not concern the fact of satisfaction felt but the prior question of validity in the root of it. The value felt in contributing to the welfare of another is predicated upon a concern which terminates in the relief of *his* pain and not of our own. *That* is, and must be, the end to which the act is addressed in order that the satisfaction felt in it should not be predicated on a self-deception. And that end must be accepted as valid, or the satisfaction will not accrue—at least not rationally. If, for example, we should later learn that the beggar enjoys an income larger than our own, and spends his takings in riotous living, any satisfaction felt in contributing to it would then be replaced by some small chagrin. The act will then affect us with displeasure because it is revealed as based on a false assumption and leading to no end that we approve. But if in fact the real aim of it had been self-relief, then we should not need thus to reappraise it. It would still have accomplished the real purpose of it, and we should still find no reason to qualify our satisfaction felt in it. Our appraisal of the act cannot, in truth to the human facts here, be represented as having its criterion in our immediate satisfaction felt in doing, because such felt satisfaction

depends on an antecedent judgment of the act as directed to a different end than that, and upon recognition of that end as valid.

What requires to be observed here, and what is important for a just appreciation of the possible goodness of an active life, is the fact that, whatever the nature of any imperative to concern oneself about the good of others, if that imperative be valid and be accepted as such, then action directed to the ends it dictates may still possess the peculiar goodness of valid achievement, and be infused with a directly findable goodness in the doing, which is derivative from the character of it as genuinely consummatory. And if self-approval should play any secondary part in such immediate satisfaction found in the activity, then this kind of satisfaction need be neither self-deceiving nor sentimental, but is a legitimate and valid contributory good in a possible good life.

We have no slightest intention to beg the question of the peculiar problem of ethics regarding the validity of any imperative to concern ourselves for the good of others. That question is antecedent. What we would point out is that, supposing validity in that imperative, the activities so directed do not then represent a slavery of the individual to an alien end, but may be creative of a goodness findable in first-person experience.

Immediate satisfaction found in the performance of acts whose ends commend themselves to us, is a character intrinsically belonging to the nature of human life as self-conscious and active. Any deed done is permeated with an immediate felt good or ill reflecting the conceived goodness or badness of its anticipated consequences; and by a satisfaction or dissatisfaction representing our sense of justification or the opposite in the performance of it. We suffer in some measure in the doing of anything of which we disapprove, and enjoy in some measure by self-approval in our doing. But such normative satisfactions cannot be commandeered: they depend on an antecedent judgment of the act, and of the act as directed to a different end than this satisfaction felt in doing; upon presumptive validity in a non-immediate end to be attained. But given this validity of the absent end, the felt satisfactions peculiar to purposive doing and achieving, and marking the consummatory character of the goods of active life, are both real and valid.

It further lies in this kind of fact that a life is bounded, not by the physical limits of it, but by its horizon. No man so brutish that he does not prospectively live in what he does and may do for his children; and there is none who feels no concern for any contribution he may make to the lives of others who will come after. His conceit of himself is affected by the anticipation of good repute, if by nothing more, and the hope not to be completely negligible in his passing on. The ends of action which he thus contemplates, lie outside the goods and ills of his possible experience; but by the acceptance of such ends as valid, a life becomes affected by a goodness or evil genuinely realizable in the living of it, through relation to what lies beyond its temporal boundaries. Not only this limited stretch of it, but all that lies within its purview and may be affected by it, may make for goodness or badness to be found in that life itself.

8. The final evaluation of any particular experience is evaluation of it as contributing to a whole of experience which it enters as a constituent. And that overarching temporal *Gestalt* which is final is the purview of a whole life.

Constituent experiences compose a temporal *Gestalt* of experience in the sense of being its included and mutually qualifying parts. And the value to be found in the experience of such a whole is the value found in experiencing just these constituents of it, each with just that good or ill which was—or is, or will be—immediately found in it in passing. The good or ill of the whole experience is the goodness or badness of experiencing just these particular goods and ills in just this organic relationship to one another. If the particular constituent experience be reassessed from the point of view of the consummatory whole, such reassessment nevertheless does not displace or cancel the value immediately found in it in passing: quite the contrary, it attributes to it a value of it as related to and qualifying and qualified by other constituents, but as having within itself just that value-quality with which it was immediately felt in passing. If it be paradox that nevertheless the value of a whole of experience as such is not completely determined from the value of its parts, each separately, then that paradox is one which we shall have to brook, because it expresses a fundamental fact.

But this—it may be thought—imposes peculiar difficulties upon all attempts at just appraisal of values; difficulties inherent in the at-

tempt to determine such contributory value, and difficulties incident to the determination of goodness or badness in any projected or contemplated life taken as a whole. This may well be a fact. Finally just appraisals may be the most difficult thing in the world—and the most important. But if so, we should do ill to espouse a theory in which such genuine difficulties appear to be obviated by a specious simplicity of conception.

As a fact, however, such difficulties recognized in final value-judgment are only in small part affected by the difference of the conception here put forward from any other which would be plausible. Because any theory which recognizes as valid the ideal of a life which will be the best possible in the living of it, must also recognize that ideal as the touchstone of all final evaluations. For a view such as Bentham's for example, which sets the criterion of final evaluation—including reference to 'purity' and 'fecundity' as well as certainty or uncertainty—in the maximum balance of particular experienced goods over particular ills, it would be similarly essential to correctness in any final appraisal of particulars that the whole effect of them in any contemplated life must somehow be brought before us.

The major portion of the problem of such judgment of things and experiences as finally contributive of good or ill to life, is of course the general problem of accurate and adequate empirical knowledge. What will be the full consequences of this thing in question? What possibilities of living are open to us in the light of what is already determined or to be presumed as fact? How will this thing fit in with such antecedent facts so as to increase or to subtract from the possibilities of satisfactory living? There is no manner of approach which will provide a rule of thumb for meeting such questions or obviate the difficulties of them. And it is a commonplace that they constitute a principal problem for anyone who attempts to plan a good life for himself or has the temerity to advise another.

The one point on which the view here advanced might be thought to impose a difficulty which is peculiar and might not be encountered on some other, is that this conception supposes that assessment of value in any contemplated life is antecedent to and not derivative from the assessment of the particular goods and ills contributory to it. It denies that the goodness or badness of life is constituted by an aggregate of particular satisfactions and dissatisfactions, irrespective

of sequence and relations of these in this organic whole, and maintains that no calculus or other such rule will obviate the requirement that the value attaching to such a whole must be determined by some attempted synthetic envisagement of it. But the precise difference here would be only that a Benthamite, while admitting the necessity of reference to the comprehensive whole of experience in order to determine with finality the value of any constituent in it, would still maintain that this final assessment can be carried out in piecemeal fashion by arithmetical procedures; as one can discover with accuracy and adequacy the whole length of a thing too big to 'take in at one time' through recorded tally marks representing meter-lengths passed over. Such operations we should believe to have no application to the value-character of wholes of experience, on account of the organic character of the relation of constituents within any experiential whole in which they are included.

9. The value of any experiential whole is simply the value which would be found in it as a whole of experience. But assessment of it will obviously lack that certainty which attaches to immediate findings of value or disvalue in momentary experience. The sense in which value is 'found' in a whole life in the living of it, obviously is not the same as that in which a contemplated landscape is found pleasing or barking one's shins is found painful. Our apprehension of what runs beyond the specious present requires some synthesis, and by reason of this requirement becomes a matter involving judgment and liable to error.

There are three ways in which such synthetic apprehensions of experiential wholes are subject to mistake. First, there may be mistaken judgment of their actual content so far as this falls outside the immediately presented. We cannot forecast with accuracy just what episodes will be included in the further unfolding of our project or the vocation to which we commit ourselves. And not only false anticipations of the part which is future, but also erroneous recollections of the past, are in some measure possible. This, of course, is merely that sort of error to which all empirical knowledge is liable, and with respect to it there is no problem which is peculiar to synthetic value-assessments. Second, one may be substantially correct in one's anticipations or recollections of experience in other respects and yet be mistaken about the value-quality of what is anticipated or

remembered. The child may be disappointed in his ecstatic expectation of tomorrow, not because of any notable error as to the events which will take place but because those events, when he participates in them, may fail to measure up to his anticipations of satisfaction. This again, is not a type of error affecting value-judgments only. One may make similar mistakes with regard to other qualities ingredient in experience which is otherwise correctly anticipated—with respect to the taste of the meal one has ordered, for example, or the expected feeling of motion in one's first ride in an airplane.

But third, there is a kind of possible error to which assessment of the value in an experiential whole is especially liable—not specifically because it is *value*-quality which is in question, but because it is a difficulty affecting determination of any quality of a whole which runs beyond what can be apprehended at one moment, and is a quality of that whole which is affected by the character of it as a *Gestalt*. Because of the magnitude of such a whole, some manner of synthetic apprehension of it is required. And because the character of it which we wish to apprehend is affected by the manner of its internal organization, the kind of synthesis which is called for cannot be accomplished by treatment of it as an aggregate. If we borrow an old word and say that what is essential in such cases is a synthetic intuition, it is to be hoped that entanglement with various problems associated with 'intuition' can still be avoided. Our familiarity with the type of experience in question should be taken as suggesting the intended meaning of that term here, rather than this mode of experience by the word. And if it be objected that there is no such thing as synthetic intuition, then let us reply by reference to such envisagement as that by which we hear a symphony, or discover that a journey is comfortable or uncomfortable, or decide that a lengthy undertaking goes smoothly and is a rewarding experience or proves difficult and tedious. The two facts which need to be emphasized are, first, that to deny the possibility—the necessity even—of this kind of synthetic envisagement, would be to fall into absurdity; but second, that to fail to recognize the kind of error to which this mode of apprehension is peculiarly liable, by reason of inadequacy in the attempted viewing together of what cannot literally be presented in one experience, would be a strange and inexcusable oversight.

Such attempted synthesis can be facilitated or prejudiced by antecedent judgment of details which must be included—as we do better in our hearing of a piece of music if first we have adequately grasped and have retained judgment of its component parts; or as we may better comprehend a picture as a whole when we have first reviewed the major features of its composition. And if such antecedent judgments fail to be correct, then this incorrectness of them will prejudice the accuracy of the synthetic envisagement of the whole in question. But even when comprehension of the parts and details is as adequate and accurate as may be, there is still possibility of mistake through possible inadequacy in the attempted synthesis itself: that fact is so patent that it hardly needs to be emphasized. Moreover, the errors to which such synthetic apprehensions are liable are not such as can be easily avoided by the critique of logic, or any other epistemic canon beyond such as is involved in the general principle of consistency in judgment and in those cautions to be found in the general wisdom of experience. Evidence of this kind of error may on occasion be elicited from examination of objective facts of various kinds; particularly, so far as the synthetic comprehension presumes or implies, and is supported by, judgments of included detail. Still both the conviction of such error and any amendment of it, is likely to be finally possible only through another and even more comprehensive synthetic envisagement.

10. For all these reasons, the value-assessment of experiential wholes can neither be directly certain nor capable of any decisive and final verification. Because what is to be assessed is a whole of experience *as experienced,* and there is no moment in which this whole can be presented in the actuality of it. It involves a reference to something which is past and remembered or something future and imagined, or both; or it concerns something possible and hypothetical, in part or altogether. The young man planning his life may wrongly assess what he contemplates because his expectancies fail to square with possible continuations of the present; or because he fails to envisage correctly the value-qualities which middle age will find in what he plans and the episodes he attempts to envisage. And the old man reviewing his youth may forget past ills or fail to retain the poignancy of them, or he may color what he remembers with a nostalgia for the irrecoverable, and thus ascribe to his life on the whole

a value which in some part is illusory. Whatever runs beyond the specious present but involves attempted valuation of experience as such, is liable to errors of this kind in the attempted synthesis of apprehension.[5]

Thus although value-assessment of experiential wholes must depend on that kind of envisagement we would suggest by 'synthetic intuition', and this does not have the character of discursive judgment, nevertheless in crediting what is thus synthetically envisaged, discursive judgments of the past and future are relied upon and correctness of them is implied. By the same token, value-assessments so arrived at are capable of confirmation in indefinite degree, in the general manner in which the historically reportable and the predictable can be corroborated or disconfirmed. In this, they share the character of non-terminating empirical judgments generally. Here, as with respect to objective matters of fact, there can be no final assurance beyond the possibility of doubt, and no procedure is open to us which will obviate the possibility of error. But our credence can be justified, and what we believe is always capable of becoming better assured by positive result of further tests of what is implied in it.

If by reason of the difficulties of it, we should seek to avoid such value-assessment of experiential wholes, then we shall find that quite impossible, since it is indispensable to any attempted rational direction of life and of our action. And if we should be minded to seek some simpler mode of arriving at such final value-assessment, then we shall find that there is none which could be adequate and genuinely will apply.

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[5] Apprehension of the directly given and present is itself synthetic. We do not attempt to deal with this problem, and with the paradoxes involved in conceiving of the present as a stretch of time. The notion of the specious present is forced upon the psychologist in recognition of the obviously fictitious character of the temporality of experience as a mathematical continuum of unextended instants. The 'least' experience is a stretch of time. But any definite bounds of 'the present' can be set only by some criterion which is arbitrary and alien to the character of experience as presented. Whatever such criterion be chosen, there is one paradox which is inescapable: if, e.g., the specious present be such a period as that within which we can count the strokes of the bell which has already rung, then in setting such bounds we leave outside the present the immediate impression of these countable strokes as preceded by others no longer countable. We could never become aware that the present lapses into the past if we should not be directly aware of a something which has now lapsed.

11. However, it would be untrue to life and to the facts of our experience and our actual value-assessments if we should suppose that in every evaluation of anything as contributory to a possible good life, there is or should be such attempted envisagement of that life on the whole and a prediction of the specific manner and occasions in which this contributory value may be realized. There are occasions when just such attempt is called for; and these are the occasions of our most serious and important decisions. But for the same reasons which make probability only the best we shall attain, this kind of final value-assessment is the less frequently called for in practice. For the most part we are justified in simplifying our problem in one or both of two ways. First, we may break it up into parts. Just as the architect—who likewise recognizes that everything in his plan must be subordinated to the whole and evaluated by relation to it—still does not attempt to devise or judge every detail directly in that relationship, but instead by proximate relation to some lesser and included whole such as this room or this façade; so too we break down our contemplated good life into major components and judge of minor constituents by their contributory effect on these—a good job, a good home, or a good vacation, a satisfactory conclusion of the task in hand. Or second, recognizing the multiple difficulties of accurate prevision and an adequate synthetic grasp, we make a kind of probability judgment of what will be contributed by the thing or action or passage of experience which comes in question, in view of the various possibilities and probabilities represented by the alternatives with respect to which we must decide. If it is a question whether we shall attend the theater this evening, we raise the point perhaps whether tomorrow we may be overtired and work will not go well. But for the rest we rely upon the general probability that such recreation will contribute to life; and even if this occasion should prove an exception to that, we need not later recant our judgment as unjustified. There are many realizable goods which, as experience in general assures us, are unlikely to do other than contribute to life—as there are many bad experiences which are unlikely to do other than detract. Having a good dinner may safely be relied on to make life a little better; and one does not readily think of circumstances under which an earache would really be desirable. To be sure, a good meal could wreck a life—one remembers the

story about a mess of pottage; and perhaps an earache may one day prove essential to living happily ever afterward. But such chances are too small to be practical considerations.

Thus most judgments of contributory value in particular experiences are made provisionally and do not seek to go beyond the probabilities concerning the alternatives that life may present. Yet it all the while remains true that the criterion by reference to which value in experience would be finally determined must be this criterion of contribution to a life found good in the living of it.

But if, in view of the magnitude of any problem affected by relation to the whole of life, and the limitations of our discernment with respect to it, we should be minded to take an easier way, or to take the defeatist attitude, either in practice or in theory, then we are obliged to remember that it is as inescapable as it is difficult. The moral concern for the whole of life sets that end to which all particular aims must be subordinated, and constitutes the rational imperative.

Chapter XVII

Value in Objects

1. Somewhere deep in the earth is a nugget of pure gold. The specific gravity of gold is 19.3. Pure gold has a certain beauty. It is also useful for the making of jewelry and for many other purposes. It is worth thirty-five dollars an ounce. But a nugget of gold hidden in the earth at an unknown point is of no value to anybody. So here is a thing which has beauty and use and a fixed commercial value; but is worth nothing.

Such apparently contradictory statements about the value of an object may all of them be quite true when each is interpreted in the manner in which it is intended. There is at bottom only one kind of value in objects, states of affairs and other existents; namely, potentiality for realizations of value in direct experience. But the *modes of predication* of such value are so various that the attempt to bring them all under one single paradigm is hardly practical and would in any case serve no purpose.[1] We shall make no such attempt. Instead we shall endeavor to remark the most frequent and the most important of the customary modes in which we attribute value to objects, and any the neglect of which would be likely to occasion misunderstanding. And with respect to those modes of value-statement which are noted, we shall carry out the analysis only to the point where it makes connection with the discussions of empirical cognitions generally which were given in Book II.

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[1] There is a temptation for those who command the techniques of exact logical analysis to apply these to value-theory. They should be warned. On account of the complexities of our customary modes of value-predication, only three alternatives are open to such exact analysis of valuations: either it must discard common terms in their common meanings and proceed *de novo* in the arbitrary terminology of some 'ideal language'; or it must prove entirely inaccurate and inaedquate to our common modes of speech; or it must become so inordinately complex as to serve no purpose, unless that of affording an excellent example of useless pedantry.

We have already offered proximate analyses of this sort for attributions of inherent value to objects, and particularly of esthetic value, in Chapters XIV and XV; and for attributions of contributory value to experiences in Chapter XVI. It remains to observe the meaning, and the variants of meaning, attaching to predications of instrumental value and of utility to things. It is with respect to these especially that common modes of speech may seem contradictory of one another, in particular instances, and may give rise to misunderstanding of the actual nature of the values which are attributed. However, some of the variations of meaning which will need to be discussed extend also to predications of inherent value to things. And there are certain modes in which value is ascribed to objects which take account of inherent value and utility both. For these reasons, we shall not limit the discussion to instrumental value and utility exclusively.

2. As a first approximation we might say that attributing value to an existent, *O*, means that under circumstances *C*, *O* will or would, or probably will or would, lead to satisfaction in the experience of somebody, *S*; or it intends the joint assertion of many such affirmations. It is by this essential reference to actual or possible experience that value in objects is often said to be *relative*. It is of first importance to examine this so-called relativity, and the meaning of 'possibility' here; and to observe that on these points value in an object is not fundamentally different from any other property of it—its specific gravity for example. This kind of relativity—if that word should be used—does *not*, in general, turn upon relation to the experience of particular persons; instead it turns upon the *circumstances* under which the satisfaction to which the object may conduce would be realized in experience.

If we could envisage all reality and the whole of history, and be certain about it, there would be no occasion to refer to the potentialities of things in their relation to experience—whether value-potentialities or any other kind. Instead we should then evaluate objects in that absolute fashion having reference only to their actual instrumentality in conducing to goods or ills found in experience. We should discard all reference to any conditions beyond the actual; and neither potentiality nor probability would be a concept for which we should find any application. We might still evaluate objects sometimes by reference to our own experience exclusively; and on other

occasions by their relation to the experience of another, or of other persons generally. Any relativity of value to different subjects of experience might thus still be remarked. Also we might still classify values in objects according to the particular (actual) circumstances in which, and the ways in which, they are productive of satisfaction. Thus such distinctions as 'beautiful', 'useful', and so on, would likewise remain. Still other variants of meaning might also persist; for example, 'valuable' might sometimes mean 'having *some* value', 'not valueless', and at other times 'having more value than disvalue', or 'desirable on the whole'. Thus our vocabulary and syntactic constructions might still exhibit a wide range of meanings in value-statements. But the most important and characteristic significance of predicating value to objects, would disappear along with the disappearance of any reference to potentialities and probabilities.

Most frequently a value-predication involves implicit reference both to potentiality and to probability; to the probabilities affecting realization of a potentiality or to potentialities within the limits of what is probable. It becomes essential therefore to remind ourselves of the nature of potentiality and of the most general features of probability as indicated in Book II.

A potentiality is formulatable by some if-then statement or set of such, asserting what we have called a *real connection,* of which causal connections are examples. In such if-then statements, the then-clause or consequent is not deductively inferable from the if-clause or hypothesis; and the truth of the statement as a whole is independent of the truth or falsity of its hypothesis. This character of a real connection is most clearly formulatable in the subjunctive mood; "If *H* should be, then *C* would be." For example, "If this salt should be put in water it would dissolve," states that property of the salt called its solubility. The salt has this property not only when or if it is put in water; it equally has it when not put in water, and if it is never put in water. The if-then statement is true whether the hypothesis in it is true or not. Hence this property is a *potentiality* of the salt.

When viewed in their relation to experience, all properties of things are such potentialities. This is the significance of the fact that, to be genuine and objective, the property in question must be capable, theoretically at least, of confirmation. For example, our nugget of

gold mentioned in the opening paragraph has the specific gravity 19.3: that is essential to its genuinely being gold. Assertion that it has this objective property means that if it be weighed in air and then in water, and the weight in air be divided by the difference of these two weights, then the quotient will be 19.3. That nobody will ever find this nugget and perform these operations on it, makes no difference to the fact of the property: if anyone *should,* that would be the result—so the statement of its specific gravity affirms. If there can be gold which no one will ever find, still in order to be gold it must have this property; and this hypothetical statement about it must be true, though the hypothesis in it should be forever false. Thus the attribution of any property to an unexamined object—or to an examined one for that matter—asserts a real connection between a hypothetical operation or observable circumstances and a certain observation or experience in result; and asserts the truth of this if-then statement of such real connection independently of the factual truth or falsity of either clause in it.

The attribution of beauty to this piece of gold has a meaning exactly similar in these respects. Presumably no one will ever see it; but if it *should* be presented to a connoisseur of beauty in metals under auspicious conditions, he would be pleased. And this beauty of it is no more in the eye of the beholder than is the specific gravity of it. That the test of it is by reference to the experience of someone, does not make it relative to persons: any test of any objective property includes necessary reference to particular results in experience—to some test-observation. Nor does it matter that some people who should observe this object might be pleased and some not, nor that if it were presented to a connoisseur when he was trying to catch a train, he might not be pleased. A confirmation which is to be as nearly decisive as possible requires that the test-observation should be made by an expert and under optimum conditions of the test-experience. The freshman in the laboratory can make quite weird observations at the conclusion of his specific-gravity test; and even the most competent experimenter is liable to error when it is too near train-time. If the ordinary lay observer should look through the biologist's microscope at one of his slides, or be present when a crucial experiment is performed with the cyclotron, it is doubtful if he could determine what, if anything, was proved. But that fact would

be of small significance concerning the objective property of things thus demonstrable; it would merely be another indication of lay ignorance and inexpertness in the special sciences. The objective property of beauty is, in fact, one of the easier ones to test, making relatively small demands of special competence on the part of the observer and of careful control of the conditions of observation.

The instrumental value of our nugget or a utility of it has a like objective status. But these are, by virtue of the meaning of 'instrumental value' and of 'utility', relational properties: they concern a relation between the nugget and some other object such as a gold ring, to the production of which it may be instrumental. As will be remembered (from Chapter XII), a thing is said to have utility by virtue simply of such an instrumental relationship to some other object, though application of this term 'utility' usually carries with it some vague presumption of a directly apprehensible goodness in some eventual result. 'Instrumental value', however, definitely requires that some other object, to which the one in question has, potentially, such instrumental relationship, should possess an inherent value realizable in the direct experience of it. Thus utility is to be confirmed in exactly that same manner in which one would test a causal relation of the object in question to some other—for example, the relation of the nugget to the gold ring made from it. But determination of instrumental value would require a further test such as submitting the gold ring or other object for production of which the nugget may be instrumental to a competent appraiser of the inherent values of such things. But the fact that in the case of our nugget, both the operation of making the gold ring from it and of submitting this to expert observation are hypothetical only and will never in fact be carried out, does not alter the potentialities of the nugget which would be thus demonstrated. An object has utility if or when this usefulness of it is not put to the test as much as when it is so tested. And it has whatever potentialities for indirect satisfactions are involved in the objective character of it, whether these potentialities are utilized and the results observed or whether they remain unrealized in the experience of anybody.

Or is this last more doubtful than that the nugget has a beauty and a specific gravity independently of an actual test of them? Should we say that a thing is useful, and instrumentally valuable,

only if it is *utilized?* Sometimes we purchase a thing, for example, which in fact we never use in the expected fashion. And we may afterward express regret by saying that this thing is of *no use* to us. It might even be questioned whether a thing is truly useful at *those times* when in fact no one finds a use for it. But at least we shall admit, in such cases, that the object in question has exactly the same objective properties by which it is potentially usable, and potentially capable of leading to satisfaction, as if these capacities of it were actually made use of. There are still those value-facts about it which are formulated by if-then statements of the kind mentioned above, which would indicate the appropriate tests and results of these which would constitute demonstration of utility or of instrumental value. And these if-then statements, though more complex, have exactly the same kind of truth-status as those which would express the beauty of the object or the specific gravity of it. The truth or falsity of these complex if-then statements, expressing certain objective characters of our nugget, by virtue of which it is capable of leading to certain results to which a lump of iron would not, are similarly independent of the truth or falsity of the complex hypotheses which express the conditions of a possible test of them. In this sense a thing is useful if it has certain properties by virtue of which it is true that if it *should* be put to the test under appropriate conditions, the desired results *would* follow.

3. The doubt which may rise in our minds as to whether a thing is properly said to have utility when in fact it is never used, or to have instrumental value when in fact it never leads to satisfaction on the part of anybody, is a doubt which is due to the variety of our modes of predicating utility and instrumental value, and to the consequent ambiguity which affects our statements of such properties of objects. For example, we say that the unlocated nugget of gold is of *no use to anybody.* We do not in like manner assert that it has no specific gravity to anybody; or even that it has no beauty to anybody: statements of that form would not be idiomatic. However, we do say that this beauty of it will *do nobody any good;* as also that this nugget has *no value to anybody.* That these last-mentioned statements would be idiomatic, does not, however, reflect an unobjective character of the utility or instrumental value in question; it merely reflects a second manner in which these properties are often predi-

cated. The difference is one of linguistic usage; not a difference affecting the object, or even our valuation of the object. We do not, for example, change our minds about the nugget if first we say that of course it has its own specific gravity and a certain beauty even though these properties of it are unobserved; but second, that this beauty of it does nobody any good; and third, that it is of no use and no value to anybody. What we mean by the second and third of these statements, is that *since* this piece of gold is unlocated, it will please nobody by its presence and will lead to no other object which would be thus gratifying. The point is that in these modes of predication, we restrict ourselves to certain conditions known to be (or supposed to be) factual. So long as these circumstances obtain, there is no possibility—we implicitly assert—of the nugget's producing satisfaction, either directly or indirectly. Thus we say, assuming these conditions of fact, "It has no value," or "is of no use" or "is no good to anybody." That is; the statement that a thing has beauty is, according to linguistically accepted usage, to be interpreted as a predication in the mode of simple potentiality, in which one would likewise predicate color or specific gravity or any other objective property. And if that interpretation would not in fact accord with what we mean, then we ought to use some more complex form of statement in order not to be misleading. But in the case of utility and instrumental value, there is a second mode of predication which is idiomatic and frequently made use of; namely, that in which this value is affirmed or denied relative to circumstances known to be or assumed to be actual, and not in the manner of simple potentiality. Thus in this second mode the assertion that object *O* is useful means that it can be used under certain circumstances—which may be mentioned but more commonly are understood—which are *actual.* And the denial that *O* has value means that under the actual circumstances no value can be realized from it in experience. And this second mode of value-ascription may carry with it the suggestion that the property ascribed does not belong to the nature of the object taken by itself; though that suggestion is in fact misleading.

Oftentimes this kind of relativity in a value-predication—"is of no use (under actual conditions)"; "has no value to anybody (as things stand)"—is confused with a supposed relativity of the value in question to persons. That a nugget of gold hidden in the earth is of no

use or value, may be taken to exemplify the relativity of the value in question to somebody's satisfaction—hence, possibly, to a difference of gratification on the part of different persons. But on that point there is no difference between the beauty or any other value of the object and its specific gravity. So long as it is unlocated, *no* potentiality of the nugget will be confirmed by anybody's experience. The difference here is merely one due to certain linguistic habits (for which there are practical reasons) by which we say 'no value' and 'no use to anyone', meaning 'no *realization* of value *under actual conditions*'; whereas it would not be idiomatic to say 'no beauty' or 'no specific gravity' meaning 'no *confirmation* of beauty, or of specific gravity, under actual conditions'.

The predication of value in this manner of relativity to the actual, is still an affirmation of potentiality or possibility, but of possibility within certain limits of known or supposed fact. For example, a mining engineer might say, "The *X* mine has no further value because the vein has been lost and the geologists cannot relocate it; but the *Y* mine now becomes of great value because a large ore-body has been located and mapped." 'Value' here has the specific and familiar —though quite complex—meaning of 'economic value'. But we do not need to particularize concerning that: it is sufficiently evident that such value is a species of utility, dependent on prediction that the thing in question will eventually conduce to satisfaction on the part of somebody, or of many persons. Thus it is clear that the engineer denies certain possibilities for satisfaction in the case of the *X* mine but affirms similar possibilities in the case of the *Y* mine. As the example is phrased, however, he does not deny the existence, in the case of the *X* mine, of an ore-body having the same kind of basic potentialities as that of the *Y* mine. He merely asserts, concerning the *X* mine, that as things stand, these potentialities cannot in fact be realized, because nobody can find this ore. Specifically his assertion is a categorical probability-statement, in which certain conditions known to be or assumed to be actual figure as the data for the probability-determination. Fully written out, what he intends to affirm would be: "Since the vein in the *X* mine has been lost and the geologists cannot relocate it, it is highly improbable that any ore in the *X* mine will ever contribute to anybody's satisfaction; but since in the case of the *Y* mine a large ore-body has been located and

mapped, it is probable that the *Y* mine will contribute largely to satisfaction on the part of many persons."

The point to which attention should especially be drawn here is that the difference between any gold in the *X* mine which 'has no value', and that in the *Y* mine which 'is very valuable', is not a difference in the nature of the gold, nor any difference of the people who would realize satisfaction if they should be presented with it or possess it, but lies in certain conditions affecting the possible realization of satisfaction by these people from this object, which are met in the case of the *Y* mine and not met in the case of the *X* mine. The assertion of value in the one case and denial of it in the other are relative to these circumstances affecting relation between the object having certain value-potentialities and any subject having capacity to realize this value in experience. In this example, the circumstances in question are such as we should think of as affecting the object rather than the subject. But in another instance, it might be circumstances affecting the subject which would be in question. For example, it is reported that certain Arizona Indians in the last century killed a party of gold miners operating in their territory and buried or scattered the gold, because, as the account recites, "Gold had no value to these Indians." In this instance the denial of value is relative to factual circumstances affecting the subjects—the cultural habits of the Indians in question.

Thus we observe two fundamentally different modes of value-predication. First, there is the attribution of a potentiality for satisfactions which lies in the nature of the object. As a property of the object, the value in question—like any other objective property—is a certain potentiality of it for leading to experiences of a specific kind. In the case of value, this property is that of conducing to experiences of satisfaction, either directly through presentation of the object or indirectly through presentation of other objects to which the one in question may be instrumental. This potentiality is expressible by some if-then statement, in which the hypothesis will include reference to at least some circumstances affecting the object, and the consequent will assert satisfactions as following upon these hypothetical conditions. The point about this mode of value-statement is that it asserts a simple potentiality: the if-then statement is of the sort which may be true even if the hypothesis should be contrary to fact. If

someone *should* find this gold, or possess this 'gem of purest ray serene', or come into the presence of this flower 'born to blush unseen'; then he *would be* gratified. And by that kind of fact these objects are *per se* valuable. In this mode 'valuable' is just like 'soluble', and does not imply any actually realized satisfaction, any more than 'soluble' implies 'dissolved' or 'useful' means 'actually used with a desirable result. For reasons now explained, values truly attributable in this mode of simple potentiality are *objective values.* They are 'in the object independently of any relation to a subject' in exactly the same sense as its size or color or any other objective property.

Second, there are attributions of such potentiality as realizable under certain conditions, known or assumed as *actual* or determined to be probable. In order that a body of ore should bring satisfaction to anyone, it is essential that it should be located. Thus in this second mode, the located ore-body is said to be valuable, and the one which is unlocated and unlikely to be located is said to have no value. We shall speak of this as value-attribution in the *mode of actuality* and of the value ascribed as *value-in-fact.* (The name 'actual value' would be more idiomatic, but also more likely to mislead. Values attributed in the mode of simple potentiality are actual values. Also value-in-fact is often ascribed where no value is realized in experience.)

We should observe that value-in-fact presumes the simple potentiality for value-realization as a property of the object, but adds to this the stipulation that certain conditions of the realization of this value in experience must be actual or at least probable. Thus objective value is essential to but not sufficient for value-in-fact. Also we should observe that it is *certain* conditions only which, it is stipulated, must be actual or probable. If what it is intended to assert should be that *all* conditions of the realization of satisfaction are met, then nothing would have value-in-fact except what does produce satisfaction, and (except in atemporal or trans-temporal forms of statement) value-in-fact would be attributable only *when* the satisfaction in question is realized. If ascription of value to objects sometimes has that meaning, at least it is uncommon and does not represent the much wider and more frequent mode of value-attribution which we wish to identify with ascription of value-in-fact. For example, the located ore-body may not be contributing to anybody's satisfaction at

this moment or up to this time, any more than one which is not located; and in any case the value attributed to it is not measured by the satisfactions presently realized from it. The fact of its being located gives it a value-in-fact which would otherwise be lacking, because this means that one essential condition of its contributing to satisfaction is in fact met. This value-in-fact attributed to the object is still, as regards satisfaction to be realized in experience, a potentiality—something possible under actual conditions.

4. Attributions of value-in-fact are highly various in type by reason of the *different* stipulations as to actual or probable conditions which are to be understood in them. We shall hereafter note various species of value-ascription falling within this general class. But let us remark at once one type of them, consideration of which is of special importance for the clarification of value-theory.

Value-attributions in the mode of *relativity to persons* are such a species of ascriptions of value-in-fact. They presume, explicitly or implicitly, actual conditions of the realization of value in experience which are to be found in the nature or circumstances of the person or persons in question, in contrast to conditions affecting the object apart from all relation to persons or to conditions affecting all persons alike. And they attribute to the object a potentiality for conducing to satisfaction within these limits of personal circumstance.

Explicit value-attributions in this mode of personal value are often made by speaking of value to me, value to you, or to *S*, or to such and such a class of persons; or of use to me or to *S*, or beauty to me, or money-value to me, and so on. The intent of such predications is obvious: that has value to *S* which has potentiality for satisfaction to *S* within the limits of his capacity, disposition, or of other actual circumstances affecting his possible realizations of value from the object or kind of object in question.

It is a commonplace that oftentimes value in an object is asserted or denied unqualifiedly when, in order to be correct, the statement should be qualified by such reference to persons. That consideration, however, is not in point here: it merely remarks a frequent fallacy of value-predication; namely, that value to me is often mistaken for value to everybody or value which is impersonal. Our interest will be in instances where there is no such misapprehension; where it is personal value which is attributed and this value is genuine.

A thing may in fact have value to S_1 and not to S_2. And a thing which genuinely has objective value may have no value—or fail to have the kind of value predicated—to a particular person. Also a thing which does *not* have value objectively or to people generally, may actually possess value for some individual or some class of persons.

It is because a thing which has value to one may have no value to another that value in general is sometimes denied to have the character of an objective property of the thing valued, and is said to be relative or subjective. We have already considered some of the questions thus raised, in Chapter XII; and we shall not here repeat what was said in that place. But we were not, at that point, in position to go to the root of this matter. We can now observe the general characteristics of value to S, and of predications of value relative to persons, by considering such personal values as a particular species of the more general class of values-in-fact; values attributable within the limits of certain conditions which are actual.

First, however, let us remark two peculiarities affecting this form of speech, 'valuable to S', lest these should lead to misunderstanding. First; values relative to persons do not coincide with values which are correctly called subjective. If, for example, one offers a concert ticket to another with the remark, "It has no value to me because I have another engagement for that evening," this personal value, or lack of value, would not be a 'subjectivity' of it, since the determining consideration lies in circumstances which are accidental to, rather than characteristic of, the subject in question. (They are likewise accidental to the nature of the thing whose value is in question, in this example.) But they are circumstances of—i.e., affecting—the subject rather than the object; hence the phrase 'to me'. However, they are such as might affect any other person's deriving satisfaction through possession of a concert ticket, and are not permanent or characteristic limitations of the individual in question. Such a value or disvalue is, thus, properly called personal but not properly called subjective.

Second; we should remark that predications of *use* to me, or to S, often have a quite special meaning, which is *not* that of affirming or denying *utility* of the thing in question to the person in question. A thing which is said to be of no use to S may still be such that in fact

it has utility to *S*; he profits or may profit from the existence of it. For example, it would be idiomatically correct to say that few of us have a use for a blow-torch or a camel. Yet we may need to have the water-pipes in the cellar thawed out, and we may enjoy spices or rugs which reach us through camel-transport. Merely, the function of thus contributing to our comfort or enjoyment will be performed by others, and we shall have no occasion, and perhaps no aptitude, for performing it ourselves. But utility to *S* signifies usefulness *to S*; not necessarily use *by S*.

Avoiding such confusions which may arise through peculiarties of idiom, and returning to the meaning of 'valuable to *S*' as indicated above; we should observe that there is no problem in the fact that what has impersonal or objective value may have no value to a particular person or persons; but that there *is* a further problem in the fact that what lacks impersonal or objective value may still be genuinely valuable to an individual or class.

It is a simple and obvious consideration that a thing may genuinely have a certain potentiality for realizations of value in experience, though these can *not* be realized within the limits of actual conditions affecting some individual or individuals. Thus once we understand the meaning of ascribing value in the mode of relativity to persons, it becomes obvious that there is no contradiction nor even any puzzle in the fact that a thing may have objective value but that 'relative to *S*' it may have none. This merely signifies that *S* has certain incapacities, or is affected by certain circumstances, within the limits of which the potentialities which the object has for conducing to satisfaction cannot be realized. So much of any supposed problem of the 'relativity of value to persons', simply disappears as soon as we observe the correct analysis of such 'relativity'. The error of those who suppose value in general to be thus 'relative' is merely that of failing to observe the difference between two modes of value-attribution. They deny a potentiality to the object on the ground that this potentiality cannot be realized under circumstances which sometimes—and perhaps frequently—affect a subject of experience. Or they are merely insisting that *all* value-predications *should* be in the mode of value-in-fact to persons, and denying that value-ascription in the mode of simple potentiality should be allowed—or perhaps, that it actually occurs, or that it genuinely has a meaning. But as we have seen, this

mode of simple potentiality is that in which *all* objective properties are ascribed to things; and there is no better ground for denying its validity in the case of values than there is in the case of other properties of objects.

The matter is different, however, when value relative to persons is affirmed—and perhaps correctly affirmed—but objective value is *denied.* Nobody can realize a value in experience through the instrumentality of an object which has no potentiality for such value-realizations. We can safely commit ourselves to the dictum: No actuality without a corresponding potentiality. Thus it may appear that the two statements, "*O* is not valuable" or "is not good," and "*O* has value to *S*," must be simply incompatible. Often, of course, they are; and in such instances the explanation of the fact that both statements are made may sometimes be that "*O* has value to *S*" is intended to mean only "*S believes* (erroneously) that *O* has value to him." He *thinks* he would like it or find it permanently satisfactory, whereas *if* he possessed it, he would find himself mistaken. This idiom, "valuable to *S*" meaning only "valued by *S*," is in fact rather frequent. But in other instances, this would not be the explanation: the two statements, "*O* is not valuable" or "not good," and "*O* is valuable to *S*," *can both be true.*

5. The resolution of this paradox is to be found by reference to another distinction of the modes in which value is attributed to objects; namely, that between ascriptions of what we may call *comparative value,* and those which are non-comparative or absolute. For example, if one assert, "This is a valuable tool," or "This tool is a good one," he may reasonably be taken to mean that it is comparatively good; that it is a better than average tool; that it stands well in comparison with other objects with which one would naturally compare it. But if the tool is in fact nearly worn out and such attribution of comparative value would be false of it, the proposal to discard it might nevertheless be objected to: "Don't throw that away; it's a good tool," or "That tool still has a value." If so, what would be meant is, of course, that the tool has *some* value; that it is not altogether worthless. With respect to objects in general—where no particular comparison is indicated—an assertion of value in the comparative mode is somewhat indefinite in meaning, but implies at

least that the thing in question is more valuable than disvaluable; that its potentialities for satisfaction exceed its potentialities for dissatisfaction. Most frequently, the correct interpretation of the statement that a thing is good or is valuable, would be to take it as intending such comparative valuation; as asserting that the thing in question is better than average, or at least is more valuable than disvaluable. But since a single object may be instrumental in various ways, and under different circumstances, it will frequently happen that a thing which is comparatively poor, or even one whose potentialities for dissatisfaction exceed its potentialities for satisfaction, so that on the whole it is a 'bad thing', will still be 'good' in some connection or other. It will not be absolutely worthless but will have *some* potentiality for conducing to satisfaction in experience. Thus it can be true at one and the same time that an object is not valuable and not good (comparatively speaking) and yet that it has *some* value and is not (absolutely) worthless. Indeed, it would be a little difficult to find any object which has no potentialities whatever for conducing to satisfaction, and is absolutely without value of any kind.

It is this consideration which is in point when a thing which is not objectively good or valuable, or not valuable from the impersonal point of view, has nevertheless a value to S which is genuine. Such predications of objective value are from the comparative point of view and imply at least that the object is more good than bad. And there is nothing in the denial of such *comparative* goodness which is incompatible with the supposition that S, within the limits of his capacities for value-apprehension or the circumstances which affect him personally, may still derive a satisfaction from it, or even find it uniformly conducive to his satisfaction. Whatever object can, under some circumstances or other, be instrumental to the realization of satisfaction on the part of anybody, has by that fact just that much of value and is not absolutely worthless. But for our ordinary problems in the evaluation of objects, the consideration of such absolute value—some value—in a thing is trivial, and entirely insufficient to justify what would customarily be intended in calling an object valuable.

Furthermore, as will now be clear, what is (comparatively) disvaluable from the point of view of persons generally, may still have a

value to *S* which is not trivial, but may be reliable and important. One man's meat is another man's poison; and what is genuinely good for some may be genuinely bad for others. And with respect to such variations of value relative to persons, majority votes prove nothing—except concerning what is relative to majorities. That so and so fails to give any satisfaction to most people, does not even prove that it is not, impersonally judged, a good thing. The pleasure which children and other innocents may find in 'worthless' but harmless baubles and things of 'no real merit', proves that these objects—having no potentiality of satisfaction for enlightened adults—are still good things from the *im*personal point of view, and the existence of them is desirable so long as they interfere with nothing.

Nor does the fact that the value of a thing to *S* is a subjective goodness of it, and the object in question is not objectively valuable, prove that the value which it has for *S* is other than genuine. Thus a man reviewing his personal history might say of some object or event encountered in his youth; "The value which I found in it was mostly in my own mind, as I see it now; but it exercised a powerful influence for good upon me at the time, and proved a turning point in my life." He would thus confess that, even for him, the apprehended value was subjective and the thing in question did not have the potentialities for further value-experience which he then believed. But he would also imply a genuine value of it to him, through its potentiality for conducing to just that value-experience which he then had, under the conditions which then affected him.

Furthermore, the fact that it is some people only who can realize satisfaction from a thing, and that relative to most persons it 'has no value', does not prove that the value of the object in question is subjective, in the sense in which apprehensions of properties in general are classified as objective or subjective. That appreciation of some works of art, for example, may be confined to a relatively few, proves nothing; it is possible, even if not probable, that the explanation is to be found in their superior discernment. Relatively few people can hear sounds of 25,000 cycles per second; but those who do, hear a real sound: they prove it in the laboratory. The corresponding proof of objectivity in artistic discernment, is a little hard to come at; but at least we must admit that objectivity of a value-apprehen-

sion is not dependent on the statistics of general appreciation; and 'genuinely and objectively valuable' does not mean simply 'conducing to satisfaction on the part of people in general'.[2]

That we cannot thus identify the impersonally valuable and socially desirable with what is found valuable by persons in general, is unmistakably exemplified in the case of economic values, which represent one species of impersonal and public value. In a free country, it is sufficient to assure economic value in a thing if *some* people find satisfaction in it and are willing to give other goods in exchange for it. Similarly it is recognized in a free country that other kinds of public value are to be determined, not by a statistical generality of appreciation but by the possibility of providing the things in question for those who find satisfaction in them, without inflicting them on others who find them personally disvaluable. Indeed, the very fact of exchange of goods and of the economic mode of valuation, is rooted in the recognition that what has less value or no value to one may have a real or a higher value to another. The repudiation of values relative to individuals as not genuine, and of valuations in this mode of relativity to persons as *ipso facto* subjective and invalid, is in fact an absurdity. Only those whose heads are in the clouds, and whose theorizing is untouched by such earthy facts as the economic, could commit it. It is the fallacy of those puritans who would willingly enslave the public to some pattern of evaluations which they suppose to be brought down from heaven. And we should not allow ourselves to be confused by the fact that nowadays such puritanism is more often to be found on the left than on the right. Identification of the genuinely valuable with that in which satisfaction is—or 'ought to be'—universally found, is one philosophic root of totalitarianism.

To return to the main point: whatever actual existent brings satisfaction to somebody, *ipso facto* has just that potentiality for realization of value in experience by just that individual under just those circumstances. And by that fact it is not absolutely worthless. This does not prove objectivity of the value-apprehension in question, or

[2] That a thing may be 'impersonally' valuable and socially desirable, though incapable of affording satisfaction to people generally, depends on our control of the conditions under which it is experienced—a point which will be taken up later in the chapter. For example, if children cannot enjoy certain toys without causing irritations or accidents to grown ups, then it may be that these are 'not good toys'.

of the value apprehended: that point is to be determined by reference to the conditions of this value-realization on the side of the subject. If something peculiar to the individual and misleading as to further possibilities of deriving satisfaction from the object, is an essential factor in this realization of value, then it is subjective. But we have to admit that even a subjective experience of value indicates that the object inducing it has that much of value—however trivial that consideration may be. The point of being on our guard about the subjectivity of value-experiences, is not that the value realized is unreal, but that it does not indicate a permanent possibility of value-experience which is attributable to the object apart from conditions which are personal and peculiar, or a value-potentiality which would be realized by other persons.

However, that an object is not absolutely worthless but has *some* potentiality for conducing to satisfaction in experience, does not prove it a good thing, the existence of which is desirable. To be valuable in that more frequent and more important sense, the thing must have *comparative* value; must at least be more good than bad, more conducive to satisfaction than to dissatisfaction and thus good on the whole.

To sum up this part of the discussion: The familiar quarrels waged over the 'relativity' or 'non-relativity' of values, and the 'subjectivity' or 'objectivity' of them, can be obviated by recognition of the different modes in which values are commonly attributed to objects, and by analysis of the meaning represented by each. Recognizing that the general meaning of attributing value to an object is that of implying some potentiality of it for satisfaction in experience, we should distinguish, first, value as a simple potentiality of the object, independently of the actuality or non-actuality of the conditions of its confirmation through some realization of value from this object in experience. Second, there is the mode of value-in-fact; value realizable under conditions which actually obtain, or at least are probable. Value relative to persons—to an individual, or class, or to all persons—is a particular type of value-in-fact, connoting conditions actually affecting whatever persons are in question. Subjectivity of value-apprehension, and of any value apprehended, represents limitation of the realization of that value to conditions characterizing the nature and capacities of the subject in question, and such that the finding of

value in or from this object is non-indicative of the possibility of similar value-finding on the part of others. Thus a value which is subjective is not merely relative to the subject but represents a particular kind of such relativity. And that which is valuable or disvaluable to him on account of personal circumstances affecting his possible realizations of value but external to him rather than belonging to his nature as an individual, has a value or disvalue which is relative to this subject but is not on that account subjective.

That a thing may be objectively valuable but not valuable to *S*, presents no problem; since obviously a thing may have a value-potentiality generally realizable but not realizable under certain circumstances or within certain limitations peculiar to *S*. But that a thing which is *not* objectively valuable may be genuinely—and not merely apparently—valuable to *S*, may seem to present a problem, since no object can be productive of satisfaction under *any* conditions unless there is something in the objective character of it by reason of which it has the potentiality for such value-realizations. Thus even a subjective realization of value by *S* from some object, *O*, proves that *O* has *some* value. But this difficulty is resolved when we observe that having *some* value in the mode of simple potentiality is a relatively trivial consideration, since almost any mentionable object has some such potentiality. And what is commonly meant by calling an object valuable, is its being a desirable existent and comparatively good or good on the whole. That a thing genuinely has value relative to an individual does not demonstrate that it is in this sense a good or desirable object. Particularly if the value-finding be subjective, it is to be suspected that the apprehended object which is thus shown to have *some* value—a value relative to *S*—is still not a valuable object, and perhaps not reliably valuable even to him.

6. Those who debate the question whether values are or are not relative to persons commonly do so on the supposition that there is a direct connection between something called *the* value of things and an indicated imperative of right conduct. Thus they fear that recognition that there is such a thing as genuine value relative to persons, will be incompatible with objective moral standards; and perhaps that recognition of validity in judgments of what is valuable for *me*, but not for persons generally, will lead to subjectivism and egoism in ethics. There is no such direct implication for problems of ethics to

be found in the question of relativity of values in objects. In the first place, there is no such thing as *the* value of an object or objects, which is either relative or absolute, subjective or objective. Instead there are all these various modes in which the value of objects commonly is—and for good reasons must be—assessed; each having its own specific meaning and corresponding criteria of correctness. And in the second place, although any moral judgment will, in application, always presume some value-judgment or judgments as antecedent, no evaluation of an objective existent can ever be sufficient by itself to resolve a question of right conduct. It is true that any judgment of values holds some implication of an imperative for rational action. But the values in objects are extrinsic only; and the connection between them and anything valuable for its own sake is always an *if*-connection. Thus any implication for right conduct which is to be found in evaluation of an object, is always hypothetical only; and what kind of *if* it is which connects this determined value of the object with any imperative for conduct, depends upon the specific kind of valuation which is in question. It is highly important that we should make evaluations of objects relative to persons; one who failed to do so would be unlikely to live long and certainly would not live well. But if, for example, I find that oatmeal is not good for me, and hence that I ought to avoid it, there is no implication in that about forbidding the family to have oatmeal for breakfast. The moral question whether one ought to determine one's own behavior by reference solely to first-personal evaluations of things, has to be separated from the quite different question of correctness in the first-personal evaluations. Correctness in evaluations of objects is purely a question of empirical truth. And this ethical issue is not one of correct evaluations at all—unless of the value of persons; and for that, Kant's word 'dignity' is more appropriate than 'value', since it is not any usefulness or directly pleasing quality of individuals which would be in point. Nor is there any impelling connection between the first-personal mode of value-judgment and egoism; between the impersonal mode of evaluation and impartial justice. First, because so far as one is concerned about oneself, it will still be important to weigh correctly the values which things have for others, and to make impersonally correct value-judgments. The man who failed to give due heed to what other men appreciate, would be a notably unwise

person and a most unsuccessful egoist. And second, because the morally sound attitude is not one which ignores personal differences in what contributes to enjoyment or suffering but precisely the opposite.

7. Before we leave altogether this topic of value-predications in the mode of relativity to persons we should at least give passing attention to one such relativity of practically all the value-judgments that we make. This consists in the limitation of our evaluations to the anthropocentric, and the ignoring of what is good or bad for other animals. It is a characteristic limitation of ethics, or of western ethics at least, that it fails to acknowledge any obligation to consider the feelings of other creatures—perhaps because it inherits from a tradition which denies them souls. But the potentialities of objects for conducing to the enjoyment or suffering of animals other than man, is equally a fact about the nature of things; and it is not necessary to erect human experience as an exclusive standard of such value-facts. If it seems far-fetched to mention any such consideration in connection with value-theory, still a little consideration of it might save us from the fatuity of confusing facts about what gratifies humans with an ultimate and transcendental standard of values which is fixed by the metaphysical nature of reality.

There would seem to be only three or four attitudes toward the question of justice to other animals which are at all plausible or likely to be taken. We may repudiate any such claim upon us beyond that of sentiment. Or, by an egregious oversight, we may fail to consider the matter at all. Or we may base the preeminence of value to humans on a metaphysical theory which makes humans peculiarly precious to the universe or to the presiding deity of it. Or finally, we may recognize that we owe compassion to every sentient being, in the degree that it is capable of enjoyment and suffering—though that attitude called respect, and what is implied in it for our actions, may be reserved for creatures capable of acknowledging claims like this one and of judging their own conduct in the light of such claims. Perhaps those who would take this last-mentioned attitude may still feel that until men can come nearer to doing justice to one another, it would be premature to take on the whole animal kingdom. But even that manner of self-appeasement can be overtaxed.

Questions of justice are of one sort; questions about the potentialities of objects are of another. Those of the first kind are ethical, and no answer to them can be derived from empirical facts alone; those of the second kind are empirical and independent of ethics. And there is no third kind of question about values, in between these two, to be resolved by some mysterious metaphysical insight. If in our mouths 'value' means 'value to humans', that fact represents a preoccupation which is understandable, and indicates a practical limitation of those potentialities of objects which we are peculiarly interested to determine. But there is no need to bless such limitation of our interest by any metaphysical incantation.

If first we inquire what we mean by our value-judgments addressed to objects, and make this explicit, then correctness in any valuation of an object becomes a simple empirical question, the manner of whose testing and confirmation will be indicated by the intent of the value-judgment itself. All value in objects depends on a relation of them to actual or possible experience; and the possibilities of experience depend on the nature and capacities of the subject. But obviously, what qualities of experience any object may induce or indirectly contribute to, depends also on the character of the object itself. And this character by which it will or would, under appropriate conditions, be productive of satisfaction or of suffering, is no longer 'relative': the object has this potentiality whether any creature so apprehends it or not. The relativity belongs to the intention of the judgment; not to the intended property of the object. That a thing is green, means that it would look 'green'—in the expressive sense of that word—if viewed in a good light by humans who are not color-blind; or it means something else in terms of specifiable tests, to be determined by certain experiential results. And that a thing is valuable has a similar meaning. Protagoras was right in recognizing that in point of relativity there is no difference between the value of a thing and the color of it. But he was wrong in supposing that either the color of the object or the value of the object depends on the individual and particular experience of it. By the meaning of the judgment, which refers to a potentiality for experience which lies in the nature of the object, a thing may be green, and may be valuable, even though it should not appear so to any individual whatever; and the fact that it may appear so, does not make it so. The further fact

to be noted, however, is that while an object's being 'green to me' or 'green to *S*' has no recognizable meaning (though that fact is a fact of language: it might have an understood intension if enough of us were color-blind), 'valuable to me' or 'valuable to *S*' does have a wholly specific meaning, and one which it is not too troublesome to explicate. Such judgment asserts a potentiality of the object for conducing to my satisfaction, or that of *S*, under conditions of my, or of *S*'s, actual circumstances and peculiarities, and the further conditions which are appropriate and could be specified.

8. Further common variations in the modes of our predications of value to objects are less involved with questions that have become moot points of theory. Nevertheless there are some the neglect of which might leave room for misunderstanding.

We have called attention above to the distinction of predications of bare utility from those which definitely ascribe instrumental value. With respect to these, it remains only to justify reference to judgments of bare utility, which do not specifically assert any value in the thing at all, by illustrating the fact that such judgments occur, and in a form which does not distinguish them, by any idiom of language, from judgments of value. For example, since there are collectors of almost everything, there doubtless are those who collect burglar's tools; and one such might say, "This is the best burglar's jimmy I ever saw." If so, he would be ascribing utility only to the tool. A burglar might believe it to have real instrumental value; but the collector and others will not consider it probable that eventual results of its use would be found good in terms of satisfactions to the burglar or to anyone else. It is good only for a purpose which is bad from every point of view. Still such predication of utility represents a readily recognizable form of statement.

More characteristically perhaps, there would be some indefinite presumption of *good* use, though no such implication may specifically appear. One who said, "That is an excellent juke box," may reasonably be taken to imply that on occasion juke boxes serve some end not wholly bad. But one who should disagree with that presumption would hardly contradict the statement: the precise meaning of it is too uncertain for that. Perhaps such an objector might reply by paradox: "There is no such thing as a good juke box; the better they are, the worse they are." And if so, the intent of his statement would

be quite clear to us: mere utility is not denied, but it is denied that the thing in question has a genuine instrumental value. It is notable, however, that predication of utility hardly occurs in the sense of asserting merely that there is something or other, good or bad, to which the thing in question may be instrumental: that kind of statement would be so unexceptionably true as to be pointless. Always there is presumption that at least someone might *think* that some end conduced to would have real value: in that sense one might say that even the assertion of utility presumes some *putative* instrumental value. And this presumption may account for the fact that judgments of utility are commonly classed as judgments of value.

However, there is no common mode of speech which is reserved to assertion of genuine instrumental value as distinguished from mere utility in a thing. The reason is fairly obvious: we customarily divide our problem of final evaluation, judging of ends and of possible means to them separately. Furthermore, things usable as means are so *variously* useful, capable of serving bad ends as well as good ones, that one does not feel called upon to determine the value of ends which may be contributed to, in judging that property of a thing called the utility of it. Also what has potentialities both for good ends and for bad ones, will still be 'a good thing' in the hands of judicious and right-minded people: its potentialities for good will be utilized and ill consequences of it guarded against. If it conduces to undesirable results, 'the fault is not in the thing'.

9. It is also by reason of this variety and complexity of the relation between the possible instrumentality of things and eventual good or bad results, that judgments of utility and of instrumental worth are so frequently restricted to some specific classification, indicated by the name applied to things. Different ways of naming the object judged are normally indicative of ends in relation to which any value ascribed is to be assessed. This is the case not only because many names represent classifications according to use but also because names which do not definitely connote a use of the thing will still indicate a class of objects having their characteristic utilities or disutilities. A wrench is named for its use; and a good or a poor wrench is one which serves this purpose well or poorly. And although a thing is called a tree by reference to botanical characteristics and not to any use of it, still a good tree is one that will make good lumber or

which gives good shade or adds to the attractiveness of the landscape, because these are the characteristic uses of trees. But if a tree happens to be useful for mooring a boat or climbing in a second-story window or for nailing up a sign, still we do not on that account call it a good *tree*.

To name a thing by a particular name, rather than by some other which also would apply, is to direct attention to certain values or disvalues of it; and this consideration is important for the critique of evaluations. The extent to which we may be persuaded of value or disvalue in things by uncritical acceptance of names applied to them, is appalling. It is thus that clever advertising may get our money regardless of comparative merit, and that we are vulnerable to propaganda and demagoguery—arts which largely consist in popularizing certain value-significant ways of applying names. The difference between just persuasion of values and sophistry is, in large measure, the difference between naming things in accord with their genuinely important value-relationships, and capitalizing a fallacy of accident or a fallacy of the attribute in the use of value-significant names.

This is in fact the commonest of all fallacies—more frequent even than that of the undistributed middle term—but it usually passes unchallenged because people do not know how to challenge it: the argument in which it occurs is seldom fully stated, and even when it is, the nature of the fallacy committed is not understood. If, for example, the question should be that of introducing safety-islands in certain streets, the protagonists are likely to argue that these will be a good thing because they will be a protection to those entering and leaving street cars, and the objectors are likely to reply that they will be a bad thing because they will be a hazard to automobiles. Calling them a protection justly implies goodness in the absolute mode—*some* value—and calling them a hazard justly implies an absolute badness—*some* disvalue. Both premises are correct, but neither of them is sufficient to determine the issue; which concerns *desirability* —value or disvalue in the *comparative* mode. What has some value, may still do more harm than good, and be undesirable; and what has some disvalue, may do more good than harm and be good on the whole.

In its crudest form, this fallacy of arguing to, or suggesting, a conclusion as to desirability or comparative value, from a premise

which validly implies some value or disvalue only, may be called the *Fallacy of the Epithet*. It requires no more than mention to call attention to the prevalence of such invalid argument or suggestion by the calling of names which *correctly* apply but do not *justly* apply because, in the connection in question, the connoted properties are accidental to rather than essential for the correct evaluation of the thing named. Nor can such fallacious imputations of value or disvalue be easily detected by reference to formal rules. Because all things are subject to correct naming in various ways; and the logical distinction of essential from accidental is not one which is rooted in the nature of things but is itself relative to the chosen manner of naming them. To suppose that what is of the essence of any object can be determined in abstraction from any particular way of naming it, is falsely to believe that reality itself determines what distinctions we shall observe and apply, and that classifications are metaphysically instead of pragmatically determined. Thus fallacies of this type cannot be avoided by attention to rules of logic but only by scrupulous honesty and fair-mindedness.

Not even the simplest observation of fact can be guaranteed free of all such illicit implications of value. Just because of the omnipresent importance of value-assessment, nearly all the names we use are freighted with such connotations; and one can hardly express a fact or call attention to a thing without importing his own appraisal by the language which he uses of it. Even the fairest of discussions may contain such suggestions of a value-determination which is unsubstantiated and question-begging. In the present one, words like 'propaganda', 'demagoguery', 'sophistry', and 'epithets' have occurred. And we may be reminded that Plato, who was the first to recognize the value-significance of names—the idea or essence of a thing is the good of it—himself conducted one of the most successful propaganda campaigns in history, rendering the name of his opponents (literally connoting wisdom) a permanently derogatory epithet.

A similar fallacy—a form of fallacy of the attribute—may be committed where not only the conclusion but also the premise is an affirmation of comparative value. For example, the statement "This is a good pistol," may suggest "This is a good weapon," since pistols are weapons. And if the ascription of goodness here should intend only some absolute value ('better than none'), then no fallacy would

be involved: what is better than no pistol for the purposes of pistols is better than no weapon for the purposes of weapons. But if, as the language used most readily suggests, it is comparative value ('better than average') which is ascribed, then the fallacy of the attribute may be involved: a better than average pistol may still be a poorer than average weapon, being well-suited to attack and defense under special conditions only. And if one conclude that because it is a good pistol it is therefore a good *thing,* then the fallacy would be obvious: what is better than average for the purposes of pistols, may still be a bad and dangerous thing on the whole, and the existence of it, or the presence of it, undesirable.

We may also note in passing that comparison of values, and the question whether all values of things can be arranged in a single scale, are affected by the same considerations which are in point in the naming of objects. The question which is best, a warm overcoat, a Sanskrit dictionary, or a load of hay, has no answer, because the characteristic utilities of objects so classified do not overlap. But in a country undergoing rapid inflation, an individual might be confronted with the problem which of these three is the best investment for his money. And concerning the most disparate objects, life can present situations in which they may figure as alternative values requiring comparative assessment. Concerning utilities in general, economic value provides a sort of common denominator, since almost any object is exchangeable for something else. But utility is one factor only in determining exchange-value. And a degree of utility does not necessarily imply a like degree of instrumental value. It is not in the lowest category of utilities but in the highest category of contributory values—the values of things as contributory to some individual life or to lives in general—that any two things are comparable as better or worse, and that we may be obliged to assess such comparative values of them.

10. There is one further major consideration which affects evaluations of objects in every mode except that of bare potentiality. That is the relation of the objects valued and of their value-potentialities to our modes of possible action. Value-potentialities of things result in a corresponding realization of value in experience only under certain conditions. Hence not only what potentialities they have, but the extent to which the conditions of realization of

these are subject to our control, will affect the value to us which may accrue from existence of these objects. With respect to this consideration we may observe that, broadly speaking, the ascription of positive value implies realizable satisfactions under conditions which themselves are probable, or are realizable if we choose; and the ascription of disvalue implies dissatisfaction under conditions which are probable, or are likely to come about whether we choose or not. That is, positive values are higher according as conditions of their realization are controllable; and disvalues are greater according as conditions of their realization are *un*controllable.

The small boy wrote in his essay on pins that pins have saved many lives; and when asked how that might be, he replied, "By not being swallowed." He had a good case—except for the small point that the non-existence of a pin is a perfect preventive of its being swallowed. Whenever pins are not swallowed, lives may be saved by that fact; and the improbability of their being swallowed is a major consideration in the correct evaluation of pins. It is one taken for granted however, because the swallowing or not-swallowing of pins is so generally subject to control: it is only so far as their being occasionally swallowed is judged *unavoidable* that this regrettable possibility weighs against the value of pins. On the other hand, value is ascribed to metallic ores, not on the ground of any human satisfaction they may contribute in their original form, but on the ground of satisfactions realizable from the things into which they can be made; even though the manufacture of pleasing or useful objects from ore is much more difficult than it is to swallow a pin. In valuing the pin, the potentiality of it for producing suffering when swallowed is largely discounted; but in valuing the ore, the potentiality of it for producing satisfaction in its fabricated forms is of ruling importance; though in the two cases the potentiality in question equally belongs to the objective nature of the thing valued. Thus, on account of the relativity of the implied conditions to human control, positive value attaches to things so far as the realizations of satisfaction through them is *possible to achieve*; what is both possible and *desirable* being correspondingly *probable*. And disvalue attaches to things so far as realization of dissatisfaction through them is *impossible to avoid*; what is *undesirable* being still probable only to the extent that it cannot be prevented.

The influence of this consideration is to be observed in the field of economic values. For example, the value of a diamond or a bushel of wheat is comparatively independent of its locus, and is its 'value in the world-market', because such commodities can be transported with relative ease; but the value of the Empire State Building is strictly its value *in situ*. But the same point is also important in connection with values more generally. If the occurrence of music, for example, were not subject to control and the experience of it could not be limited, for the most part, to those who enjoy it and to the times when they enjoy it, then music might be as great a nuisance as is the noise of large cities.

11. If the variety of these modes of the assessment of value in objects is disconcerting, then we ask the reader to observe that we have in no case invented any distinction gratuitously, but have remarked only those which are commonly exemplified and must be noted if actually intended meanings are to be understood. And if the presentation has lacked any obvious principle of ordering, then we must ask him also to observe that there is no order of presentation which is dictated or suggested by the facts themselves, because our diverse modes of value-predications fail to exhibit any single principle of division and are instead the result of classification according to principles which bear little relation to one another. Moreover, since these distinctions for the most part represent cross-classifications, more than one set of them may be applied in any single instance.

If it should be asked what *the* value of an object is, then the only answer which can be returned is that there is no one specific property, relation, or other fact affecting an object, which is the uniquely indicated character of it intended by 'value'. Objects are assessed in many ways and from many different points of view, with results which would oftentimes appear incompatible with one another if this diversity of the specific meanings of 'value' as applied to them should not be recognized. What can be said in general of value in objects is only what was said at the outset: any such value is some potentiality of the object for realizations of satisfaction in experience.

That mode of evaluation which comes nearest to indicating an unqualified *property of the object,* independent of anything which is not an essential character of it, is valution in the mode of bare potentiality—like the value of the nugget of gold, which is independent of

the question whether it is discovered or not. But such values are still subject to further classification, representing hypothetical conditions under which the potentiality for satisfaction would be realized, if realized at all; and hardly any valuation envisages a potentiality so bare as to be free of all such implicit limitations.

The most *frequent* kind of valuation of objects doubtless is that of utility. But as has been pointed out, the mere utility of an object may be no value of it at all but only a causal connection. And there is hardly any judgment of utility which does not vaguely intend something further. It is by reason of this indeterminate character of them rather than by any specific intent, that most judgments of utility are so classifiable. More often than not, some limitation as to the manner of the object's usefulness—often indicated by the name applied—is to be understood, as well as some putative and specific value in an end to which it may be instrumental.

The most nearly *final* kind of valuation of an object, which comes nearest to indicating an unqualified imperative for rational action, is valuation of a thing as eventually contributory to satisfaction in some whole life or lives. Such assessments of the contributory value of objective existents are, however, highly infrequent because, as has been mentioned, we customarily divide our problem looking to decisions of action, assessing objects in their relation to possible direct experiences, and assessing these particular experiences in their relation to some whole of life. Even so, we may fail to arrive at any implied and genuinely final evaluation of an object in question inasmuch as there is a further problem affecting imperatives to action in the distinctively ethical question of the just relation of particular lives to one another. Final imperatives belong to ethics, and no valuation is unqualifiedly final until it is subjected to the ethical critique. In that sense, our discussions in this book concern those problems of empirical fact which have the status of prolegomena to ethics.

If it should be asked what is the most *important* signification of 'value' as applied to objects, then the difficulty of any answer which would not be doubtful and in danger of being prejudicial, will be evident. Nevertheless we shall venture to indicate one mode of valuing objects which is at least frequently of greater importance than other—not so much because this question of importance is itself an important question, but because any mode of the evaluation of ob-

jects for which relative importance could plausibly be claimed, would be sure to be one which is complex; and there are certain problems affecting complex modes of assessing objective existents the neglect of which would be a defect in any general discussion. Whether or not the mode selected is, in point of fact, the most important of all types of valuation of objects, at least discussion of it will illustrate the problems of evaluation referred to, in a more concrete manner than would otherwise be possible.

12. Such a frequently important mode of the valuation of things is represented by the manner in which we commonly attempt to judge the *social value* of objects and other existents. This is a mode in which *all* the value-properties of the thing in question are taken into account; any beauty of it or other inherent value as well as every instrumental value. Thus it represents an assessment of the thing on the whole, independent of any particular classification of it or any name by which it might be called. But no mere utility of the object is taken into account without some ground for attributing value to the end for which it is thus useful. Also, judgment in this mode attempts to place the object as definitely as possible in the scale of values in general, instead of being a mere negation of worthlessness or indefinitely comparative only. Again, it is judgment of impersonal value; that is, of value as realizable by whatever persons should be affected by existence of the object in question. Finally, it is neither a valuation of mere potentiality without respect to actual conditions, nor one within the limits of *all* actual conditions affecting value-realizations from the object in question: instead, it seeks to assess the value-possibilities of the object relative to our purposes, but within the limits of those actual conditions which we cannot alter; thus having regard to the controllability of such conditions. With respect to those which are controllable, this assessment will be directed to the potentialities of the object, and be made on the assumption that such control will be exercised in the interest of realizing potentialities for positive value and avoiding possible realizations of disvalue. But with respect to those conditions which are beyond practical human control, the value-potentialities of the object will be judged within the limits of all pertinent facts known to be actual or probable. That is, it will be a judgment of the value which it is *possible* to realize from this object under those actual conditions which we cannot

change, and will be relative to the probability of such conditions in the light of all available and pertinent data.

Judgment of the value of any object in this manner will obviously be highly complex. First, because it will take account of all the value-potentialities of the object, instead of some one value or type of value only, and will require some collation of these various values and disvalues of it. Second, because it involves taking account of whatever persons are likely to be affected by this object; their number, and the bearing of it on their realizations of value. Third, because it calls for attention to the circumstances affecting such value-realizations from the object; and with respect to those which are beyond control, the assessment of their probability. Finally, it requires that we bring together all these considerations in one resultant evaluation of the object on the whole. It is, however, just the kind of complex judgment here indicated which we seem called upon to make when the question is whether and how far a thing will be in the public interest and socially desirable. It is for this reason that we may justly call what is so assessed, the *social value of an objective existent.*

It was for the sake of such complex evaluations that Bentham proposed his calculus; though he addressed himself to acts and their consequences rather than to objective existents and the value-effects of them. We have already seen the futility of attempting quantitative measurement of values, and of applying arithmetical operations to the problem of collating different determinants of a value. And whatever the theoretically justified procedure for assessing values which differ in more than one such manner or 'dimension', it is sufficiently evident that in a specific instance the only kind of resultant determination which the practicalities allow will have the character of an estimate rather than a calculation. That, however, does not excuse us from finding theoretical answers for the theoretical questions involved. Because unless there is some rational *modus operandi* for collating the various determinants, in arriving at such a resultant determination of value, then the assessment to be arrived at and the problem itself lose all meaning. Even the grossest approximation, or 'guesstimate' even, requires something which is approximated to or guessed at, which sets the standard of correctness in the estimate. Thus unless the problems of theory can be theoretically met, the attempted practical answers to this kind of question will lose their

practical standing. That would be a debacle which we cannot brook: problems of this kind must have a genuine significance unless we are to conclude that much of life is condemned to irrationality, and the attempt to direct our action sensibly is essentially futile. We must at least be capable of knowing what we are *trying* to do in the attempt to ameliorate the conditions of human life and maximize our realizations of the valuable. Moreover, the problems thus arising are not confined to evaluations in this suggested mode of social value, but will obviously extend, in part or wholly, to evaluations in other such complex modes also.

With respect to such problems, we must hold fast to our sense of the real and the reasonable, both in persisting in our attempt to understand the valid intent of our attempted evaluations, and in recognizing that nevertheless we can easily run into a footless pedantry if in the particular instance we agonize overmuch about theoretical niceties, where the practicalities will at best allow only the crudest and roughest of estimates.

The theoretical problems of collating different determinants of value are, in general, soluble by reference to the consideration that, while quantitative measurements will not apply, every simple value-modality can be determined in degree. Whatever thing it is which is valued, and whatever respect it is in which a value of it is to be determined, there will be other things which can be compared with it as better or worse, and the place of it in some linear order of values can be thus assigned. And there is one such order of values with respect to which *any* two things can be compared; namely, the value of them as ultimately contributory to some whole of life. Also, while arithmetical operations cannot be applied to the collation of values, nevertheless the conjoint resultant of two values can always be assessed, in one manner or another, by reference to the criterion of direct preferring. The conjunction of these two values in a single thing or situation can be determined as more desirable or less desirable relatively to any third and comparable value.

13. Let us apply these considerations, first, to the various values which may be attributable to the same object. We cannot say that two instrumentalities of it, or an instrumentality and an inherent value, make the object twice as good, or better in any other quantitatively expressible measure. But at least we can say that two value-

potentialities in an object—provided they are not mutually exclusive alternatives with regard to the realization of them—make it better than either one alone. Each additional value-potentiality of an object enhances the value of it on the whole; and the higher the degree of the added value, the more it enhances this value of the object altogether. Also, as has been said, we have a means of determining the value attributable to an object by virtue of its having two value-properties, *A* and *B*, by reference to direct prizing and preferring. The value of any instrumentality of an object is determined by the values in direct experience to which it may lead. And any such value realized in direct experience has its place in the order of all possible such values, which is determined by what we should prefer it to and what we should prefer to it. If for example, we can say of three values, *A*, *B*, and *C*, each of which might be realized in direct experience, that we should prefer experience of *C* to that of *A* and *B* both, then the comparative value of (*A* and *B* both) relative to *C*, is fixed by that fact. And if also, for a fourth such value, *D*, we should prefer experience of (*A* and *B* both) to experience of *D*, then the value attaching to the conjunction of *A* and *B*, would be determined as lying between *C* and *D* in the scale of values in general. Thus while we cannot add the values of *A* and *B*, we can assess the value attributable to an object on account of its having two separately attributable value-properties, to any degree of precision that we choose, by locating this value of (*A* and *B* both) in the scale of values in general; just as we could locate a point on a line by reference to the points which precede it and those which follow. The 'sum of two values, *A* and *B*', has no clear meaning, but the value of an object on account of two distinguishable value-properties of it, is a value which is determinable in degree, in the same sense that each of the values separately is determinable.[3]

The similar thing will hold for values in general as directly realized or realizable. Any two of them may be valued comparatively; any two together may be valued in comparison with any third; and so on. The degree of any one of them is fixed by its place in the whole order of possible values in experience; by the total facts of what we should prefer it to and what we should prefer to it. And

[3] The analogy to ordinal sums of ordinal numbers seems suggested here. But that analogy fails at crucial points.

since the assessment of any value-potentiality is derivative from the direct value of its realization in experience, the theoretical problem of gauging the value of an object on the whole, by reason of its various inherent and instrumental values, is one which has a theoretical solution. Hence this expression, 'value of an object on the whole', is entirely meaningful, even if in practice we can only roughly estimate such a total value by making a few comparisons.

Second, the problem posed by the consideration of the value of an object as impersonal, and hence to be gauged by reference to all those who might be affected by the existence of it, and by what each might realize from it, is also one which is theoretically soluble. There are two general considerations which are in point wherever there is question of the value of anything relative to another person than oneself. First, no question of such value to another can be answered except through the exercise of empathetic imagination. We have to 'put ourself in the place of' the other person—whatever the epistemological hazards in so doing—and gauge value as realized by him on the supposition of whatever fundamental likeness to ourself seems justified by the evidence of his behavior and other pertinent circumstances.[4] We do not, of course, need to assume that our conclusion so arrived at concerning the value realized by another, is indubitably correct. The judgment is one reached through inductive reasoning by analogy and subject to the hazards of inductive conclusions in general, as well as to some which affect this kind of problem in particular. But while it is the *other* person's experience which determines correctness of this judgment, the problem of judging it as best we can is our own problem. Second, we should not confuse the problem of assessing the value of an object, in this or any other manner, with the ethical question, "*What* manner of giving weight to the value-experience of others, in comparison with our own, is morally imperative in determining our own conduct?" As we have observed before, this ethical question is distinct from any question of evalua-

[4] We should not, however, confuse this *evidence* of value-to-another with the experience of that other so evidenced. It is possible to reduce the whole problem of values to behavioristic terms. But so to do is to resign the original problem in favor of another which is more simply soluble theoretically. We should not be willing to identify the experience of another—or of ourself—with behavior; for the simple reason that experience and behavior are not the same thing. And in connections like the present one, it is the experience which calls for consideration.

tion—which last is always a question of empirical facts of some kind. Probably we should not quarrel with the ethical dictum, "Each to count for one, and none for more than one." But whether or not we recognize this ethical command to be concerned about the value-experience of others as if it were our own, at least such giving of equal weight to the experience of each person is involved in the intent of the whole class of value-judgments commonly made in that manner which we here speak of as 'impersonal'. And even egoists must find it essential on occasion to judge of such impersonal value-facts.

Accepting this intent to assign equal importance to comparable value-experiences of different persons involved, in assessing the value of an object in the impersonal mode, the theoretical question how we are to deal with value to different persons in assessing the value of an object on the whole, is one which almost answers itself. We are to give any value-effect of the object upon another (as we conjecture that effect) the same weight as if it were an experience of our own. If there were no other aspect of appraising the total value of an object, we might thus say that an object is twice as good if it affords the same satisfaction to twice as many people. And to the objection that 'twice as good' has no clear meaning, the answer can be returned that in just this connection it has an entirely clear meaning; namely, the meaning 'affording the same satisfaction to twice as many'. In any case, the question, "In what degree does the satisfaction derived from the object by another person enhance the value of it?" can be answered: "In the same degree that the value of it would be enhanced by a similar and additional satisfaction of our own"—supposing this additional satisfaction to be as little as possible affected by any other like experience of ours, or as little affected by it as one person's experience is affected by that of another.

The crucial kind of question here, and the one for which a Benthamite calculus may claim to offer a solution which cannot be achieved if values are not quantitatively measurable, is the kind which is exemplified by the problem: How are we to compare the values of two objects when one of them offers satisfaction in higher degree but to fewer people, and the other a lower degree of satisfaction but to a larger number? But this question also admits of theoretical answer in terms of direct preferring. Supposing that you have envisaged the experience of all these persons involved, as accurately

and adequately as you are able to do, which of these two objects would you prefer if the experience of all these persons were to be your own; as, for example, if you had to live the lives of each of them *seriatim*?

If this manner of meeting questions involving value to others should seem to savor of the fantastic, by the strain it puts upon our capacity to imagine and appreciate the quality of experiences not our own, the counter considerations are two. First, it is nevertheless just what we are thus called upon to envisage and weigh which, if we could meet this demand, would ideally satisfy the intent of our judgment. And second, the deficiencies of our powers to envisage adequately what we do not presently experience, in this case as with respect to our own experience in future, is simply one of our limitations in judging many things of which we are nevertheless required to judge. In the light of such limitations, correctness in our evaluations of objects, like correctness in our empirical judgments generally, will be no more than probable. In practice of course, we find that as good an estimate as we are likely to achieve is afforded by the rough and ready assumption that the 'average man' is very much like ourselves, except so far as different behavior indicates the contrary. And if the theoretical problem has a theoretical solution thus suggested, then our practically possible approximations to it, whatever their inadequacy in particular instances, are still meaningful and have their practical standing.

Finally, the problem of taking account of the fact that the suggested mode of valuation involves reference to conditions—those beyond control—which are probable only, has also its theoretical solution, and one the general nature of which is familiar. As we have seen in Book II, if what we know indicates a probability m/n of the circumstances in question, then the rational expectation is that these circumstances will be actual and hence the value in question actually realized, in the long run, in approximately m out of n of the indicated instances. Thus the rationally dictated attitude will be that which we should be satisfied to have taken if in fact the value to which the object may lead should actually accrue in m instances out of n in which we are otherwise in position to profit from the existence of this object. And where, as often happens, the probability is not numerically assignable but can be determined comparatively only, or within limits,

the rational expectation and attitude are determined consonantly and in like manner. Thus an object which is a source of satisfaction under circumstances which are probable only, is to be more highly valued according as these circumstances are more probable—just as it would be more highly valued if it were more frequently productive of such satisfaction. And if an object O will lead to a realized value V under favorable circumstances the probability of which is m/n, while another object O' will lead to a value V' under circumstances having a probability h/k, where V is a higher value than V' but h/k exceeds m/n, the question which is the more valuable object, O or O', is to be determined by determining which would be preferable, the realization of V in the fraction m/n of instances or the realization of V' in the fraction h/k of instances. For example, if ice-cream from one store tastes better than that from another but is more likely to melt before getting it home, then the question which ice-cream is worth more, is to be determined by considering whether the better taste outweighs the more frequent loss by melting or the other way about. And this is to be determined by the criterion of direct and rational preferring—which is that which we actually appeal to in practice, without any sophisticated consideration of 'mathematical expectations'.

It is to be observed that this indicated theoretical solution of the problem as to how we are to evaluate an object in the light of its probable production of satisfactions, has no dependence on the erroneous supposition that we can perform the arithmetical operation of multiplying a numerically determined probability by a value which is determined in degree but has no quantitative measure. Instead it depends on nothing beyond the criterion of direct and rational preference. And if it should appear that some question is begged by reference to the 'rational' here, then we should observe that what manner of choosing and valuing is rational, can itself be independently determined and expressed in terms of direct preferring. The pertinent dictate of rationality will be: So act and so prefer that the manner of your acting and preferring will be that which, if consistently adhered to, you will be permanently best satisfied to have adopted. Presumably that means acting and choosing in ways such that the lifetime results of them will conduce, in highest possible degree, to satisfaction on the whole.

There is one objection which might be raised against this manner of dealing with probabilities affecting our realizations of value from an object. It may be pointed out that the occasions on which we either realize or fail to realize the value from this object may be few in number or even confined to a single one only. On these few occasions, the probable circumstances allowing such realization will be actual or they will not. And the occasions being few in number, the actual frequency of success cannot be expected to even out to the most probable frequency, here said to determine our rational expectation and the corresponding value to be set upon the object. But this objection—if in fact it would be thought to be such—does not invalidate the proposed procedure in evaluating the object. The rationality of expectation with respect to a single occasion, or some small number of occasions, is not dependent on the actual frequency of success on these occasions, but rather on long-run success or failure if we should consistently adhere to and act upon the rule of expectation in question. The justification of betting according to the probabilities—that is, according to the amount to be won as qualified by the probability of winning—is not in winning or losing on a few occasions, but lies in the fact that by following this rule we shall win the most money over a lifetime. Or if it is a little hazardous to say that we *shall* thus win the most money, even in a lifetime, at least there is no other rule of procedure which offers so good a hope of maximizing our eventual winnings. Values cannot be measured as money can be counted. But the rule, "Act with respect to anything having the probability m/n as you would if it were to occur in m instances out of n trials," is one which applies alike to measurable things which are desirable and to things the value of which has degree but no quantitative measure. And this rule, "Value any objective existent for which there is a probability m/n that it will afford a certain satisfaction as you would if that satisfaction were actually to accrue in m instances out of n trials," is the one which we propose. And the justification of it is the same: this manner of valuing objective existents will bring you the most satisfactory life on the whole. Or if that is still hazardous—since even a life may be affected in measure by luck—at least there is no other way of valuing things affected by a probability, which offers so good a hope of leading to life-time satisfaction.

Putting together these various phases of the problem, the proposed mode of determining the social value of an objective existent is as follows: Consider each value which this object has, whether an inherent value such as beauty or an instrumentality of it for the production of other things conducive to satisfaction. Each such satisfaction derivable from the object enhances the value of it in accordance with the degree of satisfaction to be derived. A degree of such immediate value is determined by the place of that value in the series of satisfactions in general, arranged in order of better and worse; that is, in the order of preference. The conjunction of two such value-potentialities in the object give value to it in accordance with the principle that the conjoint value of two satisfactions, A and B, is determined by the place of (A and B both) in our series of immediate values in general, as determined by direct preferring. If having the satisfactions A and B both, is preferable to experiencing satisfaction C, then an object having the potentiality for satisfactions A and B both is, on this point, preferable to one affording satisfaction C only, and is in like manner a more valuable object. To be sure, such direct preferring is required to be rational; but so far as is here concerned, to be rational means only to value a satisfaction not presently realized as we should value it if and when experienced. So far as the value-potentialities of the object are controllable, and the values in question may be realized at will, the object is to be valued as just recited, in the mode of simple potentiality. But so far as realization of value from this object is affected by circumstances beyond control, such valuation is to be qualified by the probability of these circumstances, judged on the ground of all pertinent information which we have. A potentiality of value A, which is realizable under circumstances the probability of which is m/n, gives value to the object according as we should evaluate it if value A were to be realized from it in m instances out of n trials. The object is also to be valued by reference not to oneself only but to all the persons who are or would be affected by the existence of it. Value to another person is to be assessed as if his experience in question were to be our own. Value to more than one person is to be assessed as if their several experiences of value were to be included in that of a single person. We are to collate value to any other with value to ourselves in the same manner that we should, rationally, if his satisfaction or

dissatisfaction were to be included in our own experience, but in such wise as to affect as little as possible any other and like experience of ours.

However fantastic the supposition that we could in practice arrive at evaluation of an object by carrying out this program in detail and collating all the possible satisfactions it may contribute to human life, in the manner indicated, still our actual and practical estimates of the value which a thing has to society at large, will be more or less accurate according as they approximate more or less closely to the total evaluation which would be so arrived at. And the theoretical possibility of such theoretical value-determination is what gives practical significance to our practical estimate.

We have offered discussion of this single complex mode of evaluation, mainly as an illustration of the problems to be encountered in connection with various other modes of evaluation as well, and of the general manner in which these may be met in theory, when it is recognized that values have degree only and are not quantitatively measurable. Even with respect to this exemplary mode of valuation, there are further details into which we have not gone; endeavoring to strike a proper balance between the requirements of theoretical understanding and the dangers of useless pedantry. For instance, there is the consideration of potentialities for positive value and of disvalue both in the same object, and the problem of collating positive value to some persons with disvalue to others. But any who should be minded to raise such further questions will doubtless be able to discover the answers to them, in the light of the above, provided they do not find some fundamental objection to the general procedure here suggested.

14. This particular mode of the valuation of objective existents was chosen for exemplary discussion and the illustration of problems, partly, as was mentioned, on account of its frequent importance. It is by valuations in this mode that we should come as near as may be to discovering the value of things to the public at large, and the 'greatest good of the greatest number', so far as the goods in question are values to be found in objective existents. But the supposition—if any would be inclined to make it—that determination of the highest social values to be derived from objective things, resolves forthwith

the problems of ethics, would be indicative of an oversimplified conception of those problems, and unwarranted on several counts.

In the first place, values in objects are extrinsic only. The relative derogation of material goods is in measure justified: it is those values which are to be found more directly in experience which alone are desirable for their own sake. And even including these higher and intrinsic values, there is no direct and simple implication of the ethically justified in the determination of social values merely.

The problem which delimits the field of ethics is not that of the empirically good or valuable but that of the right and morally imperative. To be sure, there is essential connection between rightness of action and goodness in that which this action is intended to effect. At least, it is with this general conception that rightness of action derives from value in the end, with which we should agree. But just at this point we should be careful that we do not illicitly connect the right and the good, before ever we have distinguished them. By an ambiguity of language, right acts are also called good acts, and those whose acts are right are called good people. In their character as events or empirical matters of fact, acts have utilitarian value or disvalue, as leading to results which bring satisfaction or the opposite. But 'good' meaning 'useful for conducing to satisfaction' and 'good' meaning 'morally justified' or 'praiseworthy', are two different words, however much this double usage may suggest a real connection discerned by the common man. We should, thus, beg the question whether acts are morally imperative by reason of satisfactions to be found, if we say: "Morally imperative acts are right acts, and right acts are those which are good, and the good is the valuable, and the valuable is that which conduces to satisfaction." That manner of argument—whether in this crude form or in more subtle phrasing—should remind us of the ancient wheeze: "The west wind is zephyr, and zephyr is a yarn, and a yarn is a tale, and a tail is an attachment, and an attachment is love, and love is blind; so the west wind is blind." Our conclusion is, we should hope, better than that: let us see to it that our argument also is more cogent. Unless it is, we shall have nothing to say to those transcendentalists who commit the same fallacy but reverse the line of reasoning: "The valuable is the good, and the good is that which is rightly aimed at, and the rightly aimed at is the end of right action, and right action is morally

imperative action, and the morally imperative cannot be determined by any empirical fact such as satisfactions found; therefore, values are not determinable by any empirical fact such as satisfactions found."

In the second place, even when we recognize such essential connection between the morally imperative and the empirically valuable, there is still the further question, "Valuable in what sense; valuable to whom?" We do not thus resolve those crucial problems of ethics concerning the relation between the social interest and the personally imperative. There is, e.g., the question whether the individual can be called upon to sacrifice life itself when necessary for the public good; and whether society can justly demand obedience of the individual in contravention of his own moral convictions.

In the third place, the question of value in that at which action aims, is in any case anterior to question of the morally imperative, and capable of being independently determined. There is no reason, for example, why an egoist in ethics and an uncompromising social utilitarian should disagree over the questions what *is* in the interest of the individual and what *is* for the best good of all concerned. What they disagree about is the particular mode of valuing the intended results of action which determines the moral justification of the act. If they were not both of them able to determine values in each of these different modes—value to the individual and value to society at large—before bringing into view any question of the morally commanded, then there would be no ethical issue for them to debate. And unless what is genuinely valuable to the individual should be different on occasion from what has value to the public, no contrariety between egoism and impartial consideration of all would be discernible, and this ethical problem would have no meaning.

In our relations to others, the distinctively ethical question is not directly and simply that of the general welfare but of justice. On the one side, it concerns the principles of individual conduct in view of the effect of it upon others. On the other side, it is the question of rewards and penalties to the individual, and of social regulation of the individual's behavior by such means; the question of the social distribution of goods, where the goods referred to are not material things and objective states of affairs exclusively but include also those more ultimate values to which material things may conduce. One can

hardly expect to resolve such questions of social justice in the distribution of goods according to any principle in terms of the value of them alone. There is also the matter of individual desert. If there are those who would maintain that, so far as values accruing to individuals are affected by social control, and receipt of them can be facilitated or prevented, justice dictates an equal consideration of each without reference to his desert, at least they here take sides on an issue which is debatable. Whether individuals should share in the socially distributable values according to their needs simply or according to what they contribute, is a familiar question, where it is material goods which are in point—as is also the question whether it is the actual contribution of the individual or merely his good intentions which measure his just claims upon society. Again, there is the related question—not completely obsolete—whether the individual justly owns that which is the product of his own efforts. If these are not commonly recognized as important problems of ethics, that fact merely reflects an unfortunate tendency to limit ethical discussion to problems which have become traditional.

For all these reasons mentioned, and for others also, questions of evaluation and those of ethics must be distinguished rather than identified. Determination of values is essential for, and must be antecedent to, any concrete application of the principles of ethics; but value-determinations are not sufficient by themselves for any solution of ethical problems, in general or in particular. Questions of values, for any specific mode of valuation, are empirical questions; and the test of correctness in evaluation is to be found by some reference to experience. Valuation is always a matter of empirical knowledge. But what is right and what is just, can never be determined by empirical facts alone.

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