THE INCOHERENCE OF EMPIRICISM

George Bealer and P. F. Strawson

I—George Bealer

A person's experiences and/or observations comprise the person's *prima facie* evidence.[1] This is the first dogma of empiricism. This principle, together with two others, forms the core of W. V. O. Quine's empiricism.

The principle of empiricism:

(i) A person's experiences and/or observations comprise the person's *prima facie* evidence.[2]

The principle of holism:

(ii) A theory is justified (acceptable, more reasonable than its competitors, legitimate, warranted) for a person if and only if it is, or belongs to, the simplest comprehensive theory that explains all, or most, of the person's *prima facie* evidence.[3]

The principle of naturalism:

(iii) The natural sciences (plus the logic and mathematics needed by them) constitute the simplest comprehensive theory that explains all, or most, of a person's experiences and/or observations.[4]

This sort of view has a remarkable hold over philosophers and scientists today, as it has in centuries past. Indeed, it yields a veritable *Weltanschauung*. The aim of the present paper is to try to refute this view by arguing that it is at bottom incoherent. We will give three such arguments: one concerning starting points, one concerning epistemic norms, and one concerning terms of epistemic appraisal.[5] Unlike the standard anti-empiricist arguments, which usually strike empiricists as question-begging, these arguments are designed to lay bare difficulties *internal* to their view. Our purpose is to present arguments that are designed to have persuasive force even for people already under the spell of empiricism.

I

Standard Justificatory Procedure. In this section we will review some plain truths about the procedure we standardly use to justify our beliefs and theories.

First, we standardly use various items—for example, experiences, observations, testimony—as *prima facie* evidence for other things, such as beliefs and theories.

At one time many people accepted the traditional doctrine that knowledge is justified true belief. But now we have good evidence that this is mistaken. Suppose someone has been driving for miles past what look like herds of sheep. At various points along the journey, our person *believes* that a sheep is in the pasture. Since the situation appears to be perfectly normal in all relevant respects, certainly the person would be *justified* in believing that there is a sheep in the pasture. Suppose that it is indeed *true* that there is a sheep in the pasture. Is this enough for knowledge? No. For suppose that the thousands of sheep-looking things the person has been seeing are a breed of white poodle that from a distance look just like sheep and that, by pure chance, there happens to be a solitary sheep hidden in the middle of the acres of poodles. Clearly, the person does not know that there is a sheep in the pasture.[6] Examples like this provide good *prima facie* evidence that the traditional theory is mistaken. We find it intuitively obvious that there could be a situation like that described and in such a situation the person would not know that there is a sheep in the pasture despite having a justified true belief. This intuition—that there could be such a situation and in it the person would not know—and other intuitions like it are our evidence that the traditional theory is mistaken.

So, according to our standard justificatory procedure, *intuitions* count as *prima facie* evidence. Now sometimes in using intuitions to justify various conclusions, it is somewhat more natural to call them *reasons* rather than *evidence*. For example, my reasons for accepting that a certain statement is logically true are that it follows intuitively from certain more elementary statements that intuitively are logically true. I have clear intuitions that it follows, and I have clear intuitions that these more elementary statements are logically true. Standardly, we say that intuitions like these are *evident* (at least *prima facie*).

For convenience of exposition let us extend the term '*prima facie* evidence' to include reasons that are *prima facie* evident in this way. So in this terminology, the standard justificatory procedure counts, not only experiences, observations, memory, and testimony as *prima facie* evidence, but intuitions as well. It shall be clear that this terminological extension does not bias our discussion. (After all, if something counts as *prima facie* evidence, it also counts as a reason that is *prima facie* evident. And empiricists believe that all and only experiences and/or observations qualify as reasons that are *prima facie* evident, and they believe that a person is justified only if the person has taken into account the reasons that are *prima facie* evident.) Readers who object to this practice should throughout read '*prima facie* evidence' as 'reasons that are *prima facie* evident'.

Now an important step in the standard justificatory procedure is *criticism*. A special form of criticism deserves mention here. The standard justificatory procedure incorporates a mechanism for self-criticism by means of which any component of the procedure can be subjected to critical assessment that might lead to an adjustment somewhere in the procedure itself. Specifically, this mechanism permits one to challenge the legitimacy of any standing source of *prima facie* evidence (experience, observation, intuition, memory, testimony). The presence of this mechanism in the standard justificatory procedure keeps the procedure from being either obviously empiricist or obviously non-empiricist. It all depends on which sources of *prima facie* evidence survive the process of criticism. So in saying that the standard procedure counts intuitions as *prima facie* evidence, we do not preclude using the mechanism of self-criticism to eliminate intuition as a source of *prima facie* evidence.

By intuition, we do not mean a supernatural power or a magical inner voice or anything of the sort. When you have an intuition that A, it *seems* to you that A. Here 'seems' is understood, not in its use as a cautionary or 'hedging' term, but in its use as a term for a genuine kind of conscious episode. For example, when you first consider one of de Morgan's laws, often you draw a blank; after a moment's reflection, however, something happens: it now really *seems* obvious. You suddenly 'just see' it. It presents itself as how things must be. Of course, this kind of seeming is *intellectual*, not sensory or introspective. For example, suppose it seems to you that,

if P or Q, then it is not the case that both not P and not Q. When this occurs, it is a purely intellectual episode; not a sensation or a reflection. There is, accordingly, a sharp distinction between intuition and imagination. Typically, if it is possible for someone to have the intuition that A (i.e., if it is possible for it to seem intellectually to someone that A), then it is possible for someone (perhaps the same person) to have the intuition that A in the absence of any particular sensory (imaginative) or introspective experiences that are relevant to the truth or falsity of the proposition that A. For this reason, intuitions are counted as 'data of reason' not 'data of experience'.[7]

When we speak of intuition, we mean *a priori* intuition. This is distinguished from what physicists call 'physical intuition'. We have a physical intuition that, when a house is undermined, it will fall. This does not count as an *a priori* intuition, for it does not present itself as necessary: it does not seem that a house undermined *must* fall; plainly, it is *possible* for a house undermined to remain in its original position or, indeed, to rise up. By contrast, when we have an *a priori* intuition, say, that if P then not not P, this presents itself as necessary: it does not seem to us that things could be otherwise; it must be that if P then not not P.

Intuition should also be distinguished from belief: belief is not a seeming; intuition is. For example, there are many mathematical theorems that I believe (because I have seen the proofs) but that do not *seem* to me to be true and that do not *seem* to me to be false; I do not have intuitions about them either way. Conversely, I have an intuition—it still *seems* to me—that the naive comprehension axiom of set theory is true; this is so despite the fact that I do not believe that it is true (because I know of the set-theoretical paradoxes).[8] There is a rather similar phenomenon in sense perception. In the Müller-Lyer illusion, it still *seems* to me that one of the two arrows is longer than the other; this is so despite the fact that I do not believe that one of the two arrows is longer (because I have measured them). In each case, the seeming persists in spite of the countervailing belief. Of course, one must not confuse intuition with sense perception. Intuition is an *intellectual* seeming; sense perception is a *sensory* seeming (an *appearing*). By and large, the two cannot overlap: most things that can seem intellectually to be so cannot seem sensorily to be so, and conversely.[9]

Intuitions are also quite distinct from judgments, guesses, and hunches. As just indicated, there are significant restrictions on the propositions concerning which one can have intuitions; by contrast, there are virtually no restrictions on the propositions concerning which one can make a judgment or a guess or have a hunch. Judgments are a kind of occurrent belief; as such, they are not seemings. Guesses are phenomenologically rather more like choices; they are plainly not seemings. And hunches are akin to merely caused, ungrounded convictions or noninferential beliefs; they too are not seemings. For example, suppose that I ask you whether the coin is in my right hand or whether it is in my left. You might have a hunch that it is in my left hand, but it does not *seem* to you that it is. You have no intellectual episode in which it seems to you that I have a coin in my left hand. When I show you that it is in my right hand, you no longer have a hunch that it is in my left. Your merely caused, ungrounded conviction (noninferential belief) is automatically overridden by the grounded belief that it is in my right hand, and it is thereby displaced. Not so for seemings, intellectual or sensory; they are not automatically displaced by your grounded contrary beliefs. (Recall the naive comprehension axiom and the Müller-Lyer arrows.)

Many items that are, somewhat carelessly, called intuitions in casual discourse in logic, mathematics, linguistics, or philosophy are really only a certain sort of memory. For example, it does not *seem* to me that $5^3 = 125$; this is something I learned from a teacher's testimony or from calculation. Note how this differs, phenomenologically, from what happens when one has an intuition. After a moment's reflection on the question, you 'just see' that, if P or Q, then it is not the case that both not P and not Q. Or, upon considering the example described earlier, you 'just see' that the person in the example does not know that there is a sheep in the pasture. Nothing comparable happens in the case of the proposition that $5^3 = 125$.

Intuitions must also be distinguished from common sense. True, most elementary intuitions are commonsensical. However, a great many intuitions do not qualify as commonsensical just because they are nonelementary, for example, intuitions about mathematical limits, the infinite divisibility of space and time, the axiom of choice, and so forth. Conversely, we often lack intuitions (i.e., *a priori*

intuitions) about matters that are highly commonsensical. For example, the following are just common sense: if you undermine your house, it will fall; walking alone on unlit urban streets is risky; it is unwise to build houses in flood plains; and so forth. But *a priori* intuition is silent about these matters. Such considerations suggest something like this: common sense is an amalgamation of various widely shared useful empirical beliefs, practical wisdom, *a priori* intuitions, and physical intuitions. Common sense certainly cannot be identified with *a priori* intuition.

The foregoing distinctions are obvious once they are pointed out. However, in many philosophical discussions the term 'intuition' is often used quite indiscriminately. Indeed, some philosophers use it more or less interchangeably with 'uncritical belief' or even with 'belief' *simpliciter*.[10] When we said earlier that, according to the standard justificatory procedure, intuitions are counted as *prima facie* evidence, we were not using 'intuition' in this indiscriminate way but rather in the above quite restricted way as a term for intellectual seeming. The distinction is of utmost importance.

Like sense perceptions, intuitions can (at least occasionally) be mistaken; for example, our intuition regarding the naive comprehension axiom is evidently mistaken. Thus, the infallibilist theory of intuition is evidently incorrect. There is a further analogy between intuition and sense perception: the standard justificatory procedure directs us to give greatest evidential weight to intuitions about specific concrete cases. By comparison, 'theoretical' intuitions have relatively less evidential weight.

Two final points. Intuitions play a significant role in our belief-formation processes. First, at any given time, there are a number of novel questions about which one has no belief one way or the other but about which one would have a clear-cut intuition. In cases like this, one will typically form the belief associated with the intuition as soon as the intuition occurs. Second, intuition plays a crucial role in following rules and procedures—for example, rules of inference.

II

The Starting Points Argument. We come now to our first argument against empiricism.

We have just noted that intuition plays a role in following procedures. A special case arises in connection with justificatory procedures, for typically we rely on our intuitions whenever we follow such procedures. (This fact is not required for our argument. See the close of this section.) This evident use of intuitions leads to a serious problem for empiricists who would have us follow their procedure (i.e., the procedure associated with principles (i) and (ii)). Indeed, there is a special irony here, for in their actual practice empiricists typically make use of a wide range of intuitions. For example, what does and does not count as an observation or experience? Why count sense perception as observation? Why not count memory as observation? Or why not count certain high-level theoretical judgments as sense experiences? Indeed, why not count intuitions as sense experiences? Likewise for each of the other key notions that play a role in the empiricist principles (i) and (ii). What does and does not count as a theory, as justified (or acceptable), as an explanation, as simple? The fact is that empiricists arrive at answers to these questions by using as *prima facie* evidence their intuitions about what does and does not count as experience, observation, theory, justified, explanation, simple. In their actual practice, empiricists use such intuitions as evidence to support their theories and to persuade others of them. However, such use of intuitions contradicts the principle of empiricism, which includes only experiences and/or observations as *prima facie* evidence. So in their actual practice, empiricists are not faithful to their principles.

To avoid this inconsistency, empiricists could fall back on the traditional distinction between discovery and justification. Accordingly, they would hold that, although they use intuition as a guide in formulating their theories, they do not invoke intuitions as *prima facie* evidence when they actually get down to justifying their theories. Let us use the term *starting points* for basic epistemic classifications (i.e., what does and does not count as an experience, an observation, a theory, an explanation, a simple explanation, a law of nature, a deductively valid argument, a logical truth, a theoretical virtue, etc.). In this terminology, the empiricists would hold that, although they use their intuitions about starting points as a guide in formulating their theories, they do not, strictly speaking, use them as *prima facie* evidence.

Even with the aid of this distinction, however, empiricists are caught in a fatal dilemma over the issue of their starting points. Either a person's intuitions regarding starting points are reliable or they are not.

If starting-points intuitions *are not* reliable, then empiricists are in big trouble. For their starting-points judgments (like everyone else's) are in fact determined by their intuitions (e.g., intuitions about what counts as experience, observation, theory, explanation, simplicity, logical truth, etc.). Therefore, if these intuitions regarding starting points are prone to error, the error will be reflected in the comprehensive theory that results from them, making that theory highly unreliable. It is true that errors in one's ordinary pretheoretical judgments about matters other than starting points can often be spotted and eliminated by a 'bootstrapping'.[11] For example, suppose that someone has a disposition to make errors when thinking unreflectively about race or gender. Nevertheless, upon formulating a systematic and comprehensive theory, the person will often be able to spot and eliminate these errors. Or suppose that a person suffers from an astigmatism, making his visual observations of shape and length prone to error. Again, it is plausible that, upon formulating a comprehensive and systematic theory on the basis of all his observations, including the largely reliable observations provided by his other senses and by his largely reliable visual observations of colour, continuity, contiguity, and other topological properties, the person will be able to spot and eliminate these errors about shape and length. By contrast, this 'bootstrap' method of error detection would break down if a person's observations generally (not just visual observations of shape and length) were unreliable. As long as the person's observations happened, by luck, to permit theoretical systematization (surely this is logically possible), the person's overall empirical theory would be quite unreliable, and the person would have no way to detect the errors. Now the situation would be just that much worse if, instead, the person's pretheoretic judgments about the very question of what counted as an observation were unreliable; and it would be worse still if the person's pretheoretic judgments about what counted as a theory, an explanation, as simple, as logically valid, as logically consistent, and so forth were unreliable. The effect of these errors on one's

overall theory is of an order of magnitude greater than that of ordinary errors. Bootstrapping would be powerless to repair the situation.

On the other hand, suppose that intuitions about starting points *are* reliable. That is, suppose our intuitions regarding what does and does not count as an experience, as an observation, as a theory, as an explanation, as simple, as logically true, as logically consistent, and so forth are reliable. Then, certainly whatever it is that makes such intuitions reliable would also make our intuitions about what does and does not count as *prima facie* evidence (or as reasons) reliable. However, we have a wealth of concrete-case intuitions to the effect that intuitions are *prima facie* evidence (reasons). Because these intuitions about the evidential status of intuitions would be reliable, it would follow that intuitions are in fact *prima facie* evidence and, hence, that empiricism is false. Moreover, if intuitions are *prima facie* evidence, then the sort of overall theory that empiricists would formulate (after excluding intuitions as *prima facie* evidence) would be highly unreliable (notably, on such matters as modality, definition, property identity, evidence, and justification).

Therefore, on both prongs of the dilemma, empiricism leads one to formulate a comprehensive theory that is highly unreliable. But, given that we can now see this, we certainly would not be justified in accepting this comprehensive theory. However, empiricism implies that we would. So empiricism is false.

This is the starting-points argument. A response to this argument is to deny that a person's pretheoretic starting-points judgments are really determined by intuitions and to hold instead that they are a kind of noninferential judgment determined by some other mechanism.

Phenomenological considerations along the lines of those mentioned at the close of the previous section show that this reply is not faithful to the psychological facts. This should put an end to the reply. But even if it does not, the reply would not help to save empiricism, for much the same type of dilemma would still exist. On the one hand, if our pretheoretic starting-points judgments are unreliable, the resulting comprehensive theory would also be unreliable. The earlier considerations show that, because starting points are involved, bootstrapping would be powerless to correct the problem. On the other hand, if our pretheoretic starting-points

judgments are reliable, then whatever it is that makes them reliable should also make reliable our pretheoretic judgments about what is and is not *prima facie* evidence. But, just as we have intuitions to the effect that intuitions are *prima facie* evidence, we have pretheoretic judgments to the effect that intuitions are *prima facie* evidence. Because these pretheoretic judgments would be reliable, it would follow that intuitions are *prima facie* evidence, contrary to what empiricism implies. Moreover, given this conclusion that intuitions are in fact *prima facie* evidence, we would have good reason to conclude that the empiricists' comprehensive theory, which excludes intuitions as *prima facie* evidence, would be highly unreliable (in connection with modality, property identity, definition, evidence, justification, etc.). So on both prongs of the dilemma, empiricism would lead to an unreliable comprehensive theory. Seeing this, one would not be justified in accepting this theory. Since empiricism implies that one would, empiricism is false.

III

The Argument from Epistemic Norms. We now move on to our second argument against empiricism, which concerns a 'hermeneutical' problem produced by the empiricists' departure from our epistemic norms. We have seen that the standard justificatory procedure admits as *prima facie* evidence not only experience and observation but also intuition. Empiricism would have us circumscribe our *prima facie* evidence by just excluding intuition. But consider some other exclusionary views. For example, *visualism*, the view that only visual experience provides *prima facie* evidence; tactile, auditory, olfactory experiences are just arbitrarily excluded. Or consider a theory that excludes as *prima facie* evidence all standard items that do not fit in neatly with some antecedently held political, religious, or metaphysical view. Plainly, we would not be justified in accepting these departures from the standard procedure. How is empiricism relevantly different?

Some empiricists might try to answer as follows. Suppose that the comprehensive theory that results from following the empiricist procedure is 'self-approving'; that is, suppose that this theory deems itself—and the procedure that produces it—to be justified

and that it deems as unjustified all other comprehensive theories and procedures that yield them, including, in particular, the competing deviant procedures (e.g., visualism, etc.).[12] In this case, the empiricists might invoke their comprehensive theory hoping to mark a relevant difference between their procedure and the other deviant procedures. However, this strategy merely yields a stalemate, for at least some of the other deviant procedures might themselves yield comprehensive theories that are 'self-approving' in this sense. (With the use of logicians' tricks we can easily construct deviant procedures that yield 'self-approving' comprehensive theories in this way.) If the above strategy were legitimate, advocates of one of these competing procedures would also be entitled to appeal to the comprehensive theory yielded by their procedure to show that the empiricists' comprehensive theory and the empiricist procedure are not justified. Hence a stalemate.

To avoid this kind of stalemate, empiricists have no choice but to try to reach their conclusion *from within* the standard justificatory procedure. Specifically, they must employ the standard justificatory procedure *critically*: they must employ the standard procedure's mechanism of self-criticism in an effort to show that a component of it (namely, the admission of intuitions as *prima facie* evidence) is defective. Suppose that the empiricists' attempt to employ the standard procedure critically succeeds, and suppose that analogous efforts on behalf of the competing deviant procedures (visualism, etc.) are not successful. Then, a relevant difference between empiricism and its competitors will have been found. Unlike its competitors, empiricism would not be an *arbitrary* departure from our epistemic norms. The question to consider, therefore, is this: when we implement the standard justificatory procedure's mechanism of self-criticism, does intuition get excluded as a source of *prima facie* evidence? (In our discussion we will confine ourselves to concrete-case intuitions, for, as we have seen, it is to these intuitions that the standard justificatory procedure assigns primary evidential weight.)

Consider an example of how a candidate source of *prima facie* evidence would be thrown out. Take tea leaves (or tarot, oracles, the stars, birds, or what have you). They are thrown out as a legitimate source of *prima facie* evidence (roughly) because they fail to satisfy the 'three *cs*'—*consistency, corroboration,* and

confirmation. First, to the extent that we have looked, we find no particular *consistency* among the tea-leaf readings made by a single person. Second, a person's readings are not corroborated by other people. Third, there is no pattern of confirmation of the tea-leaf predictions or other tea-leaf claims by our experiences, observations, and intuitions. Indeed, there is a pattern of disconfirmation by these sources of *prima facie* evidence.

Intuition, however, is not at all like this. (Recall that we are discussing concrete-case intuitions here). First, a person's intuitions are largely consistent with one another. To be sure, a given person's intuitions occasionally appear to be contradictory, but so do our observations, our memories, and even our pure sense experiences.[13] This is hardly enough to throw out observation, memory, and sense experience as sources of evidence. Moreover, most of these apparent conflicts (including apparent conflicts among one's intuitions) can be reconciled by standard techniques (see below). The occasional inconsistencies among a person's intuitions are nothing like the inconsistencies we would expect to find in a collection of someone's tea-leaf readings.[14] Second, although different people do have conflicting intuitions from time to time, there is an impressive corroboration by others of one's elementary logical, mathematical, conceptual, and modal intuitions.[15] The situation is much the same with observation: different people have conflicting observations from time to time, but this is hardly enough to throw out observation as a source of evidence. On the contrary, there is, despite the occasional conflict, an impressive corroboration by others of one's observations.[16] Third, unlike tea-leaf reading, intuition is seldom, if ever, disconfirmed by our experiences and observations. The primary reason is that the contents of our intuitions—whether conceptual, logical, mathematical, or modal—are by and large independent of the contents of our observations and experiences (in much the same way that, say, the contents of our sense experiences and the contents of our emotional experiences are independent of one another). The one potential exception involves our modal intuitions. But virtually no conflicts arise here because our intuitions about what experiences and observations are logically (or metaphysically) possible are so liberal. The conclusion is that the opportunity for

disconfirmation by experience and/or observation seldom, if ever, arises.[17]

Let us consider more carefully the matter of inconsistencies among a given person's intuitions. The pattern of inconsistencies among one's intuitions—and the standard ways of dealing with them—are quite like what we find in the case of the other sources of *prima facie* evidence. Evidently, there are some rare cases of irreconcilable inconsistencies among a person's intuitions. For example, Russell's paradox and the liar paradox evidently show that intuitions about the naive comprehension axiom from set theory and the naive truth schema are irreconcilably in conflict with intuitions about classical logic. But there are analogous, apparently irreconcilable conflicts among a person's observations. For example, upon putting my right hand (which was just warmed) into the water, I report that the water is cool; and upon putting my left hand (which was just cooled) into the same water, I report that the water is warm. The two observation reports are inconsistent, and there seems to be no reasonable way to reconcile them; one is forced to retreat from the 'objective' observational level to the 'subjective' phenomenological level: the water *feels* warm to my left hand and *feels* cool to my right hand. There also seem to be inconsistencies on the subjective phenomenological level. Russell cites (see note 13) the example of an expanse cf phenomenal colour in which locally there seems to be no variation in hue but whose extreme left and right nevertheless seem plainly different in hue. But these rare, irreconcilable inconsistencies hardly call into question the legitimacy of observation or of phenomenal experience. The same holds for the rare irreconcilable inconsistencies among a person's intuitions.

In any event, most apparent conflicts are reconcilable by standard techniques. For example, suppose that, upon watching Smith's efforts at the shooting range, I report that he hit a bull's-eye. But when I walk over to Smith, I see that he is not even holding a gun but rather an electronic toy wired to the bull's-eye bell; and when I walk over to the target, I see that it has not been hit at all. I report that Smith did not hit the bull's-eye. Now, in the face of this conflict between my observations—my earlier observation that Smith hit the bull's-eye and my later observation that he did not—we certainly do not throw out observation as a legitimate source of

evidence about the episode and retreat to the subjective phenomenal level. On the contrary, we *redescribe* what I observed using relevant units and distinctions. Redescribed, what I observed in the earlier episode was this: Smith was pointing a black, shiny gun-shaped object in the direction of the target; there was a loud crack; then the bull's-eye bell went off. These observations are consistent with my later ones. By using these more specific units and distinctions, we are thus able to reconcile my earlier observations with the later ones, and we are able to do so while remaining on the 'objective' observational level. This is the standard practice. It would be mad to discard observation altogether because of this sort of apparent conflict and to hold instead that I have no legitimate observational evidence. I did have observational evidence and at most it needed to be reported more cautiously.

We do exactly the same sort of thing with intuitions that are apparently in conflict. Consider three examples. (1) In the Galileo paradox of infinity, I have an intuition that there are fewer odd numbers than there are natural numbers (odd numbers plus even numbers). But I also have an intuition that the odd numbers are in one-to-one correspondence with the natural numbers and a collection that is in one-to-one correspondence with another does not have fewer things in it. These two intuitions can be reconciled by invoking a distinction between fewer-than in the proper-subset sense and fewer-than in the no-one-one-correspondence sense. My first intuition was that the odds are fewer than the naturals in the former sense, and my second intuition was that they are not fewer in the latter sense. Properly reported, both intuitions stand as *prima facie* evidence. It would be absurd to throw them out as illegitimate without even trying to reconcile them by means of redescription in terms of relevant distinctions. (2) The scientific-essentialist literature (Kripke *et al.*) provides a second illustration of how redescription can be used to reconcile intuitions that initially appear to be in conflict. Initially, there appears to be a conflict between old-fashion anti-scientific-essentialist intuitions (e.g., the intuition that there might be some water with no hydrogen in it) and the new pro-scientific-essentialist intuitions. Such conflicts would result in a mere stalemate between the old view and the new view. However, by redescribing these intuitions in terms of the distinction between epistemic possibility and metaphysical possibility, scientific

essentialists are able to resolve the apparent conflict in favour of their view. Evidently, anti-scientific-essentialists are unable to do the analogous thing for their view. So the stalemate is evidently broken in favour of scientific essentialism. (3) The Gricean distinction between genuine semantical implication and mere conversational implicature also yields redescriptions that serve to reconcile a great many intuitions that initially appear to be in conflict.

Another type of apparent conflict among our intuitions arises in connection with cases that are *incompletely specified*. Consider the following specification similar to that which was given earlier: one day in normal observation conditions someone drives past a pasture in which there are animals that look to him exactly like sheep and, indeed, there are sheep in the pasture; as a result of his observations the person comes to believe that there is a sheep in the pasture. Does the person know that there is a sheep in the pasture? Before learning of the Gettier-style examples, perhaps you would have had the intuition that the person would know that there is a sheep in the pasture. However, as soon as we add the further detail that virtually all of the sheep-looking animals are poodles and that the only sheep there are completely hidden from view by thousands of poodles, you have the intuition that the person does not know that there is a sheep in the pasture. This apparent conflict between intuitions is readily explained. Upon hearing the initial specification, you supposed that *all* the sheep-looking animals were normal sheep. Once we address this detail explicitly, it becomes clear to you that there are really two distinct cases—one with normal sheep, the other with sheep-looking poodles. Your two apparently conflicting intuitions turn out to be consistent with one another, for they are not even about the same case! The point is that, when using intuitions as *prima facie* evidence, we must carefully attend to all relevant details. This requirement hardly calls into question the evidential status of intuitions. Indeed, when we use experiences and observations as *prima facie* evidence, somewhat similar requirements are in force.

In summary, just as with observation and experience, so with intuition: our standard procedure is to try to reconcile apparent conflicts by more complete description and/or redescription. When we try to do this, we succeed to a *very* large extent.[18] For this reason,

neither observation, experience, nor intuition is eliminated as a legitimate source of *prima facie* evidence on grounds of inconsistency. The overall conclusion, therefore, is that intuition does not get called into question on grounds of inconsistency, lack of corroboration, or conflicts with experience or with observation.

There is another kind of conflict we must consider, namely, conflicts between certain *theories* and certain intuitions (e.g., intuitions about simultaneity and Euclidean geometry[19]). Do such conflicts call intuition into question as a source of *prima facie* evidence? No. For there are analogous conflicts between certain theories and certain observations (e.g., observations that the sun is about the same size as the moon and that it moves across the sky). Likewise, experience, memory, and testimony come into conflict with certain theories. None of these conflicts suffice to overturn observation, experience, memory, or testimony as a source of *prima facie* evidence. The same holds for intuition. Like the deliverances of these other standard sources, most of our intuitions are consistent with our empirical theories. Indeed, most of our elementary conceptual, logical, and numerical intuitions are actually affirmed by our empirical theories.[20] And modal and higher mathematical intuitions, while not affirmed by our empirical theories, are for the most part not inconsistent with them. Moreover, our best comprehensive theory based on *all* standard sources of *prima facie* evidence, *including intuition*, affirms most of our modal and higher mathematical intuitions. The reason is twofold: first, these intuitions are largely consistent with one another and with our empirical theories (at least, our intuitions can be made largely consistent with one another when carefully reported); second, they admit of theoretical systematization to a significant degree.[21] So it is no surprise that a comprehensive theory that begins by including intuitions as *prima facie* evidence should affirm most of them.

If empiricists are to try to overthrow intuition by means of the standard justificatory procedure's mechanism for self-criticism, they have only one alternative. They must invoke the comprehensive theory that one would formulate if one admitted only those sources of *prima facie* evidence *other than* intuition. Characterized more abstractly, this method of challenging a standard source of *prima facie* evidence goes as follows. One formulates one's best comprehensive theory on the basis of the standard sources of *prima facie* evidence that

one is not challenging. If the resulting theory deems the omitted source(s) not to be reliable, then it is (they are) seriously discounted as a source(s) of *prima facie* evidence.

This method is appropriate in some cases. Consider a hypothetical example. Suppose the pronouncements of a certain political authority (reminiscent of the Wizard of Oz) have acquired the status of *prima facie* evidence, and suppose that these pronouncements do not fail the three *c*s. (That is, they are consistent with one another. They do not go against the pronouncements of others. And they are not disconfirmed by other sources of *prima facie* evidence because they are carefully contrived to avoid such disconfirmation.) Nevertheless, we could legitimately challenge the *prima facie* evidential status of these pronouncements as follows. First, we should formulate the best overall theory based on all *other* sources of *prima facie* evidence. If this theory were not to deem the pronouncements of the political authority to be (largely) reliable, then we would be justified in rejecting the political authority as a special source of *prima facie* evidence.

However, there are cases in which this method does not work. Recall the example of visualism, discussed at the outset of this section. Suppose that a visualist tried to use visual experience to eliminate other modes of experience (tactile, auditory, etc.) as sources of *prima facie* evidence. Suppose that this effort happened to yield a formally neat comprehensive theory that denied the reliability of these other sorts of experiences.[22] Would the standard justificatory procedure direct us to reject these other modes of experience as sources of *prima facie* evidence? This suggestion is preposterous. Neither vision nor touch can override the other as a source of *prima facie* evidence. To be admitted as a source of *prima facie* evidence, neither requires auxiliary confirmation from other sources of *prima facie* evidence, nor do they require affirmation by the best comprehensive theory based on other sources of evidence. Those who would deny this have lost their grip on the standard justificatory procedure and, indeed, on what evidence is. (This assessment conforms to principle (i) of empiricism, which admits all experience—visual, tactile, etc.—as *prima facie* evidence.)

What is the difference between the political-authority case and the visualism case? The answer is plain. The political authority is *intuitively not as basic* a source of *prima facie* evidence as the

sources of *prima facie* evidence that are being used to eliminate it (i.e., experience, observation, etc.). By contrast, vision and touch are *intuitively equally basic* sources of *prima facie* evidence. The standard justificatory procedure permits us to apply the present method against a currently accepted source of *prima facie* evidence if and only if *intuitively* that source is not as basic as the sources of *prima facie* evidence being used to challenge it. That is, according to the standard procedure, we are to consult our intuitions regarding the relative basicness of a given source of *prima facie* evidence. If and only if intuition declares that source not to be as basic as the sources that are being used to challenge it are we to proceed. Someone might think that, rather than consulting intuition on the question of relative basicness, one should consult the simplest overall theory that takes as its evidence the deliverances of one's currently accepted sources of *prima facie* evidence. But this approach yields the wrong results. For example, according to it, the political authority, with just a bit of cleverness, would be as immune to challenge as, say, sense experience. (E.g., the political authority could carefully restrict itself to empirically untestable pronouncements that suggest that it has a special new cognitive power; it could deem itself to be a maximally basic source of evidence; etc.) But despite this, it would be appropriate to reject the political authority as a special source of evidence. The way we would do this, according to the standard procedure, would be to fall back on our intuitions about relative basicness: intuitively, a political authority's pronouncements are not as basic as, say, one's sense experiences. The overall theory one would formulate on the basis of the sources of evidence that are intuitively more basic would not deem the political authority to be reliable.

Now let us return to the empiricists' effort to eliminate intuition as a source of *prima facie* evidence. Their idea is that the standard justificatory procedure warrants this because the overall theory that admits only experience and/or observation as *prima facie* evidence does not deem intuition to be reliable. The mistake is now plain. The standard justificatory procedure would warrant this move only if we had intuitions to the effect that intuition is a less basic source of *prima facie* evidence than experience and/or observation, one requiring auxiliary support from the best comprehensive theory that is based exclusively on other sources of *prima facie* evidence that

are intuitively more basic. But when we consider relevant cases, we see that we do not have such intuitions. For example, suppose a person has an intuition, say, that if P or Q, then not both not P and not Q; or that the person in our sheep-looking-poodle example would not know that there is a sheep there; or that a good theory must take into account *all* the *prima facie* evidence; and so forth. Nothing more is needed. Intuitively, these intuitions are evidentially as basic as a person's experiences. In rather the same way as one's visual experiences are intuitively as basic as one's tactile experience, and conversely. In consequence, the present method for challenging a source of *prima facie* evidence cannot be used against intuition, any more than it can be used against, say, touch or vision.[23]

The conclusion is this: intuition survives as a genuine source of *prima facie* evidence when one applies the standard justificatory procedure's mechanism for self-criticism. We have not been able to find a relevant difference between empiricism, which excludes intuition as a source of *prima facie* evidence, and various preposterous theories (e.g., visualism) that arbitrarily exclude standard sources of *prima facie* evidence (e.g., touch). But, surely, these preposterous theories are not justified. So empiricism is not justified, either.

There is a way to strengthen this argument. Suppose that in our justificatory practices we were to make an arbitrary departure from our epistemic norms. In this case there would be *prima facie* reason to doubt that the theories we would be led to formulate by following the non-standard procedure are justified. Given that empiricists make an arbitrary departure from our epistemic norms, what can they do to overcome this reasonable doubt in their own case? They are caught in a fatal dilemma. On the one hand, they could invoke theories arrived at by following the standard justificatory procedure, with its inclusion of intuitions as *prima facie* evidence. But, by the empiricists' own standards, these theories are not justified. So this avenue is of no help to our empiricists. On the other hand, they could invoke theories arrived at by following their empiricist procedure.[24] But this would be of no help, either. For, as we have seen, there is reasonable doubt that, by following the empiricist procedure, one obtains justified theories. To overcome that reasonable doubt, one may not invoke the very theories about whose justification there is

already reasonable doubt. That would only beg the question.[25] Either way, therefore, empiricists are unable to overcome the reasonable doubt that their procedure leads to justified theories. So the reasonable doubt stands.

Our epistemic situation is in this sense 'hermeneutical': when one makes an arbitrary departure from it, reasonable doubts are generated, and there is in principle no way to overcome them. This is the fate of empiricism. Only the standard justificatory procedure escapes this problem: because it conforms to—and, indeed, constitutes—the epistemic norm, there is no *prima facie* reason to doubt that the theories it yields are justified; so the problem never arises.

IV

Terms of Epistemic Appraisal. We have seen how empiricism is cut adrift when it rejects the special authority of intuitions in connection with starting points, and we have just seen how empiricism is caught in a general hermeneutical dilemma triggered by its arbitrary departure from our epistemic norms. Our third argument concerns a more specific hermeneutical difficulty that arises in connection with our standard terms of epistemic appraisal. Our argument builds upon George Myro's important and elegant paper 'Aspects of Acceptability'.[26]

The setting is the version of empiricism articulated by Quine. As noted at the outset, this position consists of three principles: (i) the principle of empiricism, (ii) the principle of holism, and (iii) the principle of naturalism. Quineans use these principles to obtain a number of strong negative conclusions. The following is an illustration. From principles (i) and (ii)—the principle of empiricism and the principle of holism—it follows that a theory is justified for a person if and only if it is, or belongs to, the simplest comprehensive theory that explains all, or most, of the person's experiences and/or observations. From this conclusion and principle (iii)—the principle of naturalism—it follows that a theory is justified for a person if and only if it is, or belongs to, the natural sciences (plus the logic and mathematics needed by them). It is understood that this is to be the *simplest regimented formulation* of the natural sciences. By implementing various ingenious

techniques of regimentation, Quineans give arguments showing that the underlying logic needed for this formulation of the natural sciences is just elementary extensional logic and, in turn, that no modal propositions (sentences) are found in this formulation of the natural sciences. If these arguments are sound, it follows that no modal proposition (sentence) is justified. Indeed, (the sentence expressing) the proposition that modal truths exist does not belong to the simplest regimented formulation of the natural sciences. Given this, it follows that it is unjustified even to assert the existence of modal truths. This, then, is how empiricism joins forces with naturalism to attack the modalities and modal knowledge.

Quineans mount much the same style of argument to attack definitions, definitional truths, analyticities, synonymies, intensional meanings, property identities, property reductions, and the associated ontology of intensional entities (concepts, ideas, properties, propositions, etc.). For, just as no modal propositions (sentences) belong to the simplest regimented formulation of the natural sciences, neither do propositions (sentences) to the effect that such and such is a definition (definitional truth, analytic, etc.). According to Quineans, the natural sciences on their simplest regimented formulation have no need to include definitions and the special apparatus from intensional logic and/or intensional semantics needed to state them. Likewise for propositions (sentences) about definitional truth, analyticity, synonymy, intensional meaning, property identity, property reduction, and so forth: to explain one's experiences and/or observations, one always has a simpler formulation of the natural sciences that avoids these things.[27] Therefore, given principles (i)–(iii), any theory that includes these things is unjustified.

With this summary before us, we are now ready for our argument that empiricism, as formulated, is epistemically self-defeating.

Let us suppose that principles (i)–(iii) are true. (Principles (ii) and (iii) are very plausible. It is principle (i), the principle of empiricism, that is questionable. Thus, our argument may be thought of as a *reductio ad absurdum* of principle (i). We will return to this point at the close.) And let us suppose that the Quinean arguments from principles (i)–(iii) to the above negative conclusions are correct, at least by empiricist standards. (This supposition is extremely plausible when one comes to appreciate

the full power of Quinean regimentation techniques and when one realizes that, for empiricists, those techniques need not be constrained by intuitions.) Given these suppositions, what is the justificatory status of principles (i)–(iii) themselves?

Notice that these principles contain the familiar terms 'justified', 'simplest', 'theory', 'explain', and *prima facie* evidence'. These terms do not belong to the primitive vocabulary of the simplest regimented formulation of the natural sciences.[28] Moreover, given the correctness of the Quinean negative arguments, these terms cannot be defined within this formulation of the natural sciences (likewise they cannot be stated to be translations of other expressions; nor can they be stated to express the same properties as, or to be synonyms of, or abbreviations for, other expressions; etc.). The reason is that this formulation of the natural sciences does not contain an apparatus for indicating definitional relationships (or relationships of translation, synonymy, abbreviation, property identity, property reduction, or anything relevantly like them).[29] (See below for a discussion of what is needed to show that a new notion is *relevantly like* a standard notion.) It follows that the radical empiricists' principles (i)–(iii) do not belong to this formulation of the natural sciences and, therefore, that principles (i)–(iii) do not count as justified according to principles (i)–(iii). Hence, this version of empiricism is epistemically self-defeating.[30] This is the first step in our argument.

The problem results from the fact that the simplest formulation of the natural sciences does not contain our standard epistemic terms 'justified', 'simplest', and so forth, nor does it contain an apparatus for defining them (or for translating them; or for stating that they express properties that are identical to those expressed by other terms; or that they express properties that reduce to those expressed by other terms; or that they are synonyms of, or abbreviations for, other terms; or anything relevantly like this).[31] If any of these items were adjoined to or included in a formulation of the natural sciences, that would exceed the essentially simpler resources required for the simplest regimented formulation of the natural sciences and, therefore, would (according to principles (i)–(iii)) be unjustified.

The most promising empiricist response to this self-defeat argument goes as follows. It is acknowledged at the outset that the simplest regimented formulation of the natural sciences does not

include either the terminology of principles (i)–(iii) or a standard apparatus for defining that terminology (or for stating relations of translation, synonymy, abbreviation, property identity, property reduction, etc.). It is nevertheless maintained that this formulation of the natural sciences does contain scientifically acceptable 'counterparts' of these terms, that 'counterparts' of principles (i)–(iii) can be stated in this terminology, and that, unlike principles (i)–(iii), these 'counterpart' principles are consequences of the natural sciences on their simplest regimented formulation. Therefore, unlike the original (unscientific) statement of empiricism, the new (scientific) statement of it is not epistemically self-defeating. So goes the empiricists' response. This is the 'best-case scenario' for saving empiricism from epistemic self-defeat.[32]

To illustrate how this response would go in detail, let J, S, P, and E be complex predicates from the simplest regimented formulation of the natural sciences. For example, J, S, P, and E might be complex behavioural-*cum*-physiological predicates. These predicates are supposed to be the scientifically acceptable 'counterparts' of 'justified', 'simplest explanation', '*prima facie* evidence', and 'experience', respectively. Let N be the simplest regimented formulation of the natural sciences. And let us suppose that the following are derivable from N:

(1) $E(z,y)$ iff $P(z,y)$.

(2) $J(x,y)$ iff $(\exists w)(\exists z)(x \in w \ \& \ S(w,z) \ \& \ P(z,y))$.

(3) If $E(z,y)$, then $S(N,z)$.

These principles are supposed to be 'counterparts' of the empiricists' original principles (i)–(iii).[33]

The problem with this empiricist response is that, if the standard idiom for epistemic appraisal (justification, acceptability, etc.) is abandoned in favour of this new idiom of 'counterparts', empiricists must show (or do something relevantly like showing) that this new idiom is *relevantly like* the standard idiom, for otherwise there would be no reason to think that principles such as (1)–(3), which use the new idiom, have any bearing on epistemic appraisal. After all, epistemic appraisal, or something relevantly like it, is what is at issue. There can be many similarities between a standard idiom and a new idiom (e.g., length or sound of

constituent expressions, etc.), but only some of them are *relevant*. Therefore, it is incumbent on the empiricists to show that the new idiom is relevantly like the standard one. If they cannot do this, their talk is, for all we know, irrelevant verbiage.[34]

How might the empiricists try to show that their idiom is relevantly like the standard idiom? Well, they could try to show that the standard idiom can be *defined* in terms of the new idiom. (Or they could try to show that the *meaning* of expressions in the new idiom are relevantly like the meaning of expressions in the standard idiom.[35] Or they could try to show that the *reason, purpose*, or *function* of the new idiom is relevantly like that of the standard idiom.[36] Or they might try to show that the two idioms share something that is relevantly like a definitional relation, meaning, reason, purpose, or function.[37]) But we have already seen that, according to principles (i)–(iii), the use of a standard apparatus for indicating definitional relationships does not belong to the simplest regimented formulation of the natural sciences and, hence, is unjustified. (Likewise for other intensional idioms dealing with meaning, reason, purpose, function, and so forth.) To avoid this problem, empiricists have no choice but to drop the standard apparatus for treating definitions (meaning, reason, purpose, function, etc.) and to put in its place some 'counterpart' that does belong to the natural sciences on their simplest regimented formulation.

There are a number of ways in which empiricists could try to implement this manoeuvre. The following is perhaps the most elegant; in other respects it is typical. Suppose that D is a complex predicate that belongs to N and that the following are theorems of N:

(4) $D(\ulcorner A \text{ iff}_{\text{def}} B \urcorner, \ulcorner D(\ulcorner A \urcorner, \ulcorner B \urcorner) \urcorner)$.

(5) $D(\ulcorner \alpha \text{ is justified for } \beta \urcorner, \ulcorner J(\alpha,\beta) \urcorner)$.

(6) $D(\ulcorner \alpha \text{ is, or is part of, the simplest explanation of } \beta \urcorner, \ulcorner S(\alpha,\beta) \urcorner)$.

(7) $D(\ulcorner \alpha \text{ is } \beta\text{'s } prima\ facie \text{ evidence} \urcorner, \ulcorner P(\alpha,\beta) \urcorner)$.

(8) $D(\ulcorner \alpha \text{ are } \beta\text{'s experiences} \urcorner, \ulcorner E(\alpha,\beta) \urcorner)$.

(9) $D(\ulcorner \dots \text{ that A} \dots \urcorner, \ulcorner \dots \ulcorner A \urcorner \dots \urcorner)$.

(10) $(S(u,z) \& u \vdash \ulcorner \dots A \dots \urcorner \& D(\ulcorner B \urcorner, \ulcorner A \urcorner)) \rightarrow S(u \cup \{\ulcorner \dots B \dots \urcorner\}, z)$.

Items (4)–(9) are supposed to be 'counterparts' of definitions of 'iff$_{def}$', 'justified', 'simplest explanation', *prima facie* evidence', 'experience', and 'that'-clauses, respectively. And item (10) is supposed to be the 'counterpart' of the (debatable) thesis that a definitional extension of a theory is as simple as the original theory.

The empiricists' idea is that items (1)–(10) are supposed to be an 'image', in the language of scientifically approved 'counterparts', of the sorts of thing one would need in order to get a self-justifying epistemology of natural science.

However, a moment's reflection shows that no progress has been made at all. The predicate D could, for all we know, be irrelevant to definitions. So, in turn, for all we know, items (1)–(10) are just irrelevant to epistemic appraisal. Indeed, 'images' of the sort of thing one would need to have a self-justifying theory are a dime a dozen. For example, using Gödelian techniques of self-reference, we can construct infinitely many complex predicates D, J, S, P, and E such that these ten items can be derived from N (assuming that N is rich enough to describe its own syntax). Are there any predicates like this that express 'natural properties'? It seems doubtful. But even if there were, their 'naturalness' would count for nothing according to empiricists, for statements about the naturalness of properties fall outside the domain of the simplest regimented formulation of the natural sciences and so are unjustified according to principles (i)–(iii). As far as epistemic appraisal is concerned, (1)–(10) are, for all we know, just so much irrelevant verbiage.[38]

There is only one way out of this problem of establishing a relevant connection between (1)–(10) and the standard idiom of epistemic appraisal: at least one *bridge principle* stated in the standard idiom is needed.

To illustrate how this would go, let us consider the simplest and most elegant bridge principle of the requisite sort, namely, a *definition of definition*. Let N^+ be the enlarged theory that consists of N plus the following:

(11) (A iff$_{def}$ B) iff$_{def}$ D($\ulcorner A \urcorner, \ulcorner B \urcorner$).

By *using*, not just mentioning, the standard idiom 'iff$_{def}$' this principle explicitly affirms the requisite connection between the

standard idiom 'iff$_{def}$' and the counterpart idiom D. In N$^+$ one can derive consequences such as the following:

N is justified.

(11) is justified.

N$^+$ is justified.

(i)–(iii) are justified.[39]

Moreover, in N$^+$ one can derive the 'that'-clause formulations of these statements about justification. Thus, with (11) adjoined, we can show that (1)–(10) are relevantly like principles of epistemic appraisal stated in the standard idiom. Indeed, we can show that they are definitionally equivalent to them and, hence, that the empiricists' original principles (i)–(iii) are justified. Therefore, if empiricists could justify (11) by their own standards, they would avoid epistemic self-defeat. Such, then, is the 'best-case scenario' for saving empiricism from epistemic self-defeat. However, if empiricists cannot by their own standards justify (11)—or some comparable 'self-applicable' intensional principle—their effort to avoid epistemic self-defeat would be doomed. So, can (11)—or some comparable 'self-applicable' intensional principle—be justified by empiricist standards?

Not at all. On the one hand, suppose that one admits one's intuitions as *prima facie* evidence, and suppose that the simplest explanation of one's experiences and intuitions, taken together, is provided by the enlarged theory N$^+$. (This supposition is almost certainly false. For example, when intuitions are admitted as *prima facie* evidence, we end up with the conclusion that it is justified that intuitions are *prima facie* evidence. However, N$^+$ implies that it is justified that only experiences are *prima facie* evidence.) Would our supposition imply that (11) is justified according to empiricist standards? No, for according to empiricism, intuition does not count as *prima facie* evidence. So this supposed outcome would do nothing whatsoever to justify (11). On the other hand, suppose—as the empiricists' principle (i) requires—that one admits only one's experiences and/or observations as *prima facie* evidence. Then, by principle (ii), it follows that a theory is justified if and only if it is, or belongs to, the simplest explanation of one's experiences and/or observations. Hence, by principle (iii), a theory is justified if and

only if it is, or belongs to, the simplest regimented formulation of the natural sciences (i.e., N). However, by Quinean arguments the simplest regimented formulation of the natural sciences (i.e., N) does not include 'iff$_{def}$' and, hence, (11) is not derivable as a theorem from this formulation of the natural sciences. Is there any further *prima facie* evidence (reason, etc.) recognized by empiricists that would justify adjoining (11) to N (i.e., that would justify the enlarged theory consisting of N$^+$)? No. The theory N, which is justified according to empiricism, already takes into account *all* the *prima facie* evidence recognized by empiricism. Adjoining (11) to N is a gratuitous complication based on no *prima facie* evidence. According to empiricist standards, adjoining (11) would be nothing but a blind, irrational leap.[40]

The same conclusion holds for every bridge principle that, like (11), *uses*, not just mentions, one of the standard idioms we have been discussing (i.e., a standard idiom for dealing with definition, definitional truth, analyticity, meaning, translation, synonymy, abbreviation, property identity, property reduction, reason, purpose, function, etc.). Because each of these standard idioms exceeds the resources of the simplest regimented formulation of the natural sciences, adjoining one of these bridge principles would be a wholly unjustified leap according to empiricist standards. However, according to the 'best-case scenario' for saving empiricism from epistemic self-defeat, at least one of these bridge principles must be adjoined. So even on the 'best-case scenario' epistemic self-defeat is inevitable. The conclusion, therefore, is that empiricism is *essentially* self-defeating.[41]

Principle (i)—the principle of empiricism—is evidently to blame for this epistemic self-defeat. After all, principle (ii)—the principle of holism—is very plausible. Something like it is surely embedded in our standard justificatory procedure. Although there might be reasonable alternatives to principle (ii), none of them is sufficiently different to enable empiricists to escape the self-defeat. Principle (iii)—the principle of naturalism—has good empirical support (in the form of the ongoing success of the natural sciences).[42] Furthermore, it is supported by arguments based on considerations of ontological economy. So there is good provisional reason for accepting the principle of naturalism. Moreover, even if the principle of naturalism should happen to be mistaken, it is rather

likely that we could still mount an epistemic self-defeat argument against empiricism. The reason is this. Suppose that, to explain our experiences and/or observations, we are led provisionally to accept various empirical theories above and beyond those belonging to the natural sciences. The principle of holism then obliges us to find the simplest regimented formulation of these theories. However, when we apply all the clever Quinean regimentation techniques to these theories, it is plausible that, just as in the case of the natural sciences, terms of epistemic appraisal (*'prima facie* evidence', 'justified', 'simplest', 'theory', 'explanation', etc.) would prove inessential and would therefore not occur in the resulting regimented theories. Furthermore, it is plausible that the apparatus for indicating definitional relationships (meaning, property identity, etc.) would likewise prove inessential and so would not occur in the resulting theories. These two claims become even more plausible when one appreciates the full power of Quinean regimentation techniques and when one realizes that, for empiricists, those techniques need not be constrained by intuition in any way. Given this, it is quite plausible that our epistemic self-defeat argument against empiricism would go through just as before even if some of our empirical theories were non-naturalistic. The conclusion, then, is that principle (i)—the principle of empiricism—is mistaken.

V

Moderate Rationalism. The failure of empiricism raises the question of whether epistemic self-defeat is not a general problem for any theory of evidence. Is there an alternative to the principle of empiricism that escapes this problem? Yes there is:

The principle of moderate rationalism.

> (i′) A person's experiences and intuitions comprise the person's *prima facie* evidence.[43]

True enough, principles (i′), (ii), and (iii) do not belong to the natural sciences on their simplest regimented formulation. But this fact does not lead to epistemic self-defeat. The reason is that, given principles (i′) and (ii), it follows that a theory is justified for a person if and only if it is, or belongs to, the simplest overall theory that explains all, or most of, the person's experiences and intuitions. The

natural sciences do not constitute this theory. For, even though (by principle (iii)) the natural sciences explain all, or most, of a person's experiences, they do not even begin to explain all, or most, of a person's intuitions (for example, a person's intuitions about higher mathematics, metaphysical necessity and possibility, definitional relationships, etc.) So the remainder of the epistemic self-defeat argument does not go through.

Do principles (i′) and (ii) lead to a comprehensive theory that is epistemically self-approving, that is, a theory that includes these principles and deems itself to be justified? Yes. Consider the following plausible principle:

(iv) The traditional theoretical disciplines—including philosophy, logic, mathematics, and the empirical sciences—provide the simplest explanation of a person's intuitions and experiences.

Philosophy, logic, and mathematics explain (or at least have the potential to explain) most of a person's intuitions. For example, logic—in particular, intensional logic—provides an apparatus for stating definitions, and it includes general laws governing definitional relationships—for example, $(A \text{ iff}_{def} B) \rightarrow (A \text{ iff } B)$. And philosophy—in particular, epistemology—provides (or has the potential for providing) theories of evidence, justification, simplicity, theoretical explanation, theoretical definition, and so forth. These philosophical theories would yield as consequences—and in that sense would explain—most of our intuitions about evidence, justification, simplicity, theoretical explanation, theoretical definition, and so forth. Principles (i′) and (ii)—or something like them—would be among these philosophical theories. Indeed, principle (ii)—or something like it—might even be identified as a definitional truth. Principle (iv) is also a philosophical theory. However, unlike principles (i′) and (ii), principle (iv) does not respond just to intuitions; it has a significant empirical content concerning the actual theoretical activities of scientists, mathematicians, logicians, and philosophers. Accordingly, it is best viewed as an example of applied epistemology—the result of applying pure epistemology to our actual theoretical activities as documented by relevant empirical theories. Now because principles (i′), (ii), and (iv)—or something like them—may be expected to belong to philosophy, they will

count as justified according to the epistemic standards that they affirm. For this reason, these principles may be expected to be epistemically self-approving.[44]

Summing up, we have found that empiricism is incoherent three times over—once in relation to starting points, once in relation to epistemic norms, and once in relation to terms of epistemic appraisal. By contrast, moderate rationalism, which is already embedded in our standard justificatory practices, is in the clear on all three counts.

To its credit, empiricism has often served as an antidote to intellectual radicalism. On final analysis, however, empiricism is a member of that same colourful company. Like Thales, Parmenides, Berkeley, and the others, the adherent succumbs to the lure of a simplistic monolithic answer even in the face of the obvious.[45]

NOTES

1. More precisely, a person's *prima facie* evidence includes a given item if and only if that item is (a report of) the contents of one of the person's experiences and/or observations. Traditionally, experience includes not only sensation, but reflection (or introspection): feeling pain, experiencing emotions, and so forth. Certain philosophers (e.g., Brentano, Russell) would also include introspection of current conscious intentional states. Our discussion will apply to liberal versions of empiricism that include this kind of introspection as a kind of experience. However, we do not intend our discussion to apply to versions of empiricism that posit forms of experience above and beyond sensation and reflection (e.g., religious experience). A narrow version of empiricism would include only a person's sensations as *prima facie* evidence. Another narrow version includes only a person's observations (i.e., perceptions of the 'external world') as *prima facie* evidence; for example, Bas van Fraassen and, at times, Quine appear to accept this version. As formulated in the text, empiricism does not admit memory or testimony as sources of *prima facie* evidence; however, much of our discussion would apply to a formulation of empiricism that did admit them.

Numerous philosophers have been attracted to one or another such formulation of empiricism, for example: John Stuart Mill, William James, W. V. O. Quine, Wilfrid Sellars, Nelson Goodman, Hilary Putnam, Bas van Fraassen, Hartry Field, Paul and Patricia Churchland, and others. It is not clear whether David Hume and various twentieth-century logical positivists should be classed with these philosophers; the reason is that Hume and these positivists seem to accord a special epistemic status to 'relations of ideas' and 'analytic truths'.

2. There are passages in Quine's writings that seem at odds with this principle, for example, passages in which Quine appeals to intuition to help to justify his set theories NF and ML and passages in which Quine appeals to intuitions to defend various logico-linguistic claims (e.g., claims about the logic of mass terms, the intensionality of modal and belief contexts, etc.). However, for the purpose of the present paper, it would be best to sidestep issues of Quinean scholarship. Hereafter, when we speak of Quine's (formulation of) empiricism, we will mean the formulation given in the text. Certainly this formulation is accepted by a number of philosophers who consider themselves to be followers of Quine.

3. I.e., the simplest comprehensive theory that explains why (all or most of) the various items that are *prima facie* evident to the person do in fact hold. The following is a familiar alternative to the principle of holism: a theory is justified (acceptable, etc.) if and only if it is, or belongs to, the simplest theory that answers all, or most, *why-questions*. However, this principle is too strong, for there are why-questions that carry false presuppositions (e.g., why is the number of elves declining?). Because such questions are illegitimate, there is no demand for justified theories to answer them. The following revised principle corrects this error: a theory is justified if and only if it is, or belongs to, the simplest theory that answers all, or most, *legitimate* why-questions. But how are we to decide whether a why-question is legitimate? This is itself often a theoretical matter. So no progress seems to have been made. An alternate principle is this: a theory is justified if and only if it is the simplest theory that explains all, or most, of the *phenomena* (where the term 'phenomena' is intended in the broad sense that is pretty much synonymous to 'facts'). But how are we to decide what the genuine phenomena are? As before, this is itself often a theoretical matter; so once again, no progress seems to have been made.

One response to these difficulties is to retreat to those items that have at least a *prima facie* claim to being genuine phenomena. An advocate of this approach would hold that a theory is justified if and only if it is the simplest comprehensive theory that explains all, or most, of the items that have a *prima facie* claim to being genuine phenomena. (Thus, a theory is justified if it is the simplest theory that 'saves the phenomena'.) But what are these items that have *prima facie* claim to being genuine phenomena? A plausible answer is that they are exactly the items that are *prima facie* evidence. If so, the present principle is equivalent to principle (ii) stated in the text: a theory is justified if and only if it is, or belongs to, the simplest comprehensive explanation of all, or most, of the person's *prima facie* evidence. Quinean empiricists adopt this principle, and they identify a person's *prima facie* evidence with the person's experiences and/or observations.

Coherentism constitutes another response to the above difficulties: a theory is justified iff it is, or belongs to, the best overall theoretical systematization of the entire body of one's beliefs. We mention coherentism only to emphasize that it differs from empiricism. We believe that coherentism is acceptable only if certain strong constraints are imposed on what is to count as the best theoretical systematization of one's beliefs. These constraints imply that certain beliefs—specifically, those associated with intuitions—have a privileged status. The latter claim is pretty much the thesis that we are trying in the present paper to force empiricists to admit.

4. These principles appear to be pretty close to Bas van Fraassen's version of empiricism (*The Scientific Image*, Oxford: Oxford University Press, 1980) except that he would replace 'justified theory' with 'good theory' and 'experience and/or observation' with simply 'observation'; moreover, van Fraassen makes a further claim about what should and should not be believed. Accordingly, van Fraassen seems to believe something like the following:

(i′) A person's observations comprise the person's *prima facie* evidence.

(ii′) (a) A theory is good, relative to a person, if and only if it is, or belongs to, the simplest comprehensive theory that implies all, or most, of a person's *prima facie* evidence.

(b) A person should believe a statement if and only if it is an observation statement implied (predicted or retrodicted) by one of the person's good theories.

(iii′) The familiar empirical sciences (plus the logic and mathematics needed by them) constitute the simplest comprehensive theory that implies all, or most, of a person's observations.

The arguments we will give against Quine's empiricism, as formulated in the text, will show *mutatis mutandis* that (ii′)–(iii′) do not count as a good theory according to (i′)–(iii′). A self-defeat. Now van Fraassen believes his theory that, even if a theory is good, one should not believe it; at most, one should believe a theory's observational consequences. Therefore, according to van Fraassen's own theoretical beliefs (i′)–(iii′), he should not believe (i′)–(iii′). A second self-defeat. Van Fraassen might reply that there is a sharp distinction between philosophical theories and scientific theories, that (i′)–(iii′) are intended to apply only to scientific theories, and that (i′)–(iii′) are themselves philosophical, not scientific, theories. This manoeuvre would avoid the indicated self-defeats. However, if van Fraassen were to make this manoeuvre, he would owe us an account of what makes a philosophical theory

good and worthy of belief. Our view is that any satisfactory account must include the thesis that intuitions have (something like) *prima facie* evidential status. Given this thesis, however, it will be far more difficult for van Fraassen to maintain his theories about science, for on a number of counts those theories are at odds with intuitions about the nature of good science and what we should believe.

5.   A fourth argument—the argument from scepticism—is given in the book on the philosophical limits of science that is mentioned in note 45.

6.   This example is adapted from Alvin Goldman, 'Discrimination and Perceptual Knowledge', *The Journal of Philosophy*, vol. 73, 1976, pp. 771–791.

7.   When we say that an intuition counts as *prima facie* evidence, we of course mean that the *content* of the intuition counts as *prima facie* evidence. When one has an intuition, however, often one is introspectively aware that one is having that intuition. On such an occasion, one would then have a bit of introspective evidence as well, namely, that one is having that intuition. Consider an example. I am presently intuiting that, if P, then not not P; that is, it seems to me that, if P, then not not P. Accordingly, the content of this intuition—that, if P, then not not P—counts as a bit of my *prima facie* evidence; I may use this logical proposition as *prima facie* evidence (as a reason) for various other things. In addition to having the indicated intuition, I am also introspectively aware of having the intuition; that is, I am introspectively aware that it seems to me that, if P, then not not P. Accordingly, the content of this introspection—that it seems to me that, if P, then not not P—also counts as a bit of my *prima facie* evidence; I may use this proposition about my intellectual state as *prima facie* evidence (as a reason) for various other things.

8.   I am indebted to George Myro for this example and for the point it illustrates, namely, that it is possible to have an intuition without having the corresponding belief.

9.   For example, it cannot seem to you sensorily that the naive comprehension axiom holds. Nor can it seem to you intellectually (i.e., without any relevant sensations and without any attendant beliefs) that there exist billions of brain cells; intuition is silent about this essentially empirical question. There are, however, certain special cases in which intellectual seeming and sensory seeming can evidently overlap. For example, it can seem sensorily that shades s_1 and s_2 are different, and it can seem intellectually that s_1 and s_2 are different.

10.   For example, in philosophical discussions of the empirical findings of cognitive psychologists such as Wason, Johnson-Laird, Eleanor Rosch, Richard Nisbett, D. Kahneman, and A. Tversky, many philosophers use 'intuition' in this indiscriminate way. As a result, those discussions have little bearing on the topic under discussion in the text. The fact is that empirical investigators have seldom been concerned with intuitions *per se*, as we intend the term. Empirical investigators have not attempted to test empirically for the occurrence of genuine intuitions; they certainly have not employed anything like the criteria we have been listing in the text. Therefore, their results do not in a straightforward way yield philosophical conclusions about the nature of intuitions.

11.   I thank Elizabeth Lloyd for the suggestion that bootstrapping be explicitly discussed here.

12.   In the next section we will see that empiricism is not even self-approving and that this fact leads to a further kind of incoherence in empiricism.

13.   Recall the example, cited by Russell, of an expanse of phenomenal colour in which locally there seems to be no variation in hue but whose extreme left and right nevertheless seem plainly different in hue. (P. 138, *The Problems of Philosophy*, Oxford: Oxford University Press, 1959. First published in the Home University Library, 1912.) Furthermore, on a certain understanding of what counts as sense experience, one can also have contradictory sense experience when looking at an Escher drawing.

14. Is it *possible* for contradictory concrete-case intuitions to become the norm? This is a highly theoretical question whose answer I think is negative. I certainly do not have concrete-case intuitions that support an affirmative answer. To illustrate, consider some specific set $p_1, ..., p_n$ of concrete-case propositions. Suppose that this set is such that most of its subsets are inconsistent. I certainly do not have an intuition that it is possible for p_1, ... , p_n to be (or to be representative of) the totality of propositions that some person could really find intuitive. In any case, this question is not relevant to the question in the text. The question we are examining there is whether intuition should *now* be thrown out as a source of *prima facie* evidence because of *actual* widespread inconsistencies. The answer to that question is negative.

15. Andrew Jeffrey has pointed out to me that, if our attribution of mental contents to others is guided by a principle of charity, we shall inevitably find a significant degree of corroboration between our intuitions and those of others.

16. Is it *possible* for there to be widespread divergences (mutual inconsistencies) among various persons' intuitions? The comments in note 14 apply *mutatis mutandis* to this question.

17. Another modal question: is it at least *possible* for one's intuitions to collide frequently with one's experience and observation? Again, the comments in note 14 apply *mutatis mutandis*.

18. In the case of intuition, no one yet knows how far the elimination of apparent conflict goes. At this point we cannot rule out *with certainty* that it does not go all the way. For example, perhaps the apparently inconsistent intuitions that lead to Russell's paradox or to the liar paradox can be resolved by redescription in terms of subtle distinctions that have yet to be isolated by logical theory.

It is often claimed that there are widespread conflicts among moral intuitions and among aesthetic intuitions. Two comments are in order. First, people making this claim usually make no effort to distinguish between genuine intuitions and other cognitive states. It is far from clear that there is widespread conflict among genuine intuitions about moral and aesthetic matters. For example, I have a vivid intuition that, if I should never lie, then it is not the case that I should sometimes lie. It is less clear that we truly have intuitions about categorical evaluative propositions. (Recall that we are only discussing *a priori* intuitions.) But the supposed conflict is almost always traceable to 'evaluative intuitions' that are categorical. So it is not clear that there really are widespread conflicts among genuine intuitions about evaluative matters. Second, suppose, however, that there really are such conflicts. This would not call into question the evidential status of intuitions generally, for there is not widespread conflict among non-evaluative intuitions. At most 'evaluative intuitions' would lose their evidential status. Naturally, it would be best if we could explain how these conflicts arise. The special role that emotions and desires play in evaluation would be central to such an explanation.

19. These examples are still matters of controversy. It is hoped that the book mentioned in note 45 will help to shed some light on the controversy surrounding these examples.

20. Is it *possible* that one's conceptual, logical, and numerical intuitions could suffer widespread conflict with one's empirical theories? The comments in note 14 apply *mutatis mutandis* to this question.

21. Is it possible for this situation to change? Again, see note 14.

22. For simplicity, assume that empiricists have already eliminated intuition as a source of *prima facie* evidence.

23. There is an intuitive explanation of why intiutions should qualify as basic *prima facie* evidence: having largely reliable intuitions concerning the application of a concept is a

logically necessary condition for having the concept in the first place; and the deliverances of a given cognitive faculty (e.g., intuition) qualify as basic *prima facie* evidence iff it is necessary that the deliverances of that faculty are largely reliable. This theory is developed in detail in the book mentioned in note 45.

24. Specifically, they would need to invoke theories about the justificatory status of theories that would result when one follows the empiricist procedure. In the next section we will see that, by following the empiricist procedure, one does *not* arrive at the requisite sort of theory about justification.

25. The following preposterous theory—let it be called 'Jack'—gives rise to the extreme case of this kind of question-begging:
    Jack is the one and only theory anyone is justified in accepting.
Suppose that out of the blue someone boldly asserts Jack. Because this would be an arbitrary departure from our epistemic norms, there would be *prima facie* reason to doubt that the assertion is justified. Our person certainly would not succeed in overcoming this reasonable doubt by invoking the theory that Jack guides one to accept (i.e., Jack itself).

26. *Pacific Philosophical Quarterly*, vol. 62, 1981, pp. 107–117.

27. According to principle (i), a person's observations and/or experiences comprise the person's *prima facie* evidence. Quineans assume that a person's observations and experiences can all be reported in extensional language. This is relatively uncontroversial in the case of observation and *sense experience*. According to the most popular versions of empiricism, only observation and/or sense experience are recognized as sources of *prima facie* evidence; this is the position that Quineans accept. However, certain traditional empiricists hold that *introspection (reflection)* is a kind of experience and, accordingly, that one can experience one's own conscious intentional states. For example, Brentano, Russell, and perhaps Locke accepted this position. Such 'reflective empiricists' would then hold that one's experiences of one's conscious intentional states qualify as *prima facie* evidence. Since the standard idiom for reporting such states is intensional (e.g., 'I am thinking that Cicero ≠ Tully'), perhaps, unlike Quinean empiricists, these reflective empiricists would not be led to reject intensionality. For this reason, one might conclude that the argument that we are about to give in the text will not work against reflective empiricists. (Of course, the other two arguments we have given would work against them.) However, this conclusion would be a mistake. The reason is that simplicity demands that reflective empiricists try to avoid the indicated intensionality. The most promising way for them to do this would be to try to abandon the standard intensional idiom for reporting conscious intentional states and, instead, to use some new extensional idiom. For example, instead of using the intensional sentence 'I am thinking that Cicero ≠ Tully', our reflective empiricists might (following Quine) use an extensional sentence such as the atomic monadic sentence 'I am-thinking-Cicero-≠-Tully' or the metalinguistic sentence 'I am thinking "Cicero ≠ Tully"'. There are, I believe, sound *intuitive* arguments to show that these new extensional idioms do not successfully report conscious intentional states unless they make at least implicit commitment to intensionality. However, empiricists do not honour arguments like these which rely on intuitions as evidence, so they would feel free to disregard them and to use the indicated extensional idioms. Accordingly, our reflective empiricists would be led to accept the full Quinean position embodied in principles (i)–(iii) and, in turn, the Quinean rejection of intensionality. Consequently, despite initial doubts to the contrary, reflective empiricists do not escape the argument we are about to give in the text. The moral will be that 'data of reason' are needed to appreciate the ontological significance of one's 'data of experience'.

28. In 'Aspects of Acceptability' (*ibid.*) George Myro concludes from this fact that Quine's philosophy is epistemically self-defeating. Our argument differs from Myro's in three respects. First, we consider the prospect that empiricists might try to avoid this self-defeat by introducing the standard terms of epistemic appraisal by means of definition, translation, synonymy, abbreviation, property identity, property reduction, etc. Second, we consider the

prospect that empiricists might try to avoid self-defeat by relying on scientifically acceptable 'counterparts' of the standard terms of epistemic appraisal. Third, we summarize Quine's empiricism in a more fine-grained fashion, isolating three distinct principles (i)–(iii). Because the latter two principles are so plausible, this permits us to identify principle (i)—the principle of empiricism—as the source of epistemic self-defeat in Quine's empiricism. This makes it possible to reach a positive conclusion, namely, that some form of moderate rationalism is inevitable. The main aim of Myro's paper is metaphysical, rather than epistemological: he was primarily interested in legitimizing intensionality and intentionality. I do not know whether he was aware of this epistemological implication.

29. Quine tells us, 'There does, however, remain still an extreme sort of definition which does not hark back to prior synonymies at all: namely, the explicitly conventional introduction of novel notations for purposes of sheer abbreviation. Here the definiendum becomes synonymous with the definiens simply because it has been created expressly for the purpose of being synonymous with the definiens. Here we have a really transparent case of synonymy created by definition; would that all species of synonymy were as intelligible.' (P. 26 f., 'Two Dogmas of Empiricism', *From a Logical Point of View*, New York: Harper and Row, 1953.) Quine is mistaken. In view of the critique of intensionality sketched above, he cannot consistently maintain this sanguine attitude toward stipulative definitions and abbreviation. But even if he could, that would not help to avoid the problem in the text. To avoid that problem, Quine needs an apparatus for giving definitions of terms that are *already* in use ('evidence', 'justify', etc.). Stipulative definitions do not fulfil this function.

30. Someone might object that we are requiring too much, for any comprehensive theory that deems itself to be justified runs into a paradox akin to the Montague-Kaplan paradox. (See David Kaplan and Richard Montague, 'A Paradox Regained', *Notre Dame Journal of Formal Logic*, vol. 1, 1960, pp. 79–90; Richard Montague, 'Syntactical Treatments of Modality, with Corollaries on Reflexion Principles and Finite Axiomatizability', *Acta Philosophica Fennica*, vol. 16, 1963, pp. 153–167; Richmond Thomason, 'A Note on Syntactical Treatments of Modality', *Synthese*, vol. 44, 1980, pp. 391–395; Rob Koons, *Analogues of the Liar Paradox in Epistemic Logic*, Ph.D. Dissertation, U.C.L.A., 1987.) However, the inevitability of a genuine self-justification paradox can be reasonably disputed. See, for example, the work of Nicholas Asher and Hans Kamp for suggestive ideas on how this sort of paradox might be avoided in a suitable type-free setting ('Self-reference, Attitudes and Paradox', *Properties, Types, and Meaning, Volume I: Foundational Issues*, eds. G. Chierchia, B. Partee, and R. Turner, 1989, Dordrecht: Kluwer, pp. 85–158). But even if it is accepted that such a paradox is inevitable, empiricism is still caught in a fatal epistemic self-defeat that does not arise for an epistemology that accepts intuitions as *prima facie* evidence. (See the final section in the text.) At worst, advocates of the latter type of epistemology would need to introduce some form of hierarchy of terms of epistemic appraisal like that found in a ramified type theory; for example, an infinite hierarchy of primitive predicate ⌜justified$_\alpha$⌝ one for each ordinal a. The problem for empiricists is that no terms of epistemic appraisal (e.g., ⌜justified$_1$⌝, ⌜justified$_2$⌝, etc.) belong to the simplest regimented formulation of the of the natural sciences. Therefore, *no* version of principles (i)–(iii), including the contemplated typically ambiguous versions, would be justified, or justified$_\alpha$, according to the contemplated versions of (i)–(iii).

31. Perhaps the notion of synonymy can be defined along Gricean lines in terms of intention, belief, and recognition. One would begin by defining the notion of non-natural meaning: a speaker s means$_{nn}$ p by uttering u iff$_{def}$ s intends the hearers to believe p, and s intends the hearers' reason for this belief to be a mutual recognition of s's intentions. For the purposes at hand, one may identify a language with a mapping from expressions to intensions (i.e., from expressions to meaning entities). Using the notion of meaning$_{nn}$, one may then define what it is for a language to be spoken by a community of speakers: L is spoken by a community of speakers iff$_{def}$ there is a convention among the members of the community to utter an expression of L only if by uttering the expression they mean the intension that L assigns to the expression. Finally, synonymy may be defined: A is synonymous to B for a

community of speakers iff$_{def}$ the community speaks a language that assigns the same intension to both A and B.

Let us suppose that, give or take some details, the Gricean approach yields a satisfactory definition of synonymy. However, the approach is of little use to empiricists. First, it is committed on its face to an ontology of intensions and to an intensional logic, and those who would attempt to eliminate this intensionality do so at the cost of falling into a version of the dilemma we are about to discuss in the text. Second, to use the Gricean approach in an actual statement of a definition of synonymy or in an actual statement of what 'synonymous' is synonymous to, one still must make positive *use*, not just mention, of 'iff$_{def}$' or 'synonymous'. However, these expressions do not belong to the primitive vocabulary of the simplest regimented formulation of the natural sciences. So by empiricist principles (i)–(iii), these positive statements of definition or synonymy would not be justified. (See the ensuing discussion in the text for more on this point.) Third, it is doubtful in any case that any notion of synonymy that might be got at by the Gricean approach can do the work done by our full-fledged notion of definition or definitional equivalence; specifically, it is doubtful that, if A serves to define B in the language of a community, A and B would always be Gricean synonymous in the language of the community. Let me explain. Suppose that A and B are synonymous sentences that mean p in the language of a community. Then, given the Gricean approach, when speakers utter A and when they utter B, they would be violating the speech convention of their community unless in both cases they intend their hearers to believe p. But now consider some *nontrivial* definition. For example, the following definition which empiricists would advance if they had an apparatus for giving definitions: a theory is justified for a person iff$_{def}$ it is, or belongs to, the simplest comprehensive theory that explains all, or most, of the person's *prima facie* evidence. Do the sentences 'There exists a theory that is justified for a person' and 'There exists a theory that is, or belongs to, the simplest comprehensive theory that explains all, or most, of a person's *prima facie* evidence' count as synonymous according to the Gricean account? No, for an English speaker who utters the sentence 'There exists a theory that is justified for a person' could follow our speech conventions perfectly and yet not intend his hearers to believe that there exists a theory that is, or belongs to, the simplest comprehensive theory that explains all, or most, of a person's *prima facie* evidence. The problem here is, of course, related to the paradox of analysis. Intuitively, a person's intentions are very finely distinguished; a person who is ignorant of a definition can have intentions involving the definiendum and not have associated intentions involving the definiens. The conclusion is this. The Gricean approach might yield a definition of the relation holding between trivially equivalent synonyms, but it does not, as it stands, yield a definition of the relation holding between a definiendum and a definiens. However, the latter relation is what empiricists would need in order to escape epistemic self-defeat. In view of the argument in note 27 this conclusion evidently holds even for 'reflective empiricists'. (Incidentally, one can perhaps define the relation holding between definiendum and definiens, but only if one invokes an auxiliary apparatus from a rich intensional logic that is not included in the simplest regimented formulation of the natural sciences. Ironically, in such a definition the Gricean detour through linguistic meaning and synonymy would be extraneous and could be left out.)

32. Although this view has, to my knowledge, never been explicitly developed in the philosophical literature, it seems inevitable that Paul and Patricia Churchland would be forced to advocate something like it in an attempt to save their naturalistic account of property reduction from epistemic self-defeat. (See Paul Churchland, *Scientific Realism and the Plasticity of Mind*, Cambridge: Cambridge University Press, 1979; Patricia Churchland, *Neurophilosophy*, Cambridge, Mass.: M.I.T. Press, 1986.) In our opinion, therefore, the argument given in the text applies *mutatis mutandis* to the Churchlands' empiricist philosophy. See note 36 for more on this question,

33. Of course, the term 'counterpart' does not belong to N. Nevertheless, we may suppose that the following is a theorem of N: (1)–(3) are theorems of N, and (1)–(3) are syntactically isomorphic to (i)–(iii). For the sake of argument, let us suppose that this is enough to get the empiricists' response started.

34. Given that empiricists actually eschew various systematic positive relationships between their new terms and our standard terms of epistemic appraisal (e.g., P(z,y) iff z is y's *prima facie* evidence; J(x,y) iff x is justified for y; etc.), there is *prima facie* reason to doubt that the new terms are relevant to epistemic appraisal.

35. To show that the meaning of an expression in a new idiom is *relevantly like* the meaning of an expression in the standard idiom, one has a cluster of similar options. First, one can show an actual meaning identity. But statements of meaning identities have the following systematic relation to statements of intensional identities: the meaning of ⌜A⌝ = the meaning of ⌜B⌝ if and only if that A = that B. So intensionality enters in here. Second, one can show that the two expressions are synonymous. But statements of synonymy have the following systematic relationships to statements of meaning identity: ⌜A⌝ and ⌜B⌝ are synonymous if and only if the meaning of ⌜A⌝ = the meaning of ⌜B⌝ if and only if that A = that B. So this is no advance over the previous option. Third, one can show that the two expressions are definitionally related. However, the standard devices for indicating definitional relationships are intensional, for example: 'iff_{def}', '=_{def}', 'It is definitionally true that', and so forth. So this option does not lead to the elimination of intensionality. Fourth, one can show that one expression is an abbreviation of the other. But such statements about abbreviation have the following systematic relationship to definitional statements: ⌜A⌝ is an abbreviation for ⌜B⌝ only if A iff_{def} B. So this is no advance over the previous option. Fifth, one can show that the (Gricean) intentions that a speaker would have for uttering the two expressions are the same. However, the standard idiom for reporting speaker's intentions is intensional. Sixth, one can show that the purpose or function served by (the meanings of) the two expressions is the same. However, our standard idiom for discussing purpose and function is also intensional. For example, ⌜The purpose of F-ing is to G⌝, ⌜The function of F-ing is to G⌝, etc. contain gerundive and infinitive phrases, which like 'that'-clauses, generate intensional contexts. Seventh, one can show that the two meanings are inherently similar. (The expressions ⌜A⌝ and ⌜B⌝ are, of course, not inherently similar.) But the meaning of ⌜A⌝ and the meaning of ⌜B⌝ are inherently similar iff that A and that B are inherently similar. So the intensionality remains. Moreover, to show that two items are inherently similar, one must show that they share fundamental qualities and relations. But a general theory of fundamental qualities and relations is already a property theory; indeed, such a theory is, on its own, sufficient for the construction of intensional logic. (See chapter 8 of my *Quality and Concept*, Oxford: Oxford University Press, 1982, for an elaboration of this argument. See also David Lewis, 'New Work for a Theory of Universals', *Australasian Journal of Philosophy*, vol. 61, 1983, pp. 343–77.) On all these options, therefore, intensionality—or a framework that implies it—plays a central role. Of course, our empiricists could attempt to replace one or more of these standard intensional idioms with an extensional idiom. However, given that our empiricists would have to eschew systematic positive relationships between the extensional idiom and the standard intensional idioms, there would be a *prima facie* reason for doubting that the extensional idiom is truly relevant to meaning, synonymy, definition, abbreviation, intentionality, purpose, function, or inherent similarity. To overcome this reasonable doubt, our empiricists would need to show that the extensional idiom, as they are using it, has a meaning, reason, purpose, or function (or something relevantly like meaning, reason, purpose, or function) that is relevantly like that of our standard idioms. This is precisely the sort of challenge empiricists are facing in the text.

36. An important kind of function that two idioms might have in common is their *explanatory role*. The standard idiom for discussing explanatory role is doubly intensional. First, the standard idiom for talking about explanation is intensional; for example, ⌜That A explains why it is the case that B⌝. Second, as we mentioned in the previous note, our standard idiom for discussing function is intensional; for example, ⌜The function of F-ing is to G⌝. Of course, our empiricists might try to use some extensional idiom to talk about explanatory role. However, if this extensional idiom does not bear obvious systematic positive relationships to our standard intensional idioms, there would be *prima facie* reason to doubt that the extensional idiom, as our empiricists are using it, is truly relevant to explanatory role. To overcome this reasonable doubt, our empiricists would need to show that this extensional idiom has a meaning, purpose, function, or explanatory role (or something relevantly like

meaning, reason, purpose, function, or explanatory role) that is relevantly like that of the standard idioms. But this is once again just the sort of challenge empiricists are facing in the text.

The theory of property reduction espoused in Paul and Patricia Churchland (*op.cit.*) is evidently caught in this sort of trap. The idea underlying their theory is that one property reduces to another if the properties have (roughly) the same explanatory role. For the sake of argument, let us suppose that this idea is correct. The problem is that the Churchlands' empiricism commits them to rejecting the standard intensional idiom for sameness of explanatory role. To articulate their theory, they use some new (behaviourally defined) extensional idiom in its place. The problem is that, since the Churchlands must reject the thesis that the new extensional idiom is (even approximately) bi-conditionally related to the standard intensional idiom, there is *prima facie* reason to doubt that their extensional idiom is relevant to sameness of explanatory role. How, without begging the question, can they overcome this reasonable doubt? Only by showing that their new extensional idiom has a meaning, purpose, function, or explanatory role (or something relevantly like meaning, reason, purpose, function, or explanatory role) that is relevantly like that of the standard intensional idiom for talking about sameness of explanatory role. But this is exactly the problem just noted.

37. Our empiricists might instead try to show that the two idioms have a common *reference* (or something relevantly like reference). Two observations are in order. First, the mere fact that two idioms have a common reference does not imply that they are *relevantly* like one another (e.g., the fact that 'electron' and some complex predicate that enumerates all the actual electrons in the universe are co-referential does not make these expressions *relevantly* alike). This is just the old point about intensionality and co-reference: to be relevantly alike, two idioms must be intensionally alike (or something relevantly like intensionally alike). Second, any plausible theory of reference is committed to some form of intensionality. Consider, for example, a direct reference theory. According to such a theory, the expression 'justified' was introduced by a speech act akin to a baptism. In this speech act a special sort of relation, call it R, held among the expression 'justified', the person or persons who introduced the expression, and a certain set S of propositions or sentences (namely, those that are in fact justified). What is this relation R? Well, it might be a relation of causation: S caused the person or persons who introduced the expression 'justified' to introduce it. Or it might be a relation of historical explanation: S was the item that best explains why the person or persons performed the relevant speech act. Or it might be a relation of salience: S was the item that was salient for the person or persons in the context. Or it might be intentional: S was the item of which the person or persons was thinking at the time. However, the standard idioms we use to talk about causation, explanation, salience, and intentionality are intensional (e.g., ⌜It is causally necessary that, if A, then B⌝, ⌜That A explains why it is the case that B⌝, etc.). As before, there are also standard extensional ways of talking about causation, explanation, salience, and intentionality. However, these extensional idioms bear systematic positive relations to the standard intensional idioms. If our empiricists assert these systematic positive relationships, they are caught in self-defeat. If they deny them, that creates a *prima facie* reason for doubting that their extensional idiom, as they are using it, is relevant to causation, explanation, salience, or intentionality. How can our empiricists overcome this reasonable doubt? They must show that their extensional idiom, as they are using it, has a meaning, reason, purpose, function, or reference (or something relevantly like meaning, reason, purpose, function, or reference) that is relevantly like that of the standard idiom. But this is, once again, precisely the sort of challenge facing empiricists in the text.

38. Indeed, given that empiricists do not accept that D serves to define definition—i.e., given that empiricists do not accept that (A iff$_{def}$ B) iff$_{def}$ D(⌜A⌝,⌜B⌝)—there is *prima facie* reason to doubt that the empiricists' new term D is relevant to definition.

39. These derivations require the auxiliary premise that everyone has a body of experiences.

40. To dramatize the point, we could produce, by using standard Gödelian techniques of self-reference, infinitely many alternatives to (11) having the form: (A iff$_{def}$ B) iff$_{def}$

$Q(\ulcorner A\urcorner, \ulcorner B\urcorner)$. Like (11), each of these alternatives would yield a self-justifying theory when it is adjoined to N. However, each of these alternatives is inconsistent with (11) in the sense that, when any of them is adjoined to N^+, the resulting theory is inconsistent. Indeed, for absolutely *any* sentence A, no matter how crazy, we can construct an alternative to (11) such that, when it is adjoined to N, the resulting theory yields the following as a theorem: A is justified. Using empiricist standards, one has no way to justify choosing (11) over these alternatives (and conversely); the choice among them would be utterly arbitrary. So clearly none of these definitions of definition—including (11)—can be justified by empiricist standards.

Incidentally, suppose that an empiricist just arbitrarily adjoins to N some primitive apparatus (e.g., 'iff$_{def}$') for giving definitions and that, with the aid of this apparatus, candidate definitions of justification, simplicity, explanation, *prima facie* evidence, etc. are advanced. Our criticism in the text is that from the standpoint of empiricism these moves would be gratuitous complications; accordingly, they would be deemed unjustified by principles (i)–(iii). But even if this primary criticism were waived, I believe that our empiricists still would not be able to give *satisfactory* definitions of justification, simplicity, explanation, etc. The reasons for this are discussed in section 47 of *Quality and Concept*, *op.cit.*, and in section 1 of my paper 'The Logical Status of Mind', *Midwest Studies in Philosophy*, vol. 10, 1986, pp. 231–274.

41. Another response to this epistemic self-defeat is to try to modify the principle of holism in such a way that empiricism is no longer epistemically self-defeating. Consider two ways in which this might be done. The first, which was discussed by George Myro (*op.cit.*), is this: a theory is justified for a person iff it is, or belongs to, the simplest overall theory that explains all, or most, of the person's *prima facie* evidence and that deems itself to be justified. Ironically, this revised principle does not save empiricism, for the simplest theories like this are ones constructed by means of logicians' tricks. Such theories do not deem the principle of empiricism to be justified. For example, perhaps Bob is such a theory, where Bob is the following: N and Bob is justified. Bob does not deem empiricism to be justified.

The following is a second way in which the principle of holism might be revised: a theory is justified for a person iff it is, or belongs to, the simplest comprehensive theory that explains all, or most, of the person's *prima facie* evidence, or it is, or belongs to an extension of that simplest comprehensive theory by means of the person's old terminology. A theory T' extends theory T by means of a person's old terminology iff the primitive terms β belonging to the person's previously held theory can be paired with (primitive or complex) terms δ in T in such a way that T' is the result of adjoining all the biconditionals $\ulcorner \beta$ iff $\delta \urcorner$ to T, and T' yields as theorems most of the sentences in the person's previously held theory. (This way of revising the principle of holism came up in conversation with Stephen Leeds. It bears some resemblance to an idea implicit in Paul and Patricia Churchland's views on property reduction.) The problem is that there are clear-cut counterexamples. Here is an illustration. Suppose that a person's previously held theory consists of N plus the following: For all x, x is a physical object iff x is inhabited by an animal spirit. Then, since the old term 'inhabited by an animal spirit' can be paired with the term 'physical object' in N, the previously held theory would itself qualify as an extension of N by means of the person's old terminology. Accordingly, the theory that every physical object is inhabited by an animal spirit would count as justified according to the revised principle. For another counterexample, suppose that the person's previous theory is just like N except that it contains some empirically insignificant, wholly speculative metaphysics. The problem, of course, arises from the fact that the revised principle of holism does not restrict a person's previously held theories to those that were really justified at that time. How can this restriction be imposed without triggering a vicious regress? Evidently, the only plausible way would be to require that, at some earlier stage or other, the person held a theory that satisfied (something like) the original, unrevised principle of holism. But if this requirement is imposed, then nothing resembling the empiricists' principles (i)–(iii) would at any stage get admitted as justified. The result, then, would be that empiricism would still be epistemically self-defeating.

42. This principle is roughly equivalent to the Kantian thesis that occurrences in the phenomenal world are causally explainable only in terms of other occurrences in the phenomenal world.

43. As it stands, principle (i') is plainly too strict. For example, observation and testimony also count as *prima facie* evidence. To correct this problem we should replace '*prima facie* evidence' with 'basic *prima facie* evidence'. This modification would in turn require us either to replace '*prima facie* evidence' with 'basic *prima facie* evidence' in principle (ii) or to keep principle (ii) as it stands but to adjoin a further principle defining the relation between '*prima facie* evidence' and 'basic *prima facie* evidence'. (Given principle (iv), which we are about to state in the text, and some relevant empirical facts about the overall reliability of human observation and testimony, it is plausible that these two alternatives can be shown to be equivalent.) For simplicity of presentation, these complexities will be suppressed in the text.

44. It is understood that the sophistications mentioned at the end of note 30 might need to be incorporated into principles (i'), (ii), (iii), and (iv).

45. This paper is the first step in the argument of a book in progress on the philosophical limits of science. The overall thesis of the book is the autonomy of philosophy. This is the thesis that, among the central questions of philosophy that can be answered at all, most can be answered by philosophical investigation and argument without relying evidentially on the empirical sciences. Earlier versions of the paper were presented at the George Myro Memorial Conference in March 1989, at the Pacific Division Meeting of the American Philosophical Association in March 1990, and at the *Discipuli* Conference at the University of Southern California in March 1991. This material was also presented as a talk at Reed College, University of Notre Dame, and University of Washington. I am grateful for helpful comments I received at these gatherings. I am particularly indebted to George Myro and to Carol Voeller for lengthy discussions of these topics.