VARIETIES OF UNDERSTANDING

Robert Brandom

My topic is the distinction between two sorts of understanding: that which remains *implicit* in practice, and that which becomes *explicit* in principles. Theorists of explanation are concerned with the sophisticated kind of understanding which is explicitly insitituted, codified, and communicated in the form of explanations. Students of animal learning are concerned with the simple kind of understanding which is implicit in the skilled practice of prelinguistic performers whose behavior must be treated as regular rather than rule governed. These two sorts of understanding can be thought of as poles, between which qualitatively distinct varieties of understanding may be discerned. The philosophical tradition displays two complementary approaches to the issue of the relative explanatory priority of these two polar sorts of understanding in the case of human beings, approaches which may be labelled "platonist" and "pragmatist." According to the platonist [small 'p'] approach, human understanding is an essentially principled affair. Behind every practical human capacity which exhibits understanding is to be found a principle governing that practice. Understanding is a matter of grasping such principles, and subsequently of applying or following them. The sculptor's skilled performance evidences his or her grasp of a

plan. The child's mastery of arithmetic exhibits his or her grasp of principles and truths concerning numbers. Continental Rationalism notoriously pursued an explanatory program along these platonist lines.

The pragmatist reverses this order of explanation, insisting on the priority of practice to principle. For the pragmatist it is only the use of a principle, that is the practice of applying it, which gives it content as a principle at all. The formulation or employment of any principle presupposes a whole battery of background capacities and practices. The pragmatist emphasizes the continuity of human understanding with animal understanding, noting the evolutionary virtue of such an approach, by contrast to the platonist's emphasis on the discontinuities marked by animals' incapacity to act according to explicit principles. For the pragmatist, acting according to explicit rules and principles is a high level practical capacity, founded on and presupposing other practical capacities which cannot, on pain of an infinite regress, in every case themselves be taken to depend on explicitly formulated principles. Pragmatism in this sense was urged for somewhat restricted epistemic cases already late in the nineteenth century by Peirce and by Lewis Carroll (in "Achilles and the Tortoise") was given a more general and systematic argument by Dewey and the early Heidegger in the first part of the century, and has become something of a philosophical commonplace in the latter half of this century due to Wittgenstein's later work.

I believe that Wittgenstein's arguments for preferring a generally pragmatist approach to human understanding to its platonist alternatives are compelling, though I'll not rehearse them here. The pragmatist strategy is to try to explain understanding *that* something is the case (e.g., a principle applies or a claim holds) in terms of understanding *how* to do something, and further to understand understanding how in the first instance simply as being able to do something, to perform appropriately according to some practice. Yet to say this is not to offer an account of explicit understanding, but only to describe the form of such an account. To turn it into an account one must at least be prepared to offer a pragmatist story about how to build explicit understanding as codified in principles out of forms of understanding which are merely implicit, manifesting themselves only in appropriate practice and not in such principles. This task Wittgenstein and the other early heroes of the pragmatist approach only began. As the hardest positive task of the platonist is that of explaining how all practice could be consequent upon principles

i.e. how we are to understand the *application* of rules and principles without either generating an infinite regress of principles governing the application of principles or taking some unprincipled applicative practice as primitive, so the hardest positive task of the pragmatist is to explain how the codification of practice in principles is possible if practice is primitive. It is this demand for an account of explicit understanding following pragmatist lines which will be explored here.

I

For the sort of pragmatist considered here, primitive understanding is mastery of the appropriatenesses which collectively constitute a social practice. Making such understanding explicit is codifying those appropriatenesses, displaying them as the content or significance in a special sense of a kind of social practical performance. The pragmatist can then be described as having two major explanatory targets. The first is the sort of explicit or explicitating significance which codifies those practical appropriatenesses as principles or claims. The second is the understanding or grasp of those significances, which both counts as explicit understanding, in virtue of being an understanding of such a significance, and which must itself be exhibited as some sort of practical mastery, for this is the only model of understanding the pragmatist's scruples admit. Explicitating significances thus are required to play a dual role with respect to understanding. They are both to be the explicit expression of appropriatenesses implicit in practice and practical understanding, and to be themselves practically understandable.

The traditional model of semantic significances, taking representation as its leading idea, is not well suited to play this role with regard to understanding. Descartes had emphasized a two stage account of cognitive activity according to which its immediate objects were only representings of its eventual subject-matter outside the medium of representation. Representings here had a dual role as well. They were both to represent non-representings and to be be understandable or otherwise cognitively masterable *as* such representings. The subsequent development of the representational idea has fared much better with regard to the former than to the latter role. Descartes' fateful conception of knowing rather than understanding as the basic cognitive structure expresses the emphasis on adequacy of representation rather than cognitive relation to the representing which was to characterize the subse-

quent tradition. Descartes' brilliant and wrong-headed account of immediate cognition or grasp of representings was a direct consequence of applying the representing/represented model in explaining the understanding of the representing itself. (Following this line led to seeing *identity* of represented and representing as the minimal and most certain form of cognition, as though identity could explain our knowledge or understanding of representings as such.) The semantic development of the representational model of significances by the mature Frege, Russell, the early Wittgenstein, Carnap, and Tarski has not been constrained by the necessity to explain what it is to *understand* the representings it considers. Frege's senses, for instance, officially play the dual role of determining a referent, that is representing an object, and of being what one understands when one understands a significant linguistic expression. His theories all concern the former role, however. His account of cognitive grasp is as hard to find as Descartes' account of what it is that makes my idea of rabbits a rabbit-idea for me. The later Wittgenstein raised the question of understanding and its relation to representational significance in a forceful way, but did not clearly offer an alternative semantic model to the representationalism of his youth.

There is a minority semantic tradition whose model of significance is more congenial to the demands of pragmatists about understanding such as Wittgenstein, however. It takes inference rather than representation as its central concept. Spinoza and Leibniz are the great early modern proponents of this explanatory strategy, which they conceived as a way of filling in foundations for Descartes' dangling concept of representation. Each of these thinkers for his own reasons sought to define what it is about an act which makes it a representing at all, and more specifically a representing of what it is a representing of *for* the representer, entirely in terms of its relations to other representings. Each saw the acquisition of content by an act as a matter of its potential involvement in inference, either as premise or as conclusion. The details of their ingenious and elaborate reductive schemes for explaining representation in terms of inference need not detain us, but interpretations of them are available from a reliable source.[1] The point that matters here is the explanatory strategy they adopted, rather than their particular implementations of that strategy.

Working with the same broad metatheoretic brush used to

sketch the pragmatism/platonism dichotomy, the philosophical tradition thus can be portrayed as providing two different models for the significances which are proximal objects of explicit understanding, representational and inferential. We may call "representationalism" the semantically reductive view that inference is to be explained away in favor of more primitive representational relations. This is the canonical decomposition of sentential inference to sub-sentential denotation relations by set-theoretic inclusion which is a cardinal accomplishment of the Fregean logical tradition. Given assignments of objects to singular terms and sets of objects to predicates it is straightforward to deduce appropriate truth conditions for sentences and (hence) inferential relations between them. By "inferentialism," on the other hand, one would mean the complementary semantically reductive order of explanation which would define representational features of subsentential expressions in terms of the inferential relations of sentences containing them. As I read him, Frege was an inferentialist in this sense until the mid 1880s. But this direction of explanation has not been pursued with the same interest or success as its complement since Frege's conversion.

There is of course no necessity to adopt either of these reductive explanatory strategies. Accepting the representational model of sub-sentential significance does not oblige one to extend that model to sentential significances, and accepting an inferential model of sentential significances does not oblige one to extend that model to sub-sentential expressions. One may admit both representational facts not reducible to inferential ones and inferential facts not reducible to representational ones. But there is a reason for a pragmatist about understanding to want to see how far explanation can go starting from the inferential model of sentential significances alone. For while representing something is most naturally thought of as a property which an object or ensemble either has or lacks, inferring is an activity, something *done*, subject to appropriatenesses which can be practically mastered and appraised. Spinoza, Leibniz, and the young Frege, the most prominent inferentialists, did not exploit this feature of inference because they were not pragmatists but platonists about understanding. In what follows an inferentialist stance about the immediate objects of explicit understanding will be adopted in pursuit of a pragmatist account of such understanding. I will not try to show here how a contemporary inferentialist might

approach representation, although I think there are some promising lines of attack. (I have promised that I would at most mention and not use the word "anaphora.")

II

One explanatory task the pragmatist is in a better position to perform in virtue of adopting an inferentialist approach to significances is that of accounting for the crucial sort of understanding which distinguishes a report by an observer from a signal by a measuring instrument or natural indicator. Being able to characterize this difference (among others) is important for thinking about what we should be excited to become able to build computers to do, teach chimpanzees to do, or discover extra-terrestrials capable of doing. It is possible to think of instruments and even natural phenomena as displaying a primitive sort of cognitive activity insofar as we are able to derive information from them. For a fundamental form of cognition is *classification*. And any physical object classifies its environment, or more strictly the stimuli impinging on it, insofar as it responds differentially to those stimuli. Any repeatable response induces a corresponding respect of similarity among stimuli. In an oxygenated environment, a chunk of iron rusts in the presence of water, and not in the presence of oil. By responding either way, the iron classifies its environment. Artificial instruments differ only in having been constructed so that the partition of stimuli into equivalence classes according to the distinguishable responses they are disposed to produce corresponds to some distinction of practical or theoretical interest to the user, who thereby attaches some significance to those responses. The difference between a tape-triggering thermometer or a parrot trained to utter "It's getting warmer" when exposed to suitable changes of temperature and the human observer who reports the same condition does not lie in the differential responsive dispositions being expressed nor in the environmental classification induced thereby. It lies rather in the *understanding* of the classificatory significance attributed to those responses which is exhibited by the one whose responses they are.

The responsive performances of both the instrument and the observer have a significance for others, who attribute that significance, or take the performance as conveying some information by, in turn responding to those responses, by drawing conclusions, making decisions, and so on. But the observer does and the

instrument does not grasp or attribute such a significance to its own response. It is in virtue of the explicitness *to* the one who produced them *of* the significance of those responses that the observer's performances count not only as doing something but as saying something. Explicitation of the first kind to be discussed consists in this coming to be able to express in *saying* the practical capacity which otherwise remained an implicit feature of one's *doings*. The pragmatist about understanding who is an inferentialist about the significances understood will explain the requisite understanding as consisting in practical mastery of the inferential role of the response. The responsive performance which is a reporting has a significance or content for the reporter, who distinguishes between what follows from that content and what does not, and between what it follows from and what not.[2] On such an account, the property of schemes classifying stimuli according to differential responsive dispositions which distinguishes reporters from voltmeters, clams, and andirons is the inferential articulation of the classificatory scheme as manifested in further practical dispositions of the performer.

In a moment we will look more closely at the practices a performance-type must be caught up in if it is to have an inferentially articulated significance which can be explicit to the performer. First it is worth drawing attention to one immediate consequence of adopting the criteria of demarcation recommended by the inferentialist approach to significances in order to distinguish broadly cognitive activities from other sorts of doings.[3] If what makes reports cognitively significant in a way in which the performances resulting from the corresponding differential responsive dispositions of mere objects and instruments are not is that they are produced *as* fodder for inferences, then there can be no language consisting entirely of such reports. There must be some claims which are made as the conclusions of inferences taking reports as their premises rather than as responses to non-cognitive stimuli. Not all moves can be language entries. This is not to say that every structure of significance must discuss unobservables. A claim belongs to the purely theoretical part of a language (and therefore is said to deal with unobservables) if the *only* appropriate way to become committed to that claim is as the conclusion of an inference. The current demand is a weaker one, namely that not all claimings can be non-inferential reportings. But that is entirely consistent with each of the claim contents being a possible subject of non-inferential reporting. It is just that not every undertaking of commitment to that content can be

non-inferential. That in this way non-inferential reportings cannot constitute an autonomous fragment of a language, which might be understood though no other fragments were, is a central and familiar Sellarsian doctrine. For it follows that the priority of observation reports in the order of *justification* of empirical claims is not matched by a similar priority in the order of understanding. It is for this reason that there can be no independently meaningful purely observational language with respect to which we can ask whether the decision to append an inferential superstructure is a rational or justifiable one. The rock on which foundationalism founders is its incapacity to explain what it is to *understand* the significances of elements of the justificatory basis. This point is exploited to maximum advantage in the analysis in "Empiricism and the Philosophy of Mind" of the systematic damage wrought in Cartesian philosophies of mind by ignoring this requirement for the special case of non-inferential noticings of mental occurrences.[4] It is to such painstaking and persuasive diagnoses that the inferentialist who claims that the significance of claims consists to begin with in relations between claims must look in criticizing the dominant representationalist tradition which founds such significance in atomistic word-world relations.

But I come to pursue the inferentialist order of explanation, not to bury its converse and rival strategy. To say that what is implicit in the differential responsive dispositions of an instrument can become explicit as the content of a claim by an observer presupposes that within non-inferential reportings we can distinguish an act and a content. The repeatable content is what is made explicit. An inferentialist semantics attributes content to an act based on the possible appropriate involvements of that act as premise or as conclusion in inferential practices, and understands the resulting content as a node in an inferential network of such contents. To understand these contents we must understand the inferential practices which give rise to them, mastery of which constitutes grasp of what is explicit in and as such contents. On this approach, semantics, the study of the contents, derives from pragmatics, the study of the acts. What, then, makes a practice an *inferential* practice?

To begin with, the concept of inferring is coordinate with that of claiming (or asserting). As one's act does not have the significance or content of a claim unless it is in principle available as a premise for inference, so the premises and conclusions of inference must themselves be claims. I have tried elsewhere to offer a detailed account of these assertional and inferential practices

which can only be sketched here.[5] The leading idea is that to treat something as a claim is to treat it as a placeholder in a general game of giving and asking for reasons. As I develop this idea, asserting is both the undertaking of a certain kind of commitment and the issuing of a certain kind of license. On the side of responsibility, one commits oneself to justify, that is offer reasons for, one's claim should it be appropriately challenged. To offer such reasons is always to make further claims. On the side of authority, one licenses others to re-assert the content of one's claim, and hence to employ it as a premise in their own deliberations and justifications. That such re-assertion has been authorized consists in the availability to the re-assertor of a new way of responding to a justificatory challenge to that claim. For the original assertor's license consists in his authorizing re-assertors of that content to defer to the issuer of the license the justificatory responsibility for that content which they would otherwise have assumed in virtue of making a claim with that content. The dimension of authority thus presupposes that of responsibility. The basic mode of discharging the conditional task-responsibility to justify one's claim is to make further claims which are appropriately inferentially related to the *content* of one's claim. But assertional commitments can communicate, convey information, insofar as others can rely on them. That is, insofar as others can discharge their justificatory responsibility for that content by invoking the *act* of undertaking commitment to that content by another. It is this combination of content-based responsibility and act-based authority which is characteristic of asserting as a doing.

The effect of failing to discharge one's justificatory responsibility when challenged concerning a commitment is to rob the assertion of its authority, to void the inference license such a commitment otherwise issues. Each player in this game of giving and asking for reasons keeps score by attributing to himself and the others commitments and entitlements to various claim-contents. The content which any scorekeeper understands a given claim to have is a matter of its role in changing such attributed scores. Thus two contents stand in a committive-inferential relation if attributing commitment to one is sufficient to attribute commitment to the other. They stand in a permissive-inferential relation if commitment to one can be invoked as sufficient justification of commitment to the other. To understand one content as incompatible with another is to take the license to re-assert while deferring justificatory responsibility, which would otherwise be associated with commitment to each content, to be void in the case of any

interlocutor committed to both contents. It is not impossible to acquire incompatible commitments, either by explicit undertaking by claiming or by being committed to the inferential consequences of one's claims.[6] Nor does the subject of incompatible commitments lose all assertional authority thereby. But no-one who attributes such commitments to an individual will recognize justificatory deferrals to that individual for any of the incompatible contents. For simplicity, the only contents which will be considered in what follows are those that assertional performances acquire in virtue of the assertional commitments they are incompatible with, and the variety of commitment-inference such incompatibilities determine.

Such contents show how various of the demands of the pragmatist about understanding might be satisfied. First, the grasp of these contents in which consists the possibility of their being explicit to the one whose acts have those contents has been described as mastery of the appropriatenesses of a social practice, in this case the undertaking and attributing of assertional and inferential commitment-licenses. Second, such understanding is understanding *of* a claim, that is of a *principle* in the minimal sense of a claim-commitment which conditionally requires certain further performances, licenses others, and forbids others. Third, in the case of claims which can be used to make non-inferential observation reports, the content understood codifies explicitly (as the content of that claim) the merely discriminative classificatory significances implicit in the corresponding non-assertional differential responses. For information is expressed in the differential responsive behavior of a measuring instrument in a "language" (to stretch that word beyond its proper inferential-assertional application) defined by the inclusion and exclusion relations between its response kinds. It is precisely such significances which are articulated inferentially by the incompatibilities of commitment-licenses determining claim contents of the simplified sort to be discussed here. The distinctions implicit in responsive practice are explicitly codified as the contents of claims, and the understanding of such explicit contents consists in mastery of a different sort of practice, inferential assertional practice.

III

Two sorts of understanding have now been described. Understanding which remains implicit in the practical mastery of

responsive and discriminative appropriatenesses is, according to the pragmatist, fundamental. It makes possible a more sophisticated form of understanding in which what is understood becomes explicit as the content of a claim. That an act can have an explicitating content is due to its significance for inferential practice. It is by being inferentially articulated that differential responsive dispositions can become explicit as claim contents. The sort of explicit understanding so far described is accordingly limited in one important respect. It is inferential practice which explicitates responsive practice. But the explicitat*ing* inferential practice is not itself explicitat*ed*. The inferential potential which is the explicitating content remains merely implicit in the claim. The inferential and incompatibility relations in virtue of which non-inferentially produced observation reports acquire explicit content are not at this level themselves formulable as explicit claim contents, but remain implicit in the practical discriminative capacities which permit skilled practitioners to distinguish appropriate inferences from the rest.

The next sort of explicitation to be considered remedies that failure. It permits the codification of the appropriatenesses of inferential practice which give responsive performances explicit contents in the first place as themselves the explicit contents of further claims. By being caught up in practices of assertion and inference, responsive performances exhibit a distinction between the *act* of becoming committed to a certain claims and the *content* of that claim. Features of the act of undertaking commitment, in virtue of which justificatory responsibility and inferential authority are associated with one interlocutor, may be called "pragmatic" features. Features of the content of that commitment, determining the type of license issued and what counts as discharging the justificatory responsibility may be called "semantic" features. The current topic is the codification or explicitation of such semantic or content-generating features as themselves contents of claims understood insofar as their inferential-assertional use has been practically mastered.

Such explicitation is the job of vocabulary made significant by *formal* inferences, that is, the vocabulary of *logic*. The discussion so far has taken place against a background of inferential practice and practical incompatibilities of assertional commitment with respect to which contents of claimings are articulated. These are *material* inferences. It is from such material inferences and incompatibilities, such as being committed to the light's being red if one is committed to its being scarlet, and the incompatibility of each commitment with the claim that it is green, that their essen-

tially occurring expressions derive their significance. Making those explicitating relations themselves explicit requires that further vocabulary be introduced, and that its inferential and incompatibility significances be stipulated formally in terms of the material significances already on board. The idea is to introduce conditionals, for instance, as an explicit way of *saying* that a certain inference is appropriate, where before that appropriateness was merely implicit in practices of undertaking and attributing assertional commitments. Mastery of the formal inferences stipulated to govern such expressions permits the explicitation of the material inferences which, as implicit in practice, in their turn permitted the explicitation of practical differential responsive dispositions. Put another way, at the level of material inference and explicitation responsive performances were given explicit contents as claims by being brought within the game of giving and asking for reasons as premises and conclusions. Commitments to material contents could be discussed, challenged, redeemed, withdrawn. At the level of formal inference and explicitation the arguments or inferences connecting and articulating those premises and conclusions become formulable as explicit claim contents which can themselves be discussed, challenged, redeemed, withdrawn.

One reason it is not usual to think of this semantically expressive or explicitating function of logical vocabulary is an overemphasis on truth functional logic as a paradigm. The familiar horseshoe, the so-called "material" conditional plays an expressive role of this sort, but an exceedingly weak one. It codifies the commitment preserving feature of committive inference. It is a necessary condition of good inferences of this sort that one cannot be committed to their premises without being committed to their conclusions. Frege fathered the two-valued conditional by codifying as a claim-content the inferential practice which results from treating this necessary condition of appropriate committive inference as sufficient as well. For his purposes, the condition that good inference never lead from true premises to a conclusion that is not true could be treated as sufficient for good inferences. As a result, the only semantic contents he could make explicit were the contents given to his logical vocabulary by their involvement in formal inferences. For the inferences articulating material significances require more expressively powerful apparatus.

To see the significance of formal explicitation in claims of semantic features of material inferential practice it will help to consider an example of extending a base language by adding an explicitly expressive conditional. To keep things manageable, the

example is restricted in two ways. First, it deals only with the codification of the *committive* inferences, ignoring permissive (or broadly "inductive") inference. Second, the committive inferential relations codified will be those induced by practices of treating two commitments as incompatible. Recall that to treat two claims as incompatible is to treat commitment to either as withdrawing the inferential and assertional authority or license which otherwise would be associated with commitment to the other. We can express such a practically induced relation of content incompatibility in terms of an incompatibility function which associates with each claim as its incompatibility significance the set of claims practically incompatible with it. Such incompatibility contents induce commitment-inferential relations in a straightforward way. For to say that commitment to p entails commitment to q is to say that any commitment incompatible with q is incompatible with p (for instance, commitment to Fido's being a dog entails commitment to Fido's being a mammal, insofar as everything incompatible with being a mammal is incompatible with being a dog). So each sentence is in this way associated with a commitment-inferential content as well, determining what claims commit one to it and what claims it commits one to.[7]

To introduce new vocabulary as contentful will be to show how to extend the material incompatibility relation to encompass incompatibilities involving the new vocabulary as well. In the case of a conditional, the problem is then to take the idea that p entails q in case everything incompatible with q is incompatible with p, and construct a claim with that as its incompatibility significance. The easiest way is to take a claim r as being incompatible with the conditional $p \rightarrow q$ just in case r is incompatible with q and not with p. Thus the claim "There are black swans" is incompatible with the conditional "If all observed swans are white then all swans are white." Such a definition just transliterates the two-valued horseshoe into the (richer) incompatibility structure. For first, nothing is incompatible with such a conditional unless it is incompatible with its consequent, corresponding to the two-valued principle that a conditional cannot be false unless its consequent is false. Second, nothing is incompatible with a conditional unless it is compatible with its antecedent, corresponding to the two-valued principle that a conditional cannot be false unless its antecedent is true. (I point out these features only to show how little the example strays from the classical model, not because I think they are antecedently desirable in expressively powerful or useful conditionals.)

Similarly, one can define the negation of p as its least incompat-

ible, that is as a claim that is commitment-entailed by everything that is incompatible with p. This is equivalent to saying that q is incompatible with p just in case every sentence is either incompatible with q or not incompatible with p. Whereas before introducing negations with this significance one could only deny or contradict the claim that p by making some other claim incompatible with it, now one can *merely* deny it, asserting in effect that one ought to be committed to *something* incompatible with p, without suggesting what. Accordingly, negation permits the explicit expression of incompatibility, while abstracting from the contents which sentences acquire in virtue of being incompatible with just these and not other sentences. The conditional, on the other hand, expresses just such content-generating relations. Putting together the different expressive capacities of negation and the conditional in a way suggested by classical relationships also permits a natural incompatibility definition of the contents of conjunctive claims.

The role of logical vocabulary presented here is an expressive one, specifically, making explicit the practical appropriatenessess in virtue of which linguistic performances are acts with a (semantic) *content*. It is not the *truths* of logic that matter, but the expressive significance of logical locutions, what they permit us to say. If the only claims incompatible with a specified claim are those which are incompatible with themselves, we may call the claim an "incompatibility tautology." In the Appendix it is shown that a symmetric incompatibility relation will validate the familiar classical tautologies. The tautologies codify only that part of the significance of logically compound sentences which relates to their incompatibilities with other logically compound sentences. But the point of having such vocabulary, I am claiming, lies in its capacity to codify appropriatenesses not of formal inference, but of the material inferences on which the formal are based. Looking at the meaning of logical vocabulary only in terms of formal tautologies obscures the function of logic as the organ and medium of communal semantic self-consciousness, and hence of the special form of explicitating understanding which consists in its practical mastery. Our example is constructed to highlight what the usual approach obscures.

These simple formal constructs illustrate a number of points. First, their introduction takes the form of a (recursive) *extension* of the material incompatibility (and hence committive inferential) relations obtaining between sentences in the antecedent, non-logical base idiom. This feature has two consequences. To begin with, generically the same sort of significance is attached to

the newly introduced vocabulary as to the antecedent vocabulary, codified in the example in an incompatibility relation. Also, the base extended is an autonomous idiom. Its sentences acquire their significances from practices which don't presuppose the extending practices. In this respect the linguistic extension to conditionals and so on is like the introduction of theoretical (or purely inferentially accessible) vocabulary on a base of claims each of which can be used to make non-inferential reports, and *not* like the introduction of inference into a so-called "language" in which all claimings are non-inferential reportings.

Next, the illustrated extension is inferentially *conservative* with respect to the base on which it is defined. That is, although new elements are added to the incompatibility classes associated with each sentence p (for instance, $\sim p$ is added and $\sim p \& r$, . . .), the restrictions of the new extended incompatibility classes to the old vocabulary are just the original incompatibility classes. So no set of premises in the antecedent vocabulary will commit one to any conclusion formulated in the antecedent vocabulary which it didn't already commit one to in virtue of the original incompatibility relation. The definition of the formal vocabulary introduces no material novelty. That material significances are in this way left alone is a necessary condition of treating the formal significances as merely unfolding explicitly what is already contained implicitly in the original claims (the explicitation claim) and in virtue of which those claims have the significances they have (the claim that what becomes explicit is the appropriatenesses of inference in virtue of which material claims have the significances they do). In regard to this definitional conservatism formal extension of a materially significant idiom is *not* like the addition of theoretical vocabulary to a language of observation and inference from observation.

That material incompatibility significances and the committive inferential significances they define can be extended in an inferentially conservative way to encompass claims formed using the conditional and negation is mirrored in features of the practices of assertion and inference governing those compound claims. In view of the direction of explanation being pursued, the point might better be put by saying that given the conservatism of the extension formally just defined, the general account of assertional commitments and their attribution offered earlier describes what it is to give expressions the formal significance defined by the extended incompatibility relation by using them in assertion and inference. For instance, since detachment will be an incom-

patibility tautology, attributing commitment to a conditional and its antecedent requires that one attribute commitment to the consequent as well, and not recognize as valid any assertional licensing incompatible with it. Which conditionals an interlocutor may assert compatibly with his other commitments is settled by the definition in terms of the prior incompatibility properties of their antecedents and consequents.

To keep the example simple, we have ignored permissive inference in favor of committive inference. So for this illustration, to justify a conditional or negation will be to assert something which commits one to it. Thus $\sim p$ can be (conditionally) justified by asserting anything incompatible with p. Conditionals which are asserted, i.e. commitment to which is explicitly undertaken, will be justifiable only by other conditionals, using such principles as transitivity. Each justificatory chain which successfully redeems such a commitment to a conditional must accordingly terminate in conditionals no-one cares to challenge. That in each context there be inferential transitions which are taken for granted is a practical presupposition of the constitution of material significances. The idea is that the contextually uncontroversial conditionals which get the game of justifying off the ground will correspond to contextually uncontroversial inferences. Thus formal vocabulary can be introduced in such a way that what conditionals and negations an individual is committed to and committed to attributing to others is already settled *for us* by their prior commitments and attributions of commitment to formally atomic expressions. So we can say what it is for a community to use expressions so as to give them the significances codified for us by the incompatibility definitions.

IV

The primary interest in seeing how some formal or logical vocabulary could be introduced into a language whose material inferential practices already imbue non-logical expressions with semantic significance lies in the role such vocabulary plays in making explicit what is implicit in those significance-generating practices. Explicitation is capturing as the content of a *claim* a discrimination of the appropriateness of various performances which otherwise is expressible only in practice. Observation reports in this way codify communal differential responsive dispositions as claims articulated by material inference. The present claim is that built upon such material explicitation is a level of

formal explicitation in which the appropriatenesses codified as claim contents are precisely the appropriatenesses of material inferential practice which were described at the lower level as explicitat*ing* responsive dispositions without themselves being explicitat*ed* at that level. The inferential practice of attributing commitment to the claim that *A* is to the East of *B* to anyone to whom one attributes commitment to the claim that *B* is to the West of *A* is just what one licenses and becomes committed to by asserting the conditional, and hence is what is codified as the content of the formally constructed conditional claim. Using negation one can assert the incompatibility of assertional commitments which before one could only exhibit in practice.

It was claimed that observation reports are distinguished from performances which merely exercise differential responsive dispositions by their possession of an inferentially articulated content or significance in addition to their relation to reliable responsive dispositions. The understanding of those contents which constitutes them as explicit significances *for* the practitioners consists in practical mastery of the appropriatenesses of material inference. Those inferential appropriatenesses in virtue of which responsive acts acquire content are in turn explicitated as the contents of claims by formal vocabulary such as the conditional and negation. Since it is the *content* generating practices which are codified as claim contents, it is appropriate to call this *semantic* formal explicitation. *Pragmatic* formal explicitation, by contrast, would enable one to express as a claim the *acts* of attributing and undertaking assertional commitments. Such explicit *ascriptions* of commitment are claims of the form "George claims that *p*" or "I claim that *p*."

Although ascriptions are not the current topic, one way must be mentioned in which the possibility of such pragmatic formal explicitations is relevant to the approach to logic just sketched. Ascriptions make possible pairs of assertings which differ semantically but not pragmatically, that is which differ in inferential and incompatibility significance but undertake equivalent commitments. This happens whenever there is a form of explicitly *ascribing* assertional commitment which counts also as explicitly *undertaking* such responsibility. In English the word "I" functions this way.[8] As a result, the acts of asserting "It is snowing," and "I claim that it is snowing," undertake just the same commitments. Yet the contents asserted differ. So if conditionals, for instance, codify those semantic contents, they must treat those contents differently. Specifically, the conditionals "*if* it is snow-

ing then the pond will freeze" and "*if* I claim that it is snowing then the pond will freeze," must involve different commitments and incompatibilities, as indeed they do in English.[9] It is a criterion of adequacy of any account of the introduction of pragmatically explicitating formal vocabulary in ascriptions and semantically explicitating formal vocabulary in conditionals that it reproduce this discrimination by conditionals of contents in pragmatically equivalent assertions.

One way to think about the account offered here of formal or logical explicitation and the kind of understanding that goes with it is as indicating where to look for a response to a challenge of Quine's regarding the demarcation of logical vocabulary.[10] Transposing his remarks into the framework of this essay, his observation may be put as follows. Given a practical capacity to discriminate appropriate inferences from inappropriate ones and a specification of some vocabulary as "logical," an appropriate inference may be called logically valid or valid in virtue of its *form* just in case it cannot be turned into a bad inference by substituting non-logical vocabulary for non-logical vocabulary. But this exercise can be performed for *any* distinguished set of vocabulary. Indeed, the limiting case in which *all* vocabulary is treated as "logical" for the purposes of assembling inferential invariants gives back all the original *material* inferences as formally valid. So some prior explanation of what makes vocabulary *logical* vocabulary is required.

The previous remarks describe a particular *expressive* role which logical vocabulary can play. I have not put myself in a position from which to assert that this role and this role alone ought to be taken to be characteristic of logic. But in thinking about Quine's larger question it may be useful to consider the special role of vocabulary functioning as do the conditional and negation of our example. The following features defined that role. First, the vocabulary in question has an explicitat*ing* use. So it permits the codification into a claim, in the sense of an assertoric commitment, of some practical appropriateness of conduct. Second, the explicitat*ed* practices are those material inferential and assertional practices which make it possible for anything to become explicit as the content of a claim in the first place. The features so codified are deemed "semantic" if restricted to properties and relations of claimed contents, and "pragmatic" if restricted to those of committing and licensing acts of claiming. Third, the codification is *formal*, by contrast to the material explicitation of responsive practice in observational assertions

Formality here encompasses three traits. The new vocabulary is added to a practically autonomous base idiom. It is added in a way which is inferentially conservative over its material inferential base. The third trait is a consequence of these two circumstances of introduction of the new vocabulary, in the context of its explicitating function. Essential inferential relations among claims formulated with the new vocabulary can be codified as claims using that very vocabulary (through their relations to non-formal vocabulary in virtue of which the explicitating role is played cannot). So the role suggested is that of formal explicitation of the semantic and pragmatic features of material explicitation.

It may seem odd to attribute such an explicitating role to formal vocabulary in the language being studied, because such explicitation is usually thought of as the task of a semantic theorist working outside the object language in a metalanguage. Two related questions are raised by this observation. To begin with, what difference does it make whether the codification of content-generating practices as themselves the contents of claims occurs in the language in question rather than in the quite different language of the semantic theorist? Then, if there is some semantically expressive job being done by intralinguistic explicitating extensions such as conditionals, what is to be said about the role of overtly semantic talk of truth conditions, possible worlds, or as far as that goes, commitment incompatibility relations such as were invoked in the example? As to the first question, when the inferential structures which are the medium of explicit understanding become themselves also the *objects* of such understanding, the constitution of explicit contents becomes for the first time subject to practical deliberation, development, and control. Instead of being stuck with the significances they find themselves with, interlocutors equipped with appropriate formal expressive vocabulary can criticize, harmonize, and develop those significances. Features of those significances can be rejected or modified as practical or empirical infelicities of significance-constitutive inference become apparent. Just as non-inferential responsive dispositions will change when the responses acquire explicit content by being caught up in assertional and inferential practices, so inferential practice will change when inferential connections themselves become subject to justification and demands for justification. The introduction of formally expressive vocabulary is definitionally conservative, but it will not be developmentally conservative. Formal vocabulary codifying inferential relations within the use language is the indispensible medium within

which a linguistic community can work to achieve the sort of explicit control over conceptual change which finds its most sophisticated expression in the history of empirical science.

But logic provides a language in which content-generating relations can be expressed as the contents of claims. It does *not* determine what to say in that language once the definitionally conservative introduction of vocabulary has been achieved. It does not provide a theory or set of principles in terms of which the norms guiding conceptual change can be codified or the process understood. Responsive observation reports provide the basic vocabulary-in-use for making empirical claims, but only when supplemented by purely theoretical principles and claims is the highest level of empirical understanding achieved by their means. Similarly, conditionals and the like provide the basic vocabulary-in-use for making semantic claims, but only when supplemented by purely theoretical principles and claims, such as those of the pragmatist or model theorist, can we expect to achieve a similarly sophisticated level of semantic understanding. The incorporation of explicit semantic theory into a language already possessing logical vocabulary ought to yield even greater developmental expressive rewards.

These remarks have been meant to exhibit the general idea of codifying as the explicit content of claims what is implicit in the appropriateness of practice. This relation, of such importance to the pragmatist approach to understanding, has been illustrated by two of its most fundamental varieties, material explicitation of differential responsive dispositions in observation reports and formal explicitation of inferential relations in logically compound claims such as conditionals. The hope is that the genus of making explicit can be better understood by consideration of these two species.

APPENDIX

The text suggests a specific example to illustrate how one might think about the extension of a material base idiom by the addition of formal vocabulary. It employs an incompatibility interpretation of both material and formal significance which is inferentialist, and therefore intralinguistic. But it is pragmatically based rather than offering a syntactic interpretation. This Appendix presents a more precise definition of the envisaged formal extension, and shows how the incompatibility interpretation validates some familiar principles.

1) *Definitions*

We suppose there is a set of sentences L whose use in committive inference conforms practically with the symmetric incompatibility relation I, expressed for us as a function which assigns to each sentence the set of sentences incompatible with it [One of the many dimensions along which things have been oversimplified for the sake of the example is that we consider only single sentences, and not subsets of L, as the members of $I(p)$.]. It is permitted that some sentences be incompatible with themselves (the relation is not irreflexive) but it is assumed that not all sentences are. L' is the smallest set which contains L, contains $p \rightarrow q$ if it contains p and q, contains $\sim p$ if it contains p, and contains $p \& q$ if it contains p. For any p in L', $I'(p)$ is the smallest subset of L' such that:

i) if $p \in L$ then $I(p) \subseteq I'(p)$

ii) $p \in I'(q)$ iff $q \in I'(p)$

iii) $I'(p \rightarrow q) = \{x \in L' / x \in I'(q) \text{ and } x \notin I'(p)\}$

iv) $I'(\sim p) = \{x \in L' / (y)[y \notin I'(p) \text{ or } y \in I'(x)]\}$

v) $I'(p \& q) = \{x \in L' / x \in I'(\sim(p \rightarrow \sim q)) \text{ or } x \in I'(\sim(q \sim p))\}$

It is clear that this definition of I' provides a conservative extension of the material incompatibility relation I in the sense that for any sentence p of the orginal base idiom L, the restriction of $I'(p)$ to L will just be $I(p)$. For the basis clause ensures that for such p, $I(p)$ is a subset of $I'(p)$. If some q in L but not in $I(p)$ sneaks into $I'(p)$, it would have to be in virtue of some recursion clause, plus the symmetry condition. But each defining clause adds only logically compound expressions to the incompatibility images of elements of L. So no non-compound newcomers to $I(p)$ are permitted. Given the conservatism in this sense of the extension, it follows that if I is incompatibility *consistent* in that there is some p such that p is not an element of $I(p)$, then I' will be consistent in the same sense. For it follows that p will not be in $I'(p)$ either.

That the extension is not *expressively* conservative is evident in the following consequence of the definition above. A claim may be called an *incompatibility tautology* if every claim incompatible with it is incompatible with itself. Then besides the formally tautologous claims in I' to be considered just below, there can be materially tautologous claims in the base idiom codified in I. More important, there can be material entailments of q by p where everything incompatible with q is either also incompatible with p or is incompatible with itself. These material entailments are *not* preserved by the extension of I to I'. For various conditionals can

in general be constructed which are I' incompatible with q but not p, without being incompatible with themselves. In other words, even if no material claim is incompatible with q and not p, it does not follow that any formally compound claim which is incompatible with q and not with p is self-incompatible. One can thus coherently discuss, deny, and demand justification for entailments which went without saying (i.e. justifying or challenging) in the material base idiom. It is in virtue of this expressive nonconservatism that formal explicitation has the significance it does for the development of talk and understanding.

2) *Some representative validations*

[Note that for convenience in these demonstrations the extended incompatibility relation I' is referred to just as I.]

a) Double Negation: Show that $\sim\sim p \rightarrow p$ is an incompatibility tautology, that is that if $r \in I(p)$, then $r \in I(\sim\sim p)$, for all $r \notin I(r)$. By construction, $I(\sim\sim p)=\{x/(y)[y \notin I(\sim p)$ or $y \in I(x)]\}$, so $I(\sim\sim p)=\{x/(y)[y \in I(x)$ or there is a $z(z \in I(p)$ and $z \notin I(y))]\}$. So must show that $(y)[y \in I(r)$ or there is a $z(z \in I(p)$ and $z \notin I(y))]$. If $y \in I(r)$, the condition is satisfied. So must show that if $y \notin I(r)$ then there is a $z(z \in I(p)$ and $z \notin I(y))$. But r is such a z, for we are given that $r \in I(p)$ and by hypothesis $r \notin I(y)$, since $y \notin I(r)$, by symmetry. QED. For the other direction, show that if $r \in I(\sim\sim p)$ then $r \in I(p)$. Since $r \in I(\sim\sim p)$, $(y)[y \in I(r)$ or there is a $z(z \in I(p)$ and $z \notin I(y))]$. So plugging p in as a value of y, either $p \in I(r)$ (in which case by symmetry $r \in I(p)$ and we are done) or there is a $z(z \in I(p)$ and $z \notin I(p))$. But this is a contradiction. So $p \in I(r)$, QED.

b) Stuttering: Show that $p \rightarrow p$ is an incompatibility tautology. This is immediate from the definition of '$\rightarrow$,' since $y \in I(p \rightarrow p)$ is equivalent to $y \in I(p)$ and $y \notin I(p)$, which is a contradiction.

c) Noncontradiction: Show that $\sim(p \& \sim p)$ is an incompatibility tautology. Suppose not, then there is an $r \notin I(r)$ such that $r \in I(\sim(p \& p))$. So $(y)[y \notin I(p \& \sim p)$ or $y \in I(r)]$. Since $r \notin I(r)$, then $r \notin I(p \& p)$ (plugging r in for y). So both $r \in I(\sim(p \rightarrow \sim\sim p)$ and $r \in I(\sim(\sim p \rightarrow \sim p))$. Consider the second of these. It follows that $(u)(u \notin I(\sim p \rightarrow \sim p)$ or $u \in I(y)]$. In particular, for any non-self-incompatible y, $y \in I(\sim p \rightarrow \sim p)$. But by the stuttering result there can be no such y, and hence no such r. QED.

d) Weakening a conjunction: Show that $(p \& q) \rightarrow p$ is an incompatibility tautology. Suppose not. Then there is an r such that $r \notin I(r)$, $r \in I(p)$, and $r \notin I(p \& q)$. So $r \notin I(\sim(q \rightarrow \sim p))$ and $r \notin I(\sim(p \rightarrow \sim q))$. That is i) there is a $y[y \in I(p \rightarrow \sim q)$ and $y \notin I(r)]$ and ii) there is a $z[z \in I(q \rightarrow \sim p)$ and $z \notin I(r)]$. Expanding (i) we get $y \notin I(r)$ and $y \notin I(p)$ and

$y \in I(\sim q)$, that is $(w)[w \notin I(q)$ or $w \in I(y)]$. Plugging r in for w, it follows that $r \notin I(q)$, since by symmetry $r \notin I(y)$. Expanding (ii) we get $z \notin I(r)$ and $z \notin I(q)$ and $(u)[u \notin I(p)$ or $u \in I(z)]$. Plugging r in for u, it follows that $r \notin I(p)$, since by symmetry $r \notin I(z)$. But this contradicts the assumption that $r \in I(p)$. So there can be no such r. QED. This demonstration is clearly symmetric for p and q.

e) Given this last result it is easy to show that if $x \in I((p \& q) \rightarrow r)$ then $x \in I(p \rightarrow r)$, i.e. that one can weaken a conditional by strengthening its antecedent. The hypothesis is equivalent to $x \in I(r)$ and $x \notin I(p \& q)$, and from this it must be shown that $x \in I(r)$ and $x \notin I(p)$. So it suffices to show that if $x \notin I(p \& q)$, then $x \notin I(p)$. But we have shown that for non-self-incompatible x, if $x \in I(p)$ then $x \in I(p \& q)$, from which the desired result follows.

f) Detachment: Show that $(p \& (p \rightarrow q)) \rightarrow q$ is an incompatibility tautology. Assume not. Then there is an r such that $r \notin I(r)$ and $r \in I((p \& (p \rightarrow q) \rightarrow q)$. So $r \in I(q)$ and $r \notin I(p \& (p \rightarrow q))$. By the definition of '&', then, $r \notin I(\sim(p \rightarrow \sim(p \rightarrow q)))$ and $r \notin I(\sim(p \rightarrow q) \rightarrow \sim q))$. That is, i) there is a y such that $y \in I(p \rightarrow (\sim(p \rightarrow q)))$ and $y \notin I(r)$] and ii) there is a $z[z \in I((p \rightarrow q) \rightarrow \sim p)$ and $z \notin I(r)]$. Expanding (i), $y \notin I(r)$ and $y \notin I(p)$ and $y \in I(\sim(p \rightarrow q))$, i.e. $(w)[w \notin I(p \rightarrow q)$ or $w \in I(y)]$. Expanding this latter, $(w)[w \notin I(q)$ or $w \in I(p)$ or $w \in I(y)]$. Plugging in r for w, it follows that $r \in I(p)$, since $r \in I(q)$ and $r \notin I(y)$ by symmetry. Expanding (ii), $z \notin I(r)$ and $z \in I(\sim p)$ and $z \notin I(p \rightarrow q)$. From the last two claims we get $(z \notin I(q)$ or $z \in I(p))$ and $(u)[u \notin I(p)$ or $u \in I(z)]$. Plugging in r for u, it follows that $r \notin I(p)$, since $r \notin I(z)$ by symmetry. But this contradicts the result of expanding the other conjunct, (i). Thus there can be no such r. QED.

g) Transitivity: Show that $((p \rightarrow q) \& (q \rightarrow r)) \rightarrow (p \rightarrow r)$ is an incompatibility tautology. Assume not. Then there is an x (s.t. $x \notin I(x)$) such that $x \in I(p \rightarrow r)$ and $x \notin I(p \rightarrow q) \& (q \rightarrow r)$. By the first condition, $x \in I(r)$ and $x \notin I(p)$. By the definition of '&', $x \notin I(\sim((p \rightarrow q) \rightarrow \sim(q \rightarrow r)))$ and $x \notin I(\sim((q \rightarrow r) \rightarrow \sim(p \rightarrow q)))$. By the definition of '$\sim$', these are equivalent to: i) there is a $y[y \in I((p \rightarrow q) \rightarrow \sim(q \rightarrow r))$ and $y \notin I(x)]$ and ii) there is a $z[z \in I((q \rightarrow r) \rightarrow \sim(p \rightarrow q))$ and $z \notin I(x)]$. Expanding (i), $y \notin I(x)$ and $y \in I(\sim(q \rightarrow r))$ and $y \notin I(p \rightarrow q)$. These last two terms become $[y \notin I(q)$ or $y \in I(p)]$ and $(w)[w \in I(y)$ or $(w \notin I(r)$ or $w \in I(q))]$. Plugging x in for w, it follows that $x \in I(y)$ or $(x \notin I(r)$ or $x \in I(q))$. But (by symmetry) $x \notin I(y)$, and by hypothesis $x \in I(r)$, so $x \in I(q)$. Save this result. Expanding on (ii) $z \notin I(x)$ and $z \in I(\sim(p \rightarrow q))$ and $z \notin I(q \rightarrow r)$. These last two terms become $[z \notin I(r)$ or $z \in I(q)]$ and $(t)[t \notin I(p \rightarrow q)$ or $t \in I(x)]$. This last conjunct in turn expands to $(t)[t \in I(x)$ or $(t \notin I(q)$ or $t \in I(p)))$. Plugging x in for t, it follows that $x \in I(x)$ or $x \notin I(q)$ or $x \in I(p)$. But $x \notin I(x)$ by hypothesis, and $x \notin I(p)$ by symmetry, so $x \notin I(q)$. But this contradicts the conclusion drawn

from the expansion of (i). There can be no such x, for it must both be and not be compatible with q. QED.

h) Contraposition: Show that $((p \rightarrow q) \& \sim q) \rightarrow \sim p$ is an incompatibility tautology. It suffices to show that for non-self-incompatible r, if $r \in I(\sim p)$, then $r \in I((p \rightarrow q) \& \sim q)$. So we are given that $(y)[y \notin I(p)$ or $y \in I(r)]$. Must show either $r \in I(\sim((p \rightarrow q) \rightarrow \sim\sim q))$ or $r \in I(\sim(\sim q \rightarrow \sim(p \rightarrow q)))$. We show the former. Must show that $(z)[z \notin I((p \rightarrow q) \rightarrow \sim\sim q)$ or $z \in I(r)]$. The former condition is equivalent to $z \notin I(\quad q)$ or $z \in I(p \rightarrow q)$. By the double negation result and the definition of '$\rightarrow$' this becomes $z \notin I(q)$ or $(z \in I(q)$ and $z \notin I(p)$. We know that $(y)[y \notin I(p)$ or $y \in I(r)]$. So it suffices to show that if $y \notin I(p)$ then $y \notin I(q)$ or $(y \in I(q)$ and $y \notin I(p)$. Since $y \notin I(p)$, this reduces to $y \in I(q)$ or $y \notin I(q)$. This last always obtains (even though it is not the case that every y is either in $I(q)$ or in $I(\sim q)$ [3 being prime is not incompatible either with snow's being white or with its not being white.] QED.

With these validations in hand it is straightforward to show that the incompatibility interpretation is sound and complete with respect to the classical two-valued tautologies.

Other logics can be reconstructed along the same lines. For instance, if we forbid sentences to be incompatible with themselves, maintaining the rest of the definition yields minimal logic. The basically intuitionistic character of the apparatus is masked in these demonstrations by the definition of the conditional, which effectively builds in a double negation. The effect of this is then transmitted to negation via its definition in terms of conditionals. A different procedure would permit this structure to shine through and validate just the intuitionistic theorems.

NOTES

1. See for instance the author's "Leibniz and Degrees of Perception" *Journal of the History of Philosophy* vol. 21 (1983), and "Adequacy and the Individuation of ideas in Spinoza's *Ethics*," *Journal of the History of Philosophy*, vol. 14, pp. 147-162 (1976).
2. This is not to say that the observer must be able to draw every conclusion that anyone can draw from it. The lookout need not know what the black sail means. For different auxiliary premises are available to different interlocutors. But given a suitable assortment of such premises, the reporter should be able to distinguish appropriate consequences and evidential antecedents in that context.
3. I use "broadly cognitive" here to mean of or pertaining to understanding (rather than knowledge) simply for lack of a better expression. There seems to be no word in general philosophical usage which

stands to understanding as "cognitive" or "epistemic" does to knowledge, "doxastic" does to belief, and so on. I gather from Burnyeat's discussion of Augustine that the word "epistemic" *ought* to relate to systematic understanding rather than to knowledge, but it is too late for us to use it that way now. Derivatives of "comprehension" are otherwise employed and could moonlight only clumsily.

4. Reprinted in Sellars' *Science, Perception, and Reality* (Routledge & Kegan Paul: London and New York, 1963).
5. See the author's "Asserting," *Nous*, vol. 17 (1983), pp. 637-650.
6. For some strategies and motivations for dealing with such situations see Nicholas Rescher and Robert Brandom *Logic of Inconsistency* (Basil Blackwell: Oxford, 1979).
7. For present purposes we assume that communal conditional dispositions to attribute commitment to q to whomever commitment to p is attributed are practically consistent with dispositions to treat claims as incompatible with p and with q, according to this schema. It is not claimed that all committive inference can be captured this way. We consider only that which can.
8. It is important to avoid the direction of thought which takes the "I" in self-ascriptions of responsibility to be merely a referring expression like that used in other ascriptions, one which as it were accidentally in those contexts explicitly undertakes a responsibility. On the contrary, the undertaking use of "I" is the basic one.
9. See the author's "Truth and Assertibility," *Journal of Philosophy*, vol. 73 (1976), pp. 137-149.
10. "Two Dogmas of Empiricism," in *From a Logical Point of View* (Cambridge Mass: Harvard University Press, 1953).