

WORLDS OF TRUTH

A Philosophy of Knowledge

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Chapter 1

Justification

1. Beliefs

I have cited, with approval, Peirce's doctrine that we begin to philosophize not in a state of complete doubt but rather possessed of minds stocked with all sorts of beliefs. We cannot divest ourselves of these at one stroke and wipe our slates clean, any more than we can jump out of our skins with a single leap. Our fate is to begin our thinking careers not at the hypothetical beginning but in the middle of things.

We find further that, from the very earliest acknowledgment of our thoughts and opinions, we are more strongly attracted to some rather than to others, inclined to consider the former more persuasive or initially credible than the latter. When such differences become objects of continuing reflection, stimulating alterations in the relative attractiveness of our beliefs, we have, in effect, turned critical without deliberate effort. Our initial mass of beliefs, layered from the start by our attitudes toward their claims, is subject to altered layering, progressively filtering out beliefs we find inconsistent or otherwise repugnant and assigning the rest the credentials corresponding to their respective current attractiveness. These credentials are not fixed once and for all; they arise, change, and grow as we ourselves continue to grow. Our beliefs, in sum, are persuasive not because of their provenance but because of their up-to-date credentials. Pedigrees count for nothing.

Our beliefs are, if persuasive, not so simply because of what they individually assert. They of course purport to be true but their respective claims need to survive the challenge of living within a community of comparable claims, each demanding equal consideration and the combination threatening potential conflict and modification. In short, each of our beliefs

requires amicable relations with our other beliefs to nourish its credibility.

2. Access to Truth

A stronger moral has often been drawn from this situation: No belief, it has been roundly declared, has direct access to truth, but only indirect access at best, thus giving rise to unavoidable reliance on justification by supporting evidence.

A representative statement is that of Bonjour, “If truth were somehow immediately and unproblematically accessible . . . so that one could in all cases opt simply to believe the truth, then the concept of justification would be of little significance and would play no independent role in cognition. But this epistemically ideal situation is quite obviously not the one in which we find ourselves. We have no such immediate and unproblematic access to truth, and it is for this reason that justification comes into the picture.”¹

Here, however, looms a problem. If a belief acquires indirect access to truth only through its justification by others supplying evidence for it, these others must themselves be justified; they cannot simply be plucked out of the air. But since they themselves have no more direct access to truth than the belief they purport to justify, they must be justified in turn by still other beliefs, and so on *ad infinitum*—unless the justification chain can be safely brought to a halt. Without such a halt, no belief can have any access to truth, lacking direct access by hypothesis, and incapable of gaining indirect access as we have seen.

Clearly, the last link in our hypothetical chain cannot be justified by the first link, on pain of vicious circularity, the whole circle then afloat aimlessly with no firm anchorage anywhere. The most widespread solution proposed by many thinkers, early and late, is to deny the initial supposition that no belief has direct access to truth, and to affirm that at least the first link in a justification chain is indeed certain, having direct access to truth, which truth it channels to subsequent links, thereby assuring them access that is indirect. The picture is familiar in the history of philosophy, in association with both rationalist and empiricist thinkers, the former grounding supposed initial links in reason, rendering them impervious to doubt, the latter basing the certainty of such links on a presumably hard

core of sensory data given in experience. Both schools of thought accordingly suppose that the vast array of items we take to be true gain their credibility through evidential chains linking them ultimately to beliefs true beyond doubt.

The flaw in this solution, from a contemporary point of view if not from that of the historical masters, is its appeal to the notion of truths transparently beyond the possibility of doubt. The intervening centuries have disappointed us so often in the claims to such truths as to render us immune to their deceptive charms. Again and again, impregnable claims of self-evidence have been not only doubted but roundly defeated, in mathematics as well as the empirical sciences. An initial sketch of the general picture reveals that mathematics—the home of rationalistic philosophy—far from being a haven of unquestionable truth, thrives on doubt, speculation, and conjecture. Empirical science—the inspiration of empiricist thought—in its turn, has repeatedly spawned new credible theories baffling to the dogmatism inherited from prior science.

3. Cogito Ergo Sum

We consider now Descartes' celebrated rationalist gem, the thought, "Cogito ergo sum" (I think therefore I am), which he deemed to show his own existence incapable of being defeated by the most radical doubt, even by a hypothetical malicious demon bent on deceiving him into doubting his own existence.² For to be deceived is to be; to doubt that I exist is itself to think, hence to be. Here, then, for Descartes, is a truth he is compelled by reason to accept and barred by reason from doubting—and each of us who considers the equivalent statement in reference to himself must reach the equivalent and certain conclusion. We have, then, in every such case, a proposition absolutely incapable of being doubted, by its author at least, if not by others. And there's the rub.

For if I, the author of the statement, "Cogito ergo sum," am prevented from doubting it, others are free to dispute it without hindrance. An outside observer might well have reason to doubt, of the utterer of a particular "Cogito"-statement, that he had in fact been thinking while mouthing the words "I think," as against the possibility that the words were not deliberate but merely thoughtless reflexes, or unthinking products of someone brain dead, even in fact dead, during the time in question.

If actually brain dead during the critical interval and revived only afterward, the utterer might at first affirm that he had been conscious continuously, and deliberate throughout the relevant interval, later admitting the critical gap in his thinking when confronted with outside evidence. The “Cogito” utterance in question here was, then, false, hence not beyond doubt.

It has been argued, in rebuttal, that the “Cogito” utterance might have been doubted by others but not, however, by the author himself *at the time of the utterance*, even were he to doubt its veracity at a later time. In reply to this rebuttal, it might be insisted that the proposition itself was, at any rate, subject to doubt hence not certain, as shown by the reasons later available to both author and outsider. Nevertheless, proponents of the rebuttal would persist in arguing that while both author and outsider might be able to detail these reasons for doubting the phrase, the author alone could do so *only after the fact*. Unlike the outsider, he could not very well credit these same negative reasons at the very moment of his utterance, thus denying while affirming it in the same breath. Hence, this argument triumphantly concludes, the phrase “I think” was certain and beyond doubt for the utterer himself at the critical moment of its enunciation even though such certainty were to evaporate a moment later.

The argument is, however, confused, since if the utterer acquires good reasons to retract his vulnerable utterance at a later time, it had evidently been vulnerable from the start, hence not beyond doubt even then. The utterance, therefore, cannot well be judged to have been certain even for the utterer and even at the critical time of its origination. Were the mere impossibility of affirming and denying a statement at the same time to imply that it was certain, every statement whatever would be certain.

Is it not, however, strange that first-person cases differ from third-person cases with respect to the notion of evidence? We may query the doctor who has just examined a patient to detail his evidence for thinking the patient is feeling sad or for its seeming to him that the sky is growing darker, but we would not demand of the patient himself who has just said “I’m feeling sad” or “It seems to me the sky is growing darker” that he outline his supporting evidence for these judgments before we credit him with knowing, even granting the truth of these claims. Some have accordingly argued that there is no logical room for the concept of evidence about

one's own case, which implies that the utterer's statement is certain for him at the time of its enunciation.

There is nothing, however, to prevent the patient himself from offering the very same reasons as those offered by the doctor. It is not that there is no logical room for the concept of evidence in one's own case, but that we do not require the utterer to supply such evidence before judging him to know what he claims, by his affirmation, to know, if we take it to be indeed true. We normally grant that the utterer is in a favored position to judge his own case without recourse to the evidence needed by the outsider, his affirmation assumed to be highly credible to him, if not to us, in consequence of his favored position. Nor do we make this typical assumption only with respect to a subject's report of his phenomenal experiences. If he tells us his name, we do not, barring special circumstances, query him as to his evidence, nor do we quiz him for his reasons if, looking out the window, he tells us that a snowstorm is raging outside.

It is, however, important to note that, in assuming high *prima facie* credibility of certain self-referential assertions, for the subject at least, we are not excluding the possibility of error. A man may be mistaken about his pains or moods or even his own name. We are nevertheless allowing a subject's favored position in certain self-referential cases to give him the right to affirm his belief short of an actual or presumed evidential argument. If we also judge his belief to be true, we may then decide that he indeed knows what it affirms. But infallibility is in any case out of the question, as both he and we may be mistaken, having good reason to retract our claims in the future.³

4. Mathematical Certainty

Is there not then, as many suppose, a basis for certainty in the realm of mathematics? Much depends on the particular interpretation given to mathematics. Modern thinkers have typically distinguished between uninterpreted and interpreted formal systems. Euclidean geometry, for example, when uninterpreted, rests on undefined primitive terms assigned no denotations and on postulates relating these terms selectively to one another, with rules governing the formation of sentences and the creation of defined

terms, as well as approved ways of moving from certain sentences to others. With no denotative import, however, uninterpreted sentences are not truth vehicles at all, having the status of abstract structures only, similar to games. None is therefore, *a fortiori*, true beyond doubt.

Interpreted through the assignment of suitable denotations, however, the sentences of the formal geometrical system do become truth vehicles, but they become vulnerable thereby to doubt and rejection. When Euclidean points are, for example, taken to denote stars and Euclidean lines to denote light rays, the resulting assertions, purporting to be physically true, become hostages to physical evidence which may controvert them, hence to disconfirmation.

What about pure mathematics, free of special postulates and popularly thought to be transparently true in itself? Part of the current popularity of this opinion rests on the belief that mathematics has been reduced to logic, the firmest of truths, as presumably shown by Whitehead's and Russell's *Principia Mathematica*. Sadly, however, the purported reduction has been demonstrated to proceed not all the way to logic, but only to logic plus (interpreted) set theory, while set theory itself is plagued with paradoxes, alternative incompatible foundations, controversial existential assumptions, and metaphysical differences, hardly the stuff of self-evident truths.⁴

5. Classical Logic

What then about classical logic, that is, the logic of sentences as well as of quantification and identity? Surely, this is so firm that it is clearly not subject to doubt. The problem that arises from an English speaker's claiming to have doubted, and indeed to have rejected, a logical truth, by saying, "not (not (p and not-p))," is that he has made his claim utterly incomprehensible to native English speakers; they would incline to take him as a non-English speaker or, at any rate, as not using the word "not" in conformity with the standard use of this logical particle. Accordingly, they would suppose him not to have denied the law of non-contradiction but rather to have employed the symbol "not" in a novel way consistent with that law.⁵

Does this not imply then that the original logical truth "not (p and not-p)" is indeed so self-evidently true that it cannot be denied, and does it not

prove that we have here after all a basic truth underlying or capable of underlying all our knowledge? Our interlocutor might insist, however, that in asserting both “p” and “not-p,” he claims indeed to be using the classical negation symbol and thus to have succeeded in denying the law of non-contradiction. It might, to the contrary, be argued that his claim is not persuasive; if a statement is true, its denial should at least be coherent if not factual. That is, its non-factuality ought at least to be understandable, though ruled out by its contradictory. In the case of our above logical truth, “not (p and not-p),” by contrast, its formal denial is not even grammatically coherent; it is not ruled out as non-factual by its contradictory, but rather as beyond the boundary of comprehensibility by speakers of the language.

Moreover, this formal denial, since logically false, implies every statement, including the law of non-contradiction itself which it purports to deny. Though possible as a formal statement, this denial is so self-defeating as to keep the object of its denial firmly in place, in consequence erasing the very line between true and false statements and thus eliminating all point to assertion. Implying all assertions, it ends up making none.

Were we, in spite of all this, to concede to the die-hard defender of certainty that the survival of the law of non-contradiction in the face of formal denial is a sign of its certainty rather than an indication of its impotence as a deniable assertion, this concession could hardly be comforting to such defender. For it would be a mere fantasy to imagine that the whole structure of our knowledge could be reared on the foundation of classical logic alone, sole possessor of direct access to truth and sole source of indirect access for every other item of our knowledge.

It is worth noting that Descartes himself, having proved to his own satisfaction that his “Cogito”-statement had achieved certainty, still required a battery of further arguments to support the general trustworthiness of our senses, without thereby denying the occurrence of errors.⁶ Such arguments as he provided depended on his proofs of the existence and perfection of God, purporting to show that God could not possibly deceive us, avoidable errors arising nevertheless from unrestrained use of our freedom of will. These supplementary arguments, however, are demonstratively unpersuasive, and clearly incapable of chaining the putative certainty of the “Cogito”-statement to the empirical items to be justified, hence enabling them to achieve indirect access to the truth.

Furthermore, short of the flat denial of classical logic, some theorists, among them assorted intuitionists, constructivists, semanticists, and

theoretical physicists, with differing motivations, have in fact proposed the idea of giving up classical logic for various purposes while preserving consistency through adopting one or another deviant logic instead. In this enlarged sense of “denial,” classical logic may itself be denied consistently for any of a number of reasons, without, as before, reinstating the very object of its denial. Classical logic can thus hardly be conceived as beyond reasonable revision, hence as certain.⁷

Turning now from rationalistic sources of the emphasis on certainty, we consider empiricistic emphases on sensory experience, purporting to provide us with brute particulars transparently evident to consciousness. The particulars we perceive cannot, it is affirmed, be wished away; they are given to the senses and stand firm amid changing winds of doctrine. They may be interpreted, but they cannot be denied by aspiring theories which are, in fact, tested by them—since they provide hard evidence favoring some and destroying others. Twentieth-century empiricism took its rise in the rejection of philosophical idealism, which gave primacy to the mind and short shrift to sensory particulars in its understanding of knowledge.

6. C. I. Lewis' Empiricism

The American pragmatist C. I. Lewis expressed his criticism of idealism thus: “If the mind were the only condition of the thing as known, then the nature of the mind being specified, objects in general would be completely determined. . . . Unless the content of knowledge is recognized to have a condition independent of the mind, the peculiar significance of knowledge is likely to be lost. For the purpose of knowledge is to be true to something which is beyond it. Its intent is to be governed and dictated to in certain respects. It is a real act with a real purpose because it seeks something which it knows it may miss. If knowledge had no condition independent of the knowing act, would this be so?”⁸ This condition Lewis identified as “the sensuously given.” We shall focus our ensuing consideration of modern empiricism by attending, in particular, to Lewis' *Mind and the World Order* (1929).

Modern empiricism, in its several various forms, has been inspired by the role of observation and experiment in the natural sciences, where general theories are tested by the independent deliverances of the senses. No theory is certain; rather, it provides a fallible interpretation of the hard

data so far given to the senses, ever vulnerable to what further sensory experience may bring, and therefore at best probable. The sensory given is, however, to be thought of quite differently, for Lewis. It is not interpretive nor, therefore, is it fallible. And to require only that theory and conceivable statements of sensory observation be coherent is vacuous as a test of the former. Unless some such statements are independently selected out of their infinitely numerous kin consistent with a proposed theory, we have no basis for assigning the theory any observational merit.

If, for Lewis, the sensory given is to afford us the means of testing a proposed theory, it must be construed as certain, an incorrigible fact of subjective experience, hence capable of restricting the mind's arbitrariness in seeking objective knowledge. Indeed, if it were in its turn also fallible, thus merely probable relative to other premises, and so on, it would provide no basis at all for evaluating the theory in question, either positively or negatively. The chain of probabilities must therefore terminate in certainty, if we can claim to have any empirical knowledge at all.

This brief for certainty has been disputed by Nelson Goodman, who begins by agreeing with Lewis that "credibility may be transmitted from one statement to another through deductive or probability connections; but credibility does not spring from these connections by spontaneous generation. Somewhere along the line some statements . . . must have initial credibility."⁹ But here Goodman adds the words, ". . . credibility to some degree, not certainty." In arguing against mere coherence as a way of anchoring the chain of probabilities with which we started, Goodman is thus at one with Lewis. But he thinks the appeal to certainty is excessive, since initial credibility alone provides the required anchorage, without blocking the possibility of overturning such credibility in the future. Thus, no statement whatever is immune to withdrawal, yet the initial credibility of statements at a time exercises a degree of control over the system of statements as a whole that cannot be blithely ignored or dealt with arbitrarily.

I have found Goodman's argument persuasive, and have interpreted initial credibilities as reflecting "our varied inclinations to affirm given statements as true or assert them as scientifically acceptable: equivalently, they may be construed as indicating the initial claims we recognize statements to make upon us, at any given time, for inclusion within our cognitive systems."¹⁰ Russell's superficially similar notion of "intrinsic credibility" is actually quite different from "initial credibility" in importing the unwanted suggestion of credibility values as fixed over time, whereas

it seems evident that our inclinations to affirm particular statements vary considerably from time to time and imply no immunity to revision.¹¹

There are additional problems with Lewis' conception of the given. His main concern, as Goodman acknowledges, is not to find sentences that are certain, hence suitable to serve as axioms of a system of knowledge; rather it is to recognize that empirical knowledge rests on error-free sensory contents subject to fallible conceptual interpretation. It is, however, difficult to see how an error-free given at a particular moment can serve as a check on theory. For once the momentary given is gone, the memory of its past character provides no error-free testimony for or against the theory in question, only a fallible interpretation of what the present memory signifies about the past moment.

Further, Lewis admits that the given is intertwined with interpretation. "The independence of the given," he holds, "[does not] entail the practical possibility of removing altogether the encrustation of concepts, so as to discover the core of the given in a moment of sheer apprehension."¹² How, then, one might ask, is the given itself to serve as a check on theory?

If Lewis' aim is simply to show that the given, though never unqualified by thought and always "an excised element or abstraction," is at least not "an 'unreal' abstraction" but "an identifiable constituent in experience," he needs to tell us how to identify it analytically. This, he declares, we can do by focusing on the sensuous aspect of experience, and then by attending to the quality of unalterability by thought, the given being "unaffected by any change of mental attitude or interest." The given, in sum, is "that which remains untouched and unaltered, however it is construed by thought."¹³

That anything is thus untouched seems to me at variance with the psychological facts as represented by both anecdotal reports and experimental evidence. Both such sources affirm the enormous influence exercised by belief, expectation, and set in determining the quality of the sensuous given. Ample anecdotal support for such influence is supplied by numerous sources, of which Ernst Gombrich's *Art and Illusion* will serve as a representative sample of illustrations drawn from certain technical areas, from the history of art, and from everyday life. The tendency of such illustrations is to counterpose the maxim "Seeing is believing" with its often more germane obverse, "Believing is seeing." In this connection, Gombrich tells us that "Intelligence officers intent on the reading of aerial reconnaissance photographs, X-ray specialists basing a diagnosis on the faintest of shadows visible in a tissue, learn in a hard school how often 'believing is

seeing' and how important it therefore is to keep their hypothesis flexible."¹⁴

One empirical psychological study will here serve for many: D. C. McClelland and J. W. Atkinson measured the effect of hunger upon the images projected by subjects onto a blank screen. "After a preliminary phase in which faint images were actually shown on the screen, the experimenters exposed blanks but asked for description of the things shown; they found that food-related responses, and even the size of imagined food objects, increased with the increase of hunger."¹⁵ Cases familiar in ordinary experience are instanced by M. Sherif and H. Cantril, who cite "the case of the hungry man looking for bread or the case of a lover waiting in a crowd for his sweetheart."¹⁶

The main problem with Lewis' conception, however, is that the notion of an error-free or certain given is confused. "Error and certainty, like truth and falsehood, are purported characteristics of descriptions, not in general of things described."¹⁷ The sense in which the sensory given is not subject to error simply reflects the fact that it is no description; this fact by no means implies that reports of the given are immune from mistake. The error-free character of the given is thus a triviality, of no epistemological interest whatever. I conclude, in sum, that empiricist views may be no more anchored in the safety of certainty than are rationalist ones.

Having rejected the various appeals to certainty as terminating the justification chains purporting to give our beliefs their indirect access to truth, we shall do well to revisit three controlling ideas that have given rise to the original problem of relating justification to truth. One such idea is that of access to truth, a second is that of justification itself, and the third is that of certainty.

7. Access as a Metaphor

Access to truth is a metaphor, natural enough and seemingly harmless. But it brings with it consequences equally natural though not at all harmless. The expression "access to truth" invites us to see attainment of access as a process analogous to physical access to a room, a transition from outside a closed space to its inside. No belief, it has been widely asserted, has direct access to truth; every belief either lacks access altogether or, at best, has

indirect access, achieved only through justification by evidence. Indeed, that no belief has direct access is what is said to necessitate recourse to justification, constituting the only means of transition from outside all access to attainable, that is to say, indirect access. Acquiring justification is, on this view, a historical process, since no belief is born with its justification on its face, at best gaining indirect access by acquiring suitable evidential relations to other beliefs.

Assume, then, a given belief with no such apparent relations upon its initial formulation. Having later been shown to acquire such relations to evidential premises, has it thereby been justified and gained indirect access to truth? Clearly, if these premises are unjustified, themselves lacking access, their consequences also lack access, hence providing no justification for the belief in question, and moving it not a whit closer to the truth sought. And if, as some have suggested, the premises in question are in their turn shown to be appropriately linked to still others, the question recurs as to whether these presumably evidential others are themselves justified. No matter how long the purported justification chain is imagined to extend, unless it is somehow anchored to truth, it is idling, running in place, no closer to achieving access for our initial belief than it had to begin with.

The classical solution to this problem has been to reject the critical assumption that no belief has direct access to the truth. Once we affirm, with many thinkers, both rationalists and empiricists, that some beliefs are in fact certain, possessed of direct access to truth, other beliefs can theoretically, through suitable logical or probabilistic linkages to these, acquire indirect access to truth, thus attaining justification without fear of endless regress. This strategy, as we have noted, requires designation of those beliefs thought to be certain and, moreover, rich enough to generate all the desired justified content, and we have already seen the difficulties this involves. Without this strategy, however, how can we interpret justification, required by all accounts to make sense of the knowledge we claim, and, moreover, without reliance on the discredited notion of certainty?

8. J. F. Fries and K. Popper

A general proposal for achieving this goal is to replace recourse to certainty with the adoption of a convention for the making of a decision: we simply

decree that certain beliefs are to be taken, for the moment, as having direct access to the truth and we justify other beliefs by linking them to these. A more specific and elaborate formulation of such a proposal is that of Popper, following J. F. Fries, who argued that “if the statements of science are not to be accepted dogmatically, we must be able to justify them.”¹⁸ To insist, however, that all statements are to be logically justified, warns Fries, leads to an infinite regress. “Now, if we wish to avoid the danger of dogmatism as well as an infinite regress, then it seems as if we could only have recourse to psychologism, i.e. the doctrine that statements can be justified not only by statements but also by perceptual experience.”¹⁹ Fries chose psychologism, the appeal to sense experience as yielding immediate knowledge. Popper himself, however, rejects psychologism since, he argues, no statement of sense experience is immune from testing and possible revision. He further holds that in testing a theory by reference to basic statements, there is no absolute stopping point, since every such statement is open to further tests; every test of a theory in fact “must stop at some basic statement or other which we decide to accept.”²⁰

Popper’s resolution of Fries’ trilemma is to replace recourse to certainty, while avoiding psychologism, with the adoption of a convention or the making of a decision: We simply decree that certain beliefs are to be taken, for the moment, as tantamount to having direct access to the truth, and we justify other beliefs by linking them to these. Such decrees obviously lack certainty since we are free to renounce them at will by issuing new decrees. They are, in this sense, impermanent but, so long as they are in force, they may be assumed to justify any claims for which they provide evidential support. As he elaborates, “The basic statements at which we stop, which we decide to accept as satisfactory, and as sufficiently tested, have admittedly the character of dogmas. . . . But this kind of dogmatism is innocuous since, should the need arise, these statements can easily be tested further.”

9. Voluntarism and Linearity

Two problems confront the recourse to *convention*, *decision*, or *decree* in the interpretation of justification. One problem is that of *voluntarism*; the other is that of *linearity*. The reliance on decree (which here stands in for any of the three notions) is what I refer to as voluntarism, since it poses

no constraint on the adoption of any decree at any time. Such voluntarism does, as intended, free the strategy from appeal to certainty—only, however, to saddle it with the stigma of dogmatism, since no decree itself requires to be justified. It is serial dogmatism to be sure, but dogmatism nonetheless, having, as Bertrand Russell once said of the method of postulation, all the advantages of theft over honest toil. As long, further, as we are willing to condone such thievery, what precludes us from using it directly for all the several beliefs we hope to justify as gaining indirect access, or as having passed a relevant test, rather than restricting it to the premises from which we hope to derive such beliefs?

What I refer to as linearity is the property, shared by the classical and the present (decisional) conception, of a chain, which starts with a fixed point or points neither requiring nor, indeed, allowing any justification, and proceeds by logical or probabilistic derivation to further steps which are justified thereby. Whether the initial starting points are thought to be either certainties or free decrees does not affect the property of linearity common to both conceptions.

This property has the effect of treating every one of our beliefs as guilty unless proven innocent, that is, as unjustified (or as not serviceable) unless shown to be suitably linked to starting points that are certain (for the classical conception) or decreed (for the decisional conception). The former makes the barrier to justification impossibly high since, as we have seen, certainty is beyond our reach, and hence treating all our beliefs as unjustified. The latter virtually abolishes the barrier altogether, counting all beliefs as justifiable (or serviceable) at will. Both uphold the view that if our beliefs are to pass muster, they can do so only by having recourse either to mythical certainties (in the one case) or willful decisions (in the other).

10. One-Way Justification

A corollary of the view held in common by both conceptions is that the first link in a given justification chain must be assumed firm since its role is to anchor the chain. The first link justifies; it cannot itself waver or be overridden by subsequent links. The justification process is one-way only. This picture, as we have seen earlier, is similar to that of Lewis, who regards the given as incorrigible, and contrasts with Goodman's notion of statements with initial credibility, always vulnerable to overthrow by other such

statements with higher credibility. We shall have occasion later to compare these two conceptions as intended accounts of justification in the sciences, but for now let us ask what the consequences would be if both voluntarism and linearity were surrendered.

In a word, the effect would be far-reaching. The notion of starting from scratch would be given up, and justification would no longer be conceived as chainlike, patterned after a logical or mathematical proof. Our beliefs would no longer carry the burden of original guilt unless and until proven innocent. Justification as a deliberate procedure would not be thought of as an initial qualifying process, required for admission into our body of beliefs, but rather as a subsequent process, taking place after the fact, and only as needed. Starting with our initial mass of beliefs as given, we would in effect treat them as innocent until proven guilty, reversing the onus of justification. Justifiable control over our body of beliefs would not be centered in one source, but diffused through the mass, exercising democratic rather than autocratic authority. Such a large overhauling of the classical and the decisional conceptions has already in fact been accomplished through the pioneering work of philosophical pragmatists and pragmatically inclined thinkers inspired by the empirical sciences.

11. Beginning in the Middle

We have earlier made reference to Peirce's insistence that we begin always in the middle of things, our minds already stocked with beliefs which, we may note, he considered to function in the manner of habits. That is, they are to be considered as approximating dispositions, readinesses, sets to act in response to contingencies that might arise in the future. These are to be thought of as positive or negative in valence, either attractive or repulsive, tropisms or aversions, but in any event providing a structure of potential actions with which we face the future. The question of their several justifications *de novo* is manifestly absurd. The very notion of justification is a sophisticated achievement not available prior to the availability of beliefs. Nor could justification, however understood, proceed without taking certain beliefs for granted, prior to their own justification. Wholesale initial justification is a fantasy.

Peirce's essay, "The Fixation of Belief"²¹ presents a statement of his theory of inquiry. Doubt differs from belief in three respects: (a) "There is

a dissimilarity between the sensation of doubting and that of believing.” (b) “The feeling of believing is a more or less sure indication of there being established in our nature some habit which will determine our actions. Doubt never has such an effect.” (c) “Doubt is an uneasy and dissatisfied state from which we struggle to free ourselves and pass into the state of belief, while the latter is a calm and satisfactory state which we do not wish to avoid, or to change to a belief in anything else. On the contrary, we cling tenaciously, not merely to believing, but to believing just what we do believe.”

The function of beliefs so understood by Peirce and elaborated correspondingly by William James and John Dewey in particular, is to constitute a stable platform for response, should the need arise. Thought itself is activated when problems intrude themselves upon us, our cluster of dispositions to respond incapable of overt realization either because of internal short-circuiting or owing to external impediments. Thought is then specific, directed toward the initiating problem of recovering overt realization of our stalled dispositional cluster, to the end of attaining stability of habits again.

12. Justification, Contextual and Comparative

Peirce was influenced by his conception of laboratory science, focusing always on particular questions arising in the context of prior science, and taking its inherited conclusions provisionally for granted. Scientific investigations, following this model, do not seek to investigate nor, certainly, to justify the inherited totality of scientific beliefs. Directing their attention to the particular locus of an initiating problem, such investigations strive to bring the relevant embedded assumptions to light, scrutinizing possible alterations, deletions, or additions that show promise of resolving the problem in question. Deciding, in favorable cases, on a projected solution, they need then to justify such a course as against its alternatives. Justification here comes into play for the first time in its natural habitat. Beliefs not surviving the competition with alternatives are then treated as not justified for the present while the winners are accorded justification.

Thus conceived, justification does not provide access to a magic circle of truths protected by a single entry gate. Rather, it provides a provisional

improvement in our cluster of beliefs, freeing it from the recent problem we have striven to overcome. We affirm this cluster now, reserving our right to alter it for cause later on. Similarly, we remain open to the possibility of further problems that may arise tomorrow, but sufficient unto the day is the problem thereof. Once having recovered the stability of our relevant cluster of assumptions, we can continue to use it in assertion, application, invention, and exploration until presently unforeseen difficulties arise, requiring future treatments similar to those hitherto provided but impossible to imagine in advance.

Justification thus conceived is not an eternal state—once justified, always justified. It is relative to context at a time, thus alterable for locally pertinent reasons. It is, further, ordinarily comparative, the justified solution having won out over alternative candidates for an optimum solution to a problem. Without specification of the problem, neither justification nor its lack has any clear sense. Unlike the effect of the linearity property, there is here no presumption that every one of our beliefs is guilty unless proven innocent. To affirm that a belief is abstractly justified or not is like affirming that Iowa is east, without answering the obvious query: “East of what?” A reversal of a fundamental sort has thus taken place with surrender of linearity.

I have earlier criticized linearity mainly by noting its requirement for chainlike justifications to be anchored by unacceptable starting points, whether certainties or decrees. A decisive difficulty with linearity is its radical mismatch with processes of justification in empirical science, as distinct from mathematical proof. Enunciated forcefully by Peirce, his argument is that a mathematical proof, understood as proceeding by logical steps from unquestioned premises to unquestioned conclusions, is, like any chain, no stronger than its weakest link, and incapable of transmitting more strength to its conclusions than is evident in its premises. Both these features are manifestly absent among characteristically recurrent forms of justification salient in the empirical sciences.²²

13. Justification in the Empirical Sciences

Theoretical premises in these sciences are not offered as certainties transmitting certainty to their derivations, which clearly contain no more strength than they themselves contain. Formulated as axioms though

they may be, they are nevertheless offered not as unquestioned truths but rather as conjectural hypotheses. In a process Peirce labels “abductive,” such hypotheses gain their support through systematizing a variety of initially credible beliefs which, as a result, turn out surprisingly related and, moreover, explainable, assuming the conjectural theory true.²³ Support in such cases flows upward to the conjectured theory from the relevant empirical beliefs rather than downward from theoretical premises certain in themselves. Thereafter, the theory combines with other credible beliefs, the combination yielding empirical consequences either deductively or probabilistically, thus now contributing to the downward flow of support.

A successful theory thus construed turns out to be vastly stronger than any particular empirical belief that has contributed its share to the upward flow, and may in fact survive the later falsification of any such belief, or beliefs, if enough others continue to hold. Unlike the chain which is no stronger than its weakest link, the pattern of support here wants a different metaphor, which Peirce indeed supplies in the image of a cable which, strong as it is, is composed of a variety of interwoven slender strands, each weaker and shorter than the cable itself, each moreover dispensable, provided enough others remain intact for the nonce. Reasoning in empirical science, Peirce insists, is “circumstantial, multiform, hypothetical, explanatory. Building only on modestly firm data, the web it forms is extremely powerful.”²⁴

Examples of outstanding scientific theories fitting the description just provided abound. The theory of evolution, for example, rests not on indubitable premises initiating a logical chain, or chains, ending in this theory as its conclusion. Rather, it gains support as it organizes and systematizes a number of results drawn from disparate empirical sciences, including paleontology, comparative anatomy and physiology, blood chemistry, stratigraphy, genetics, etc.—results which, seemingly scattered, turn out unexpectedly related and, indeed, partially explainable in evolutionary terms. The general theory itself has in this process gained more strength than any of the particular beliefs on which it rests, and may survive any number of these provided enough others remain after they are gone. However, no matter how strong it may eventually become, it never achieves certainty, nor does it in itself by deduction alone generate empirical results.

We have now apparently dispensed with the troubles of linearity in interpreting justification. But a new problem begins to loom: the threat of

circularity. For consider: The theory which rests on, i.e., is justified by, particular empirical beliefs in turn explains, hence justifies them. The theory is, in other words, justified by the very beliefs which it eventually helps to justify, and the beliefs in question are justified by the very theory ultimately resting on themselves. Does this not give the impossible upshot that the theory justifies itself and that each belief justifies itself as well? Surely, with support flowing both upward and downward, there must be a short circuit in this line of reasoning. The way back to linearity is blocked and the way forward to circularity seems to guarantee obvious failure. What to do?

14. Circularity versus Linearity

A critical feature of the problem requires notice: the fact that each of its elements has a double, not a single, potential source of support. Every empirical belief in the sciences and every conjectural theory therein has its own (possibly zero) degree of credibility *before* the question of justification arises. The combined empirical results justified by a theory do not for that reason alone qualify as supporting the very theory in question. To qualify in this respect, they must in addition be judged as sufficiently credible on their own merits.

Nor does the theoretical conjecture itself rest exclusively on the empirical results which support it. It has, in addition, some degree of credibility of its own, as a result of its fit with other credible theories, and the limited support already garnered by its capacity to explain and to predict empirical beliefs other than the ones under present consideration.

15. Democratic Controls

Justification is in effect not limited to a tight circle in which nothing extraneous intrudes. Each of the two main elements, i.e., theory and belief, is simultaneously sensitive to the other while retaining a measure of its own independence. No element is immune to change, free of all control by the other, but neither is such control absolute. Control, as we have already noted, is not autocratic but democratic, diffused throughout

the whole realm of beliefs, in which each is both subject and object of control.

A familiar example of this form of wide circularity, which is not only not fallacious but also obviously useful, is the ordinary dictionary, in which a given word may be defined in terms of another, and that one in turn by another, and so forth, until, after a while, the last member of the series may return to the first. As in the case that has just concerned us, each ordinary word involved here has two potential sources of clarification, its own independent, but implicit and uncoded, usage and the dictionary definition, which offers a formula explicitly relating it to other words. Usage may override a dictionary definition, but a definition may revise usage. The control that each exercises over the other is certainly not absolute but neither is it altogether powerless. In the interaction between them lies the utility of dictionaries.

Some writers have distinguished the case of science from the typical example of a fallacious circle consisting of a small number of elements, by arguing that the width of the scientific circle sets it apart. In this vein, Morris R. Cohen and Ernest Nagel affirm the general account given above, as follows:

There is a sense in which all science is circular, for all proof rests upon assumptions which are not derived from others but are justified by the set of consequences which are deduced from them. Thus we correct our observations and free them of errors by appeal to principles, and yet these principles are justified only because they are in agreement with the readings which result from experiment. In other words, science cannot rest on principles alone. Nor can it rest on experimental observations regarded as all free and equal. Each is used to check the other. But there is a difference between a circle consisting of a small number of propositions, from which we can escape by denying them all or setting up their contradictories, and the circle of theoretical science and human observation, which is so wide that we cannot set up any alternative to it.²⁵

The difference between width and narrowness here pointed out is certainly apt and it is perhaps generally true that the narrower a circle the more likely its viciousness. But this is not always the case, the critical feature being rather the fact that the elements of virtuous circles have two sources of support, not one. Thus, while the circular dictionary definition, as typically illustrated, travels a wide path before returning to its origin,

even a definition with only two elements may not be vicious in that each has an independent background of usage with which it enters the dictionary equation connecting them. This usage exercises partial control over future use, as does the equation itself. Usage and equation interact, each in principle capable of modifying the other.

16. Interactionism

The interactional view of justification, an offshoot of Peirce's anti-Cartesian view of science, is seen as well in Goodman's justification of induction as a matter of "making mutual adjustments between rules and accepted inferences;—in the agreement achieved lies the only justification needed for either." It figures, too, in law as exhibited in the continuous interplay between precedent and statute; in ethics as exemplified by Rawls' phrase "reflective equilibrium," as well as my "On Justification and Commitment" (see Chapter 5); in Quine's pragmatism; and in White's holism, as embracing both science and morals.²⁶

Notes

- 1 Laurence Bonjour, *The Structure of Empirical Knowledge* (Cambridge, MA: Harvard University Press, 1985), pp. 7–8. Quoted, with additional examples of the main point by other authors, in Harvey Siegel, "Truth, Thinking, Testimony and Trust: Alvin Goldman on Epistemology and Education," *Philosophy and Phenomenological Research* 71, no. 2 (2005): 351–53.
- 2 René Descartes, *Discourse on Method*, Part Four, and *Meditations on First Philosophy*, First and Second Meditations.
- 3 Cf. A. J. Ayer, *The Problem of Knowledge* (Harmondsworth, Middlesex: Penguin Books, 1956), pp. 44–57, and my *Conditions of Knowledge* (Chicago: Scott Foresman, 1965), ch. 3.
- 4 See A. N. Whitehead and B. Russell, *Principia Mathematica*, 3 vols. (Cambridge, UK: Cambridge University Press, 1910, 1912, 1913), and W. V. Quine, *Set Theory and Its Logic* (Cambridge, MA: Belknap Press of Harvard University Press, 1969).
- 5 See W. V. Quine, *Philosophy of Logic* (Englewood Cliffs, NJ: Prentice-Hall, 1970), ch. 6.
- 6 Descartes, *Meditations*, op. cit., Fourth Meditation.

- 7 Quine, *Philosophy of Logic*, op. cit., and see Susan Haack, *Deviant Logic* (Cambridge, UK: Cambridge University Press, 1974), and Haack, *Deviant Logic, Fuzzy Logic* (Chicago: University of Chicago Press, 1996).
- 8 Clarence Irving Lewis, *Mind and the World Order* (New York: Dover, 1956), pp. 189–92.
- 9 See Nelson Goodman, “Sense and Certainty,” *Philosophical Review* 61 (1952): 160–67, and C. I. Lewis, “The Given Element in Empirical Knowledge,” *Philosophical Review* 61 (1952): 168–75.
- 10 Israel Scheffler, *Science and Subjectivity*, 2nd ed. (Indianapolis: Hackett, 1985), pp. 116, 123.
- 11 Bertrand Russell, *Human Knowledge, Its Scope and Limits* (New York: Simon and Schuster, 1948), part 2, ch.11; part 5, chs. 5–7.
- 12 See Lewis, op. cit., p. 66, and Scheffler, op. cit., p. 26.
- 13 Lewis, op. cit.
- 14 E. H. Gombrich, *Art and Illusion* (Washington: Pantheon, 1956), pp. 88, 204.
- 15 D. C. McClelland and J. W. Atkinson, “The Projective Expression of Needs: I. The Effect of Different Intensities of the Hunger Drive on Perception,” *Journal of Psychology* 25 (1948): 205–22.
- 16 Muzafer Sherif and Hadley Cantril, *The Psychology of Ego-Involvements* (New York: John Wiley & Sons, 1947), p. 32, and Scheffler, *Science and Subjectivity*, op. cit., pp. 30–31.
- 17 Scheffler, *ibid.*, 34.
- 18 J. F. Fries, *Neue oder anthropologische Kritik der Vernunft* (1828 to 1831), discussed extensively by K. R. Popper, *The Logic of Scientific Discovery* (London: Hutchinson, 1959), ch. 5, pp. 93–111. The quotations in this paragraph represent Popper’s understanding of the view of Fries, who opted for psychologism.
- 19 Popper, *ibid.*, p. 104.
- 20 *Ibid.*, pp. 104–5.
- 21 C. S. Peirce, *Collected Papers of Charles Sanders Peirce*, Charles Hartshorne and Paul Weiss, eds., vols. 1–6 (Cambridge, MA: Harvard University Press, 1931–35), 5.372, and Scheffler, *Four Pragmatists*, op. cit., p. 60.
- 22 C.S.P., *Collected Papers*, 5.265, and Scheffler, *Four Pragmatists*, op. cit., p. 52.
- 23 C.S.P., *Collected Papers*, 3.516, and 5.171 on abduction.
- 24 Scheffler, *Four Pragmatists*, op. cit., p. 54.
- 25 Morris R. Cohen and Ernest Nagel, *An Introduction to Logic and Scientific Method* (New York: Harcourt Brace, 1934), p. 379.
- 26 Nelson Goodman, *Fact, Fiction and Forecast*, 4th ed. (Cambridge, MA: Harvard University Press, 1983), p. 64; see also John Rawls, *A Theory of Justice* (Cambridge, MA: Harvard University Press, 1971), pp. 48–51. Israel Scheffler,

“On Justification and Commitment,” *Journal of Philosophy* 51 (1954): 180–90, reprinted here as Chapter 5. W. V. Quine, *From a Logical Point of View*, 2d ed. (Cambridge, MA: Harvard University Press, 1961), ch. 2, and Morton White, *A Philosophy of Culture* (Princeton, NJ: Princeton University Press, 2002).