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INFERENCE, EXPRESSION, AND INDUCTION

SELLARSIAN THEMES

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A number of themes from some of Sellars' earliest work converge in his treatment of induction. The one I want to discuss here is the understanding of conceptual content in terms of *inference*. Two other themes ought to be mentioned, which cannot be dealt with here, but which are of equal importance for understanding the discussion of induction. First, in virtue of their conceptual contents, states and acts such as belief and judgement are understood to have a *normative* significance — they are caught up in the dimension of endorsement and authority, commitment and entitlement, and so subject to assessments of various kinds of *correctness* just in virtue of their conceptual contents. Second, those norms are conceived as *implicit* in social *practices*, rather than as *explicit* in the form of *rules*. Language is taken as socially pattern-governed, rather than as rule-governed or merely regular. The essential rulishness of cognitive conduct is taken in the first instance to be *lived* in what the linguistic community *does*, rather than starting out *represented* in what it *thinks*. The proper way in to the deliberations on induction, as to so much else in Sellars' thought, is through a rich notion of the concrete, discourse-constitutive, game of giving and asking for reasons, in which all our abstract philosophical conceptions ought to be rooted. In what follows I'll be trying to dissect out one strand, associated with the notion of inferential content, which leads from that basic practical conception to some of the considerations that form the conceptual background of Sellars' discussion of induction. My story should be seen as an essay in the conceptual prehistory of that discussion — in spite of the fact that some of the ideas discussed here were only articulated explicitly many years after Sellars' views took final form.

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I

In an autobiographical sketch published a number of years ago[1]. Sellars dates to his Oxford days his break with traditional empiricism, prompted by the issue of the sort of content that ought to be associated with logical, causal, and deontological modalities. Already at that point he had the idea that:

(1) What was needed was a functional theory of concepts which would make their role in reasoning, rather than supposed origin in experience, their primary feature.

Pre-Kantian empiricists and rationalists alike were notoriously disposed to run together causal and conceptual issues, largely through insufficient appreciation of the normative character of the "order and connection of ideas" that matters for the latter. Under the influence of Kant, Sellars was never inclined to such hasty assimilations, whether of the associationist variety or not. But there is another, perhaps less appreciated, contrast in play here, besides that of the causal and the conceptual. Enlightenment epistemology was always the home for two somewhat uneasily coexisting conceptions of the conceptual. The fundamental concept of the dominant and characteristic understanding of cognitive contentfulness in the period initiated by Descartes is of course *representation.* However there is a minority semantic tradition that takes *inference* rather than representation as its master concept.

Rationalists such as Spinoza and Leibniz accepted the central role of the concept of representation in explaining human cognitive activity, but were not prepared to accept Descartes' strategy of treating the possession of representational content as an unexplained explainer. Each of them developed instead an account of what it is for one thing to represent another, in terms of the inferential significance of the representing. They were explicitly concerned, as Descartes was not, to be able to explain what it is for something to be understood, treated, or employed *as* a representing *by* the subject, what it is for it to be a representing *to* or *for* that subject. Their idea was that the way in which representings point beyond themselves to something represented is to be understood in terms of *inferential* relations among representings. States and acts acquire content by being caught up in inferences, as

premises and conclusions[2]. Thus a big divide within Enlightenment epistemology concerns the relative explanatory priority accorded to the concepts of representation and inference. The British empiricists were more puzzled than Descartes about representational purport, the property of seeming to be about something. But they were clear in seeking to derive inferential relations from the contents of representings, rather than the other way around. In this regard they belong to the still-dominant tradition that reads inferential correctnesses off from representational correctnesses, which are assumed to antecedently intelligible. The post-Cartesian rationalists, the claim is, give rise to a tradition based on a complementary semantically reductive order of explanation. These *inferentialists* seek to define representational properties in terms of inferential ones, which must accordingly be capable of being understood antecedently. They start with a notion of content as determining what is a reason for what, and understand truth and representation as features of ideas that are not only manifested in, but conferred by their role in reasoning. This is a tradition that Sellars will build on in our own time, by developing a notion of conceptual content that starts with inferential roles.

In a moment I want to say something about the development of this tradition by others, as a way of filling in a background against which Sellars' views can be seen to best effect. Before that is undertaken, perhaps a reminder will be useful concerning some of the conclusions Sellars extracts from his inferentialist insights. The concepts for which inferential notions of content are least obviously appropriate are those associated with observable properties, such as colors. For the characteristic use of such concepts is precisely in making *non*inferential reports, such as the "Red-here-now" beloved of Sellarsian robots. It is one of Sellars' more important doctrines that even such noninferential reports must be inferentially articulated. Without that requirement, we can't tell the difference between noninferential reporters and automatic machinery such as thermostats and photocells, which also have reliable dispositions to respond differentially to stimuli. What is the important difference between a thermostat that turns the furnace on when the temperature drops to 60 degrees, or a parrot trained to say "That's red," in the presence of red things, on the one hand, and a genuine noninferential reporter of those circumstances, on the other? Each

classifies particular stimuli as being of a general kind, the kind, namely, that elicits a repeatable response of a certain sort. In the same sense, of course, a chunk of iron classifies its environment as being of one of two kinds, depending on whether it responds by rusting or not. It is easy, but uninformative, to say that what distinguishes reporters from reliable responders is *awareness*. In this use, the term is tied to the notion of understanding — the thermostat and the parrot don't *understand* their responses, those responses *mean* nothing to them, though they can mean something to us.

At this point, Sellars says to us: the distinction wanted is that between merely responsive classification and *conceptual* classification. The reporter must, as the parrot and thermostat do not, have the *concept* of temperature or cold. It is classifying under such a concept, something the reporter understands or grasps the meaning of, that makes the relevant difference. And for the response to have conceptual content is for it to play a role in the inferential game of making claims and giving and asking for reasons. To grasp or understand such a concept is to have practical mastery over the inferences it is involved in — to know, in the practical sense of being able to distinguish, what follows from the applicability of a concept, and what it follows from. The parrot doesn't treat "That's red" as incompatible with "That's green", nor as following from "That's scarlet" and entailing "That's colored." Insofar as the repeatable response is not, for the parrot, caught up in practical proprieties of inference and justification, and so of the making of further judgements, it is not a conceptual or a cognitive matter at all. It follows immediately not only that one must master many concepts in order to master any, but that to be able to apply one concept noninferentially, one must be able to use others inferentially. Thus the idea that there could be an autonomous language game, one that could be played though one played no other, consisting entirely of noninferential reports (even of mental happenings) is a radical mistake. (Of couse this is compatible with there being languages without theoretical concepts, that is, concepts whose *only* use is inferential. The requirement is that all concepts that have reporting uses must also have nonreporting ones.) Sellars' exploration of the importance for the philosophy of mind of the sense of 'awareness' in which awareness just consists in classifying under a concept is an example of a

related area in which the insight that talk about conceptual content is talk about inferential articulation has been exploited to good effect.

My purpose at the moment, however, is not to pursue the consequences for Sellars of the inferential understanding of conceptual contents, but its antecedents. The predecessor it is most interesting to consider is the young Frege. [A proper history of the development of inferentialist explanatory strategies would discuss German Idealism, as championed by Kant and Hegel, next after its treatment of the Rationalism of Spinoza and Leibniz. The idealists' contributions to our understanding of the relations between inference and reference make a fascinating story, but it defies brief telling and so must be passed over here.] Frege may seem an unlikely heir to this inferentialist tradition. After all, he is usually thought of as the father of the contemporary way of working out the representationalist order of explanation, which starts with an independent notion of relations of reference or denotation obtaining between mental or linguistic items and objects and sets of objects in the largely nonmental, nonlinguistic environment, and determines from these in the familiar fashion, first truth conditions for the sentential representings built out of the subsentential ones, and then, from these, a notion of goodness of inference understood in terms of set-theoretic inclusions among the associated sets of truth conditions. But insofar as it is appropriate to read this twentieth century story back into Frege at all, and I am not sure that it is, it would be possible only beginning with the Frege of the 1890's. He starts his semantic investigations, not with the idea of reference, but with that of inference. His seminal first work, the *Begriffsschrift* of 1870, takes as its aim the explication of "conceptual content" [begriffliche Inhalt]. The qualification "conceptual" is explicitly construed in inferential terms:

> (2) . . . there are two ways in which the content of two judgments may differ; it may, or it may not, be the case that all inferences that can be drawn from the first judgment when combined with certain other ones can always also be drawn from the second when combined with the same other judgments. The two propositions 'the Greeks defeated the Persians at Plataea' and 'the Persians were defeated by the Greeks at Plataea' differ in the former way; even if a slight difference of sense is discernible, the agreement in sense is preponderant. Now I call that part of the content that is the same in both the *conceptual content*. Only this has significance for our symbolic language [Begriffsschrift] . . .
>
> In my formalized language [BGS] . . . only that part of judgments which affects the *possible inferences* is taken into consideration. Whatever is needed for a correct

> [richtig, usually misleadingly translated as 'valid'] inference is fully expressed; what is not needed is . . . not[3]

Two claims have the same conceptual content iff they have the same inferential role: a good inference is never turned into a bad one by substituting one for the other. This way of specifying the explanatory target to which semantic theories, including referential ones, are directed is picked up by Frege's student Carnap, who in the *Logical Syntax of Language* defines the *content* of a sentence as the class of non-valid sentences which are its consequences (i.e. can be inferred from it)[4]. Sellars in turn picks up the idea from him, as his references to this definition indicate.

By contrast, the tradition Frege initiated in the 1890's makes truth, rather than inference, primary in the order of explanation. Dummett says of this shift[5]:

> (3) . . . in this respect (and in this respect alone) Frege's new approach to logic was retrograde. He characterized logic by saying that, while all sciences have truth as their goal, in logic truth is not merely the goal, but the object of study. The traditional answer to the question what is the subject-matter of logic is, however, that it is, not truth, but inference, or, more properly, the relation of logical consequence. This was the received opinion all through the doldrums of logic, until the subject was revitalized by Frege; and it is, surely, the correct view.

And again[6]:

> (4) It remains that the representation of logic as concerned with a characteristic of sentences, truth, rather than of transitions from sentences to sentences, had highly deleterious effects both in logic and in philosophy. In philosophy it led to a concentration on logical truth and its generalization, analytic truth, as the problematic notions, rather than on the notion of a statement's being a deductive consequence of other statements, and hence to solutions involving a distinction between two supposedly utterly different kinds of truth, analytic truth and contingent truth, which would have appeared preposterous and irrelevant if the central problem had from the start been taken to be that of the character of the relation of deductive consequence.

The important thing to realize is that the young Frege has not yet made this false step. Two further points to keep in mind regarding this passage are: first, shifting from concern with inference to concern with truth is one move, understanding truth in terms of prior primitive reference relations is another. Since the mature Frege treats truth as

indefinable and primitive, the extraction of a representationalist commitment even from the texts of the 1890's requires further showing (compare Davidson's truth-without-reference view in our own day). Second, understanding the topic of logic in terms of inference is not the same as seeing it in terms of *logical* inference, or of "deductive consequence", as Dummett puts it (see the discussion of "formalism" about inference, below). The view propounded and attributed to Frege below is different, and from the contemporary vantage-point, more surprising, than that Dummett endorses here.

The kind of inference whose correctnesses determine the conceptual contents of its premises and conclusions may be called, following Sellars, *material* inferences. As examples, consider the inference from "Pittsburgh is to the West of Philadelphia" to "Philadelphia is to the East of Pittsburgh", and that from "Lightning is seen now" to "Thunder will be heard soon". It is the contents of the concepts *West* and *East* that make the first a good inference, and the contents of the concepts *lightning* and *thunder*, as well as the temporal concepts, that make the second appropriate. Endorsing these inferences is part of grasping or mastering those concepts, quite apart from any specifically *logical* competence. Often, however, inferential articulation is identified with logical articulation. Material inferences are accordingly treated as a derivative category. The idea is that being *rational*, being subject to the force of the better reason, can be understood as a purely *logical* capacity. In part this tendency was encouraged by merely verbally sloppy formulations of the crucial difference between the inferential force of reasons and the physically efficacious force of causes, which render it as the difference between 'logical' and 'natural' compulsion. Mistakes ensue, however, if the concept *logical* is employed with these circumstances of application conjoined with consequences of application that restrict the notion of logical force of reasons to formally valid inferences. The substantial commitment that is fundamental to this sort of approach is what Sellars calls[7]:

> (5) . . . the received dogma . . . that the inference which finds its expression in "It is raining, therefore the streets will be wet" is an enthymeme.

According to this line of thought, wherever an inference is endorsed, it is because of belief in a conditional. Thus the instanced inference is

understood as implicitly involving the conditional "if it is raining, then the streets will be wet". With that "suppressed" premise supplied, the inference is an instance of the formally valid scheme of conditional detachment. The "dogma" expresses a commitment to an order of explanation that treats all inferences as good or bad solely in virtue of their form, with the contents of the claims they involves mattering only for the truth of the (implicit) premises. According to this way of setting things out, there is no such thing as material inference. This view, which understands "good inference" to mean "formally valid inference", postulating implicit premises as needed, might be called a *formalist* approach to inference. It trades primitive goodnesses of inference for the truth of conditionals. Doing so is taking the retrograde step that Dummett complains about. The grasp of logic that is attributed must be an *implicit* grasp, since it need be manifested only in distinguishing material inferences as good and bad, not in any further capacity to manipulate logical vocabulary or endorse tautologies involving them. But what then is the explanatory payoff from attributing such an implicit logical ability rather than just the capacity to assess proprieties of material inference?

The approach Sellars endorses is best understood by reference to the full list of alternatives he considers[8]:

> (6) . . . we have been led to distinguish the following six conceptions of the status of material rules of inference:
>
> (1) Material rules are as *essential to meaning* (and hence to language and thought) as formal rules, contributing to the architectural detail of its structure within the flying buttresses of logical form.
>
> (2) While not essential to meaning, material rules of inference have an *original authority* not derived from formal rules, and play an *indispensable* role in our thinking on matters of fact.
>
> (3) Same as (2) save that the acknowledgment of material rules of inference is held to be a *dispensable* feature of thought, at best a matter of convenience.
>
> (4) Material rules of inference have a *purely derivative authority*, though they are genuinely rules of inference.
>
> (5) The sentences which raise these puzzles about material rules of inference are *merely abridged formulations of logically valid inferences*. (Clearly the distinction between an inference and the formulation of an inference would have to be explored).
>
> (6) Trains of thought which are said to be governed by "material rules of inference" are actually *not inferences at all*, but rather activated associations which mimic inference, concealing their intellectual nudity with stolen "therefores".

His own position is that an expression has conceptual content con-

ferred on it by being caught up in, playing a certain role in, material inferences[9]:

> (7) ... it is the first (or "rationalistic") alternative to which we are committed. According to it, material transformation rules determine the descriptive meaning of the expressions of a language within the framework provided by its logical transformation rules ...
>
> In traditional language, the "content" of concepts as well as their logical "form" is determined by the rules of the Understanding.

Should inferentialist explanations begin with inferences pertaining to propositional *form*, or those pertaining to propositional *content*? One important consideration is that the notion of formally valid inferences is definable in a natural way from that of materially correct ones, while there is no converse route. For given a subset of vocabulary that is privileged or distinguished somehow, an inference can be treated as good in virtue of its form, with respect to that vocabulary, just in case it is a materially good inference and cannot be turned into a materially bad one by substituting non-privileged for non-privileged vocabulary, in its premises and conclusions. If it is logical form that is of interest, then one must antecedently be able to distinguish some vocabulary as peculiarly logical. That done, the Fregean semantic strategy of looking for inferential features that are invariant under substitution yields a notion of logically valid inferences. According to this way of thinking, the formal goodness of inferences derives from and is explained in terms of the material goodness of inferences, and so ought not to be appealed to in explaining it. Frege's inferentialist way of specifying the characteristic linguistic role in virtue of which vocabulary qualifies as logical is discussed below.

So far I have indicated briefly two related claims: that conceptual contents are inferential roles, and that the inferences that matter for such contents in general must be conceived to include those that are in some sense materially correct, not just those that are formally valid. I'll argue in a moment that a commitment to the second of these, no less than the first, is to be found already in Frege's early writings, though not in the developed form to which Sellars brings it. But in both thinkers these ideas are combined with a third, which I believe makes this line of thought especially attractive. In one of his early papers, Sellars introduces the idea this way[10]:

> (8) In dealing with such situations [attempts to justify acceptance of a law by means of an argument from instances], philosophers usually speak of inductive arguments, of establishing laws by induction from instances. . . . I am highly dubious of this conception. I should be inclined to say that the use Jones will make of instances is rather in the nature of Socratic method. For Socratic method serves the purpose of making explicit the rules we have adopted for thought and action, and I shall be interpreting our judgements to the effect that A causally necessitates B as the expression of a rule governing our use of the terms 'A' and 'B'.

Sellars understands such modal statements as inference licenses, which formulate as the content of a claim the appropriateness of inferential transitions. More than this, he understands the function of such statements to be making *explicit*, in the form of assertible *rules*, commitments that had hitherto remained *implicit* in inferential *practices*. Socratic method is a way of bringing our practices under rational control, by expressing them explicitly in a form in which they can be confronted with objections and alternatives, a form in which they can be exhibited as the conclusions of inferences seeking to justify them on the basis of premises advanced as reasons, and as premises in further inferences exploring the consequences of accepting them.

In the passage just cited, Sellars tells us that the enterprise within which we ought to understand the characteristic function of inductive inference is a form of rationality that centers on the notion of *expression*: making explicit in a form that can be *thought* or *said*, what is implicit in what is *done*. This is a dark and pregnant claim, but I believe it epitomizes a radical and distinctive feature of Sellars' approach to induction. In what follows I hope to shed some light on it and its role in an inferentialist vision of things. The general idea is that the paradigmatically rational process that Sellars invokes under the heading of "Socratic method" depends upon the possibility of making implicit commitments explicit in the form of claims. Expressing them in this sense is bringing them into the game of giving and asking for reasons as playing the special sort of role in virtue of which something has a conceptual content at all: namely an inferential role, as premise and conclusion of inferences. This is distinct from, but obviously related to the sort of rationality that then consists in making the appropriate inferential moves. Even totalitarian versions of the latter, for instance those that would assimilate all goodness of inference to logical validity,

or to instrumental prudence (that is, efficiency at getting what one wants), depend upon the possibility of expressing considerations in a form in which they can be given as reasons, and reasons demanded for them. All the more does Socratic reflection on our practices, particularly on those material-inferential practices that determine the conceptual contents of thoughts and beliefs, depend on the possibility of their explicit expression[11].

To begin to explicate this notion of explication, it is helpful to return to the consideration of the young Frege's inferentialist program. Frege's *Begriffsschrift* is remarkable not only for the inferential idiom in which it specifies its topic, but equally for how it conceives its relation to that topic. The task of the work is officially an *expressive* one; not to *prove* something, but to *say* something. Frege's logical notation is designed for expressing conceptual contents, making *explicit* the inferential involvements that are *implicit* in anything that possesses such content. As passage [2] quoted above puts it: "Whatever is needed for a correct inference is fully expressed". Talking about this project, Frege says[12]:

> (9) Right from the start I had in mind the *expression of a content.* . . . But the content is to be rendered more exactly than is done by verbal language . . . Speech often only indicates by inessential marks or by imagery what a concept-script should spell out in full.

The concept-script is a formal language for the explicit codification of conceptual contents. In the Preface to BGS, Frege laments that even in science concepts are formed haphazardly, so that the ones employing them are scarcely aware of what they mean, of what their content really is. When the correctness of particular inferences is at issue, this sort of unclarity may preclude rational settlement of the issue. What is needed is a notation within which the rough-and-ready conceptual contents of the sciences, beginning with mathematics, can be reformulated so as to wear their contents on their sleeves. The explanatory target here avowedly concerns a sort of inference, not a sort of truth, and the sort of inference involved is content-conferring material inferences, not the derivative formal ones.

Frege explicitly contrasts his approach with that of those, such as Boole, who conceive their formal language only in terms of formal inference, and so express no material contents[13]:

(10) The reason for this inability to form concepts in a scientific manner lies in the lack of one of the two components of which every highly developed language must consist. That is, we may distinguish the formal part ... from the material part proper. The signs of arithmetic correspond to the latter. What we still lack is the logical cement that will bind these building stones firmly together. ... In contrast, Boole's symbolic logic only represents the formal part of the language.

By contrast[14]:

(11) 1. My concept-script has a more far-reaching aim than Boolean logic, in that it strives to make it possible to present a content when combined with arithmetical and geometrical signs ...
2. Disregarding content, within the domain of pure logic it also, thanks to the notation for generality, commands a somewhat wider domain ...
4. It is in a position to represent the formations of the concepts actually needed in science ...

It is the wider domain to which his expressive ambition extends that Frege sees as characteristic of his approach. Since contents are determined by inferences, expressing inferences explicitly will permit the expression of any sort of content at all[15]:

(12) It seems to me to be easier still to extend the domain of this formula language to include geometry. We would only have to add a few signs for the intuitive relations that occur there. ... The transition to the pure theory of motion and then to mechanics and physics could follow at this point.

Frege's early understanding of logic offers some specific content to the notion of explicitly expressing what is implicit in a conceptual content, which is what is required to fill in a notion of expressive or elucidating rationality that might be laid along side (and perhaps even be discovered to be presupposed by) notions of rationality as accurate representation, as logically valid inference, and as instrumental practical reasoning. Before the fateful step from seeing logic as an attempt to codify inferences to seeing it as the search for a special kind of truth is made, which Dummett bemoans and to which we owe contemporary logic, Frege's aim is to introduce vocabulary that will let one *say* (explicitly) what otherwise one can only *do* (implicitly). Consider the conditional, with which the *Begriffsschrift* begins. Frege says of it[16]:

(13) The precisely defined hypothetical relation between contents of possible judgments has a similar significance for the foundation of my concept-script to that which identity of extensions has for Boolean logic.

Prior to the introduction of such a locution, one could *do* something, one could treat a judgement as having a certain content (implicitly attribute that content to it) by endorsing various inferences involving it and rejecting others. After conditional locutions have been introduced, one can *say*, as part of the content of a claim, that a certain inference is acceptable. One is able to make explicit material inferential relations between an antecedent or premise and a consequent or conclusion. Since according to the inferentialist view of conceptual contents, it is these implicitly recognized material inferential relations that conceptual contents consist in, the conditional permits such contents to be explicitly expressed. If there is a disagreement about the goodness of an inference, it is possible to say what the dispute is about, and offer reasons one way or the other. The conditional is the paradigm of a locution that permits one to make inferential commitments explicit as the contents of judgments. [In a similar fashion, introducing negation makes it possible to express explicitly material incompatibilities of sentences, which also contribute to their content[17].] The picture is accordingly one whereby first, formal validity of inferences is defined in terms of materially correct inferences and some privileged vocabulary; second, that privileged vocabulary is identified as logical vocabulary; and third, what it is for something to be a bit of logical vocabulary is explained in terms of its semantically expressive role.

Frege is not as explicit about the role of materially correct inferences as Sellars is, but his commitment to the notion is clear from the relation between two of the views that have been extracted from the *Begriffsschrift*: semantic expressivism about logic and inferentialism about content. Expressivism about logic means that Frege treats logical vocabulary as having a distinctive expressive role — making explicit the inferences that are implicit in the conceptual contents of nonlogical concepts. Inferentialism about those conceptual contents is taking them to be identified and individuated by their inferential roles. Together these views require that it be coherent to talk about inference prior to the introduction of specifically logical vocabulary, and so prior to the identification of any inferences as good in virtue of their form. In the context of an inferential understanding of conceptual contents, an expressivist approach presupposes a notion of *nonlogical* inference, the inferences in virtue of which concepts have nonlogical content. Thus

the young Frege envisages a field of material inferences that confer conceptual content on sentences caught up in them. So although Frege does not offer an explanation of the concept, in the *Begriffsschrift* his expressive, explicitating project commits him to something playing the role Sellars later picks out by the phrase "material inference".

II

So far three themes have been introduced: that conceptual content is to be understood in terms of role in reasoning rather than exclusively in terms of representation, that the capacity for such reasoning is not to be identified exclusively with mastery of a logical calculus, and that besides theoretical and practical reasoning using contents constituted by their role in material inferences, there is a kind of expressive rationality that consists in making implicit content-conferring inferential commitments explicit as the contents of assertional commitments. In this way, the material inferential practices, which govern and make possible the game of giving and asking for reasons, are brought into that game, and so into consciousness, as explicit topics of discussion and justification. These three themes, to be found in the early works of both Frege and Sellars, provide the beginnings of the structure within which modern inferentialism develops. These ideas can be made more definite by considering a general model of conceptual contents as inferential roles that has been recommended by Dummett. According to that model, the use of any linguistic expression or concept has two aspects: the *circumstances* under which it is correctly applied, uttered, or used, and the appropriate *consequences* of its application, utterance, or use. Though Dummett does not put the point this way, this model connects to inferentialism of the Sellarsian sort via the principle that the content to which one is committed by using the concept or expression may be represented by the *inference* one implicitly endorses by such use, the inference, namely, from the circumstances of appropriate employment to the appropriate consequences of such employment.

The original source for the model lies in a treatment of the grammatical category of sentential connectives. Dummett's two-aspect model is a generalization of a standard way of specifying the inferential roles of logical connectives, due ultimately to Gentzen. Gentzen defined

connectives by specifying *introduction* rules, or inferentially sufficient conditions for the employment of the connective, and *elimination* rules, or inferentially necessary consequences of the employment of the connective. Thus, to define the inferential role of an expression '&' of Boolean conjunction, one specifies that anyone who is committed to p, and committed to q, is thereby to count also as committed to $p\&q$, and that anyone who is committed to $p\&q$ is thereby committed both to p and to q. The first schema specifies, by means of expressions that do not contain the connective, the *circumstances* under which one is committed to claims expressed by sentences that contain (as principle connective[18]) the connective whose inferential role is being defined, that is, the sets of premises that entail them. The second schema specifies, by means of expressions that do not contain the connective, the *consequences* of being committed to claims expressed by sentences that contain (as principle connective) the connective whose inferential role is being defined, that is, the sets of consequences that they entail.

Dummett makes a remarkable contribution to inferentialist approaches to conceptual content by showing how this model can be generalized from logical connectives to provide a uniform treatment of the meanings of expressions of all grammatical categories, in particular sentences, predicates and common nouns, and singular terms. The application to the *propositional* contents expressed by whole sentences is straightforward. What corresponds to an introduction rule for a propositional content is the set of inferentially sufficient conditions for asserting it, and what corresponds to an elimination rule is the set of inferentially necessary consequences of asserting it, that is, what follows from doing so. Dummett says[19]:

> (14) Learning to use a statement of a given form involves, then, learning two things: the conditions under which one is justified in making the statement; and what constitutes acceptance of it, i.e., the consequences of accepting it.

Dummett presents his model as specifying two fundamental features of the *use* of linguistic expressions. In what follows, I'll be applying it in the context of the previous ideas, to bring into relief the *implicit material inferential content* a concept or expression acquires in virtue of being used in the ways specified by these two 'aspects'. The link between pragmatic significance and inferential content is supplied by

the fact that asserting a sentence is implicitly undertaking a commitment to the correctness of the material inference from its circumstances to its consequences of application.

Understanding is here presented not as the turning on of a Cartesian light, but as practical mastery of a certain kind of inferentially articulated *doing*: responding differentially according to the circumstances of proper application of a concept, and distinguishing the proper inferential consequences of such application. This is not an all-or-none affair; the metallurgist understands the concept *tellurium* better than I do, for training has made her master of the inferential intricacies of its employment in a way that I can only crudely approximate. Thinking clearly is on this inferentialist rendering a matter of knowing what one is committing oneself to by a certain claim, and what would entitle one to that commitment. Writing clearly is providing enough clues for a reader to infer what one intends to be committed to by each claim, and what one takes it would entitle one to that commitment. Failure to grasp either of these components is failure to grasp the inferential commitment use of the concept involves, and so failure to grasp its conceptual content.

Verificationists, assertibilists, and reliabilists make the mistake of treating the first aspect as exhausting content. Understanding or grasping a content is taken to consist in practically mastering the circumstances under which one becomes entitled or committed to endorse a claim, quite apart from any grasp of what one becomes entitled or committed to by such endorsement. But claims can have the same circumstances of application and different consequences of application, as for instance 'I foresee that I will write a book about Hegel' and 'I will write a book about Hegel' do[20]. And the point of the discussion of Sellars' application of inferentialist ideas to the understanding of noninferential reports, at the beginning of this essay, was that parrots and photocells and so on might reliably discriminate the circumstances in which the concept 'red' should be applied, without thereby grasping that concept, precisely in the case where they have no mastery of the consequences of such application — when they can't tell that it follows from something being red that it is colored, that it is not a prime number, and so on. You do not convey to me the content of the concept 'gleeb' by supplying me with an infallible gleebness tester,

which lights up when and only when exposed to gleeb things. I would in that case know what things were gleeb, without knowing what I was saying about them when I called them that, what I had found out about them or committed myself to. Dummett offers two examples of philosophically important concepts where it is useful to be reminded of this point[21]:

> (15) An account, however accurate, of the conditions under which some predicate is rightly applied may thus miss important intuitive features of its meaning; in particular, it may leave out what we take to be the point of our use of the predicate. A philosophical account of the notion of truth can thus not necessarily be attained by a definition of the predicate 'true', even if one is possible, since such a definition may be correct only in the sense that it specifies correctly the application of the predicate, while leaving the connections between this predicate and other notions quite obscure.

Even more clearly:

> (16) A good example would be the word 'valid' as applied to various forms of argument. We might reckon the syntactic characterization of validity as giving the criterion for applying the predicate 'valid' to an argument, and the semantic characterization of validity of giving the consequences of such an application.
> . . . if he is taught in a very unimaginative way, he may see the classification of arguments into valid and invalid ones as resembling the classification of poems into sonnets and non-sonnets, and so fail to grasp that the fact that an argument is valid provides any grounds for accepting the conclusion if one accepts the premises. We should naturally say that he had missed the point of the distinction.

Pragmatists of the classical sort, on the other hand, make the converse mistake of identifying propositional contents exclusively with the *consequences* of endorsing a claim, looking downstream to the claim's role as a premise in practical reasoning and ignoring its proper antecedents upstream. [For present purposes, that the emphasis is on *practical* consequences doesn't matter.] Yet one can know what follows from the claim that someone is responsible for a particular action, that an action is immoral or sinful, that a remark is true or in bad taste, without for that reason counting as understanding the claims involved, if one has no idea when it is appropriate to make those claims or apply those concepts. One can indeed understand the concept 'person in this room having an ancestor who appears in one of Shakespeare's plays' without realizing that it applies to Sellars, but not if one does not know what would have to be true of him for it to apply, nor what would be true of him in virtue of its applying[22]. Being classified as AWOL does have the

consequence that one is liable to be arrested, but the specific circumstances under which one acquires that liability are equally essential to the concept.

Of course, such theories don't simply ignore the aspects of content they don't treat as central. Dummett says[23]:

> (17) ... most philosophical observations about meaning embody a claim to perceive ... a simple pattern: the meaning of a sentence consists in the conditions for its truth and falsity, or in the method of its verification, or in the practical consequences of accepting it. Such dicta cannot be taken to be so naive as to involve overlooking the fact that there are many other features of the use of a sentence than the one singled out as being that in which its meaning consists: rather, the hope is that we shall be able to give an account of the connection that exists between the different aspects of meaning. One particular aspect will be taken as central, as constitutive of the meaning of any given sentence ...; all other features of the use of the sentence will then be explained by a uniform account of their derivation from that feature taken as central.

Pursuing this notion of *derivation* provides a helpful perspective on the idea of conceptual contents articulated according to material inferences, and on the role of explicit inference licenses such as conditional statements in expressing and elucidating such inferences and so such contents.

For the special case of defining the inferential roles of logical connectives by pairs of sets of rules for their introduction and for their elimination, which motivates Dummett's broader model, there is a special condition it is appropriate to impose on the relation between the two sorts of rules[24].

> (18) In the case of a logical constant, we may regard the introduction rules governing it as giving conditions for the assertion of a statement of which it is the main operator, and the elimination rules as giving the consequences of such a statement: the demand for harmony between them is then expressible as the requirement that the addition of the constant to a language produces a conservative extension of that language.

Recognition of the appropriateness of such a requirement arises from consideration of connectives with 'inconsistent' contents. As Prior pointed out, if we define a connective, which after Belnap we may call 'tonk', as having the introduction rule proper to disjunction and the elimination rule proper to conjunction, then the first rule licenses the transition from p to p *tonk* q, for arbitrary q, and the second licenses the transition from p *tonk* q to q, and we have what he called a

"runabout inference ticket" permitting any arbitrary inferences. Prior thought that this possibility shows the bankruptcy of Gentzen-style definitions of inferential roles. Belnap[25] shows rather that when logical vocabulary is being introduced, one must constrain such definitions by the condition that the rule not license any inferences involving only old vocabulary that were not already licensed before the logical vocabulary was introduced, that is, that the new rules provide an inferentially conservative extension of the original field of inferences. Otherwise, the introduction of the new vocabulary licenses new material inferences, and so alters the contents associated with the old vocabulary. From the point of view of the approach being considered here, it is a criterion of adequacy for introducing logical vocabulary that no *new* inferences involving only the *old* vocabulary be made appropriate thereby. Only in this way can logical vocabulary play the expressive role of making explicit the original material inferences, and so contents.

The problem of what Dummett calls a lack of 'harmony' between the circumstances and the consequences of application of a concept may arise for concepts with material contents, however. Seeing how it does provides further help in understanding the notion of expressive rationality, and the way in which the explicitating role of logical vocabulary contributes to the clarification of concepts. For conceptual change can be[26]:

> (19) ... motivated by the desire to attain or preserve a harmony between the two aspects of an expression's meaning. A simple case would be that of a pejorative term, e.g. 'Boche'. The conditions for applying the term to someone is that he is of German nationality; the consequences of its application are that he is barbarous and more prone to cruelty than other Europeans. We should envisage the connections in both directions as sufficiently tight as to be involved in the very meaning of the word: neither could be severed without altering its meaning. Someone who rejects the word does so because he does not want to permit a transition from the grounds for applying the term to the consequences of doing so. The addition of the term 'Boche' to a language which did not previously contain it would produce a non-conservative extension, i.e. one in which certain other statements which did not contain the term were inferable from other statements not containing it which were not previously inferable ...

This crucial passage makes a number of points that are worth untangling. First of all, it shows how concepts can be criticized on the basis of substantive beliefs. If one does not believe that the inference from German nationality to cruelty is a good one, one must eschew the

concept or expression "Boche". For one cannot deny that there are any Boche — that is just denying that anyone is German, which is patently false. One cannot admit that there are Boche and deny that they are cruel — that is just attempting to take back with one claim what one has committed oneself to with another. One can only refuse to employ the concept, on the grounds that it embodies an inference one does not endorse. Highly charged words like "nigger", "whore", "Communist", "Christian", have seemed a special case to some because they couple 'descriptive' circumstances of application to 'evaluative' consequences. But this is not the only sort of expression embodying inferences that requires close scrutiny. The use of *any* concept or expression involves commitment to an inference from its grounds to its consequences of application. Critical thinkers, or merely fastidious ones, must examine their idioms to be sure that they are prepared to endorse and so defend the appropriateness of the material inferential transitions implicit in the concepts they employ. In Reason's fight against thought debased by prejudice and propaganda, the first rule is that potentially controversial material inferential commitments should be made explicit as claims, exposing them both as vulnerable to reasoned challenge and as in need of reasoned defense.

It is in this process that formal logical vocabulary such as the conditional plays its explicitating role. It permits the formulation, as explicit claims, of the inferential commitments that otherwise remain implicit and unexamined in the contents of material concepts. Logical locutions make it possible to display the relevant grounds and consequences, and to assert their inferential relation. Formulating as an explicit claim the inferential commitment implicit in the content brings it out into the open as liable to challenges and demands for justification, just as with any assertion. In this way explicit expression plays an elucidating role, functioning to groom and improve our inferential commitments, and so our conceptual contents — a role, in short, in the practices of reflective rationality that Sellars talks about under the heading of "Socratic method". But if Dummett is suggesting that what is wrong with the concept 'Boche' is that its addition represents a nonconservative extension of the rest of the language, he is mistaken. Its nonconservativeness just shows that it has a substantive content, in that it implicitly involves a material inference that is not already implicit in

the contents of other concepts being employed. This is no bad thing. Conceptual progress in science often consists in introducing just such novel contents. The concept of temperature was introduced with certain criteria or circumstances of appropriate application, and certain consequences of application. As new ways of measuring temperature are introduced, and new consequences of temperature measurements adopted, the complex inferential commitment that determines the significance of using the concept of temperature evolves. The proper question to ask in evaluating the introduction and evolution of a concept is not whether the inference embodied is one that is already endorsed, so that no new content is really involved, but whether that inference is one that ought to be endorsed. The problem with 'Boche' or 'nigger' is not that once we explicitly confront the material inferential commitment that gives them their content, it turns out to be *novel*, but that it can then be seen to be indefensible and inappropriate. We want to be aware of the inferential commitments our concepts involve, to be able to make them explicit, and to be able to justify them. But there are other ways of justifying them than showing that we were already implicitly committed to them, before introducing or altering the concept in question. Making implicit commitments explicit is only a necessary condition of justifying them. Even in the cases where it does make sense to identify harmony of circumstances and consequences with inferential conservativeness, the attribution of conservativeness is always relative to a background set of material inferential practices, the ones that are conservatively extended by the vocabulary in question. Conservativeness is a property of the conceptual content only in the context of other contents, not something it has by itself. Thus there can be pairs of logical connectives, either of which is all right by itself, but both of which cannot be included in a consistent system. It is a peculiar ideal of harmony that would be realized by a system of conceptual contents such that the material inferences implicit in every subset of concepts represented a conservative extension of the remaining concepts, in that no inferences involving only the remaining ones are licensed that are not licensed already by the contents associated just with those remaining concepts. Such a system is an idealization, because all of its concepts would already be out in the open; none remaining hidden, to be revealed only by drawing conclusions from

premises that have never been conjoined before, following out unexplored lines of reasoning, drawing consequences one was not previously aware one would be entitled or committed to by some set of premises. In short, this would be a case where Socratic reflection, making implicit commitments explicit and examining their consequences and possible justifications, would never motivate one to alter contents or commitments. Such complete transparency of commitment and entitlement is in some sense an ideal projected by the sort of Socratic practice that finds current contents and commitments wanting by confronting them with each other, pointing out inferential features of each of which we were unaware. But as Wittgenstein teaches in general, it should not be assumed that our scheme is like this, or depends upon an underlying set of contents like this, just because we are obliged to remove any particular ways in which we discover it to fall short.

These are reasons to part company with the suggestion, forwarded in the passage above, that inferential conservatism is a *necessary* condition of a 'harmonious' concept — one that won't 'tonk up' a conceptual scheme. In a footnote, Dummett explicitly denies that conservativeness can in general be treated as a *sufficient* condition of harmony[27]:

> This is not to say that the character of the harmony demanded is always easy to explain, or that it can always be accounted for in terms of the notion of a conservative extension . . . the most difficult case is probably the vexed problem of personal identity.

In another place, this remark about personal identity is laid out in more detail[28]:

> We have reasonably sharp criteria which we apply in ordinary cases for deciding questions of personal identity: and there are also fairly clear consequences attaching to the settlement of such a question one way or the other, namely those relating to ascriptions of responsibility, both moral and legal, to the rights and obligations which a person has . . .
> What is much harder is to give an account of the connection between the criteria for the truth of a statement of personal identity and the consequences of accepting it. We can easily imagine people who use different criteria from ours. . . . Precisely what would make the criteria they used criteria for *personal identity* would lie in their attaching the same consequence, in regard to responsibility, motivation, etc., to their statements of personal identity as we do to ours. If there existed a clear method for deriving, as it were, the consequences of a statement from the criteria for its truth, then the difference between such people and ourselves would have the character of a factual disagreement, and one side would be able to show the other to be wrong. If there were no connection between truth-grounds and consequences, then the disagreement between us would lie merely in a preference for different concepts, and there would be no right or wrong in the matter at all.

Dummett thinks that there is a general problem concerning the way in which the circumstances and consequences of application of expressions or concepts ought to fit together. Some sort of 'harmony' seems to be required between these two aspects of the use. The puzzling thing, he seems to be saying, is that the harmony required cannot happily be assimilated either to compulsion by facts or to the dictates of freely chosen meanings. But the options: matter of fact or relation of ideas, expression of commitment as belief or expression of commitment as meaning are not ones that readers of "Two Dogmas of Empiricism" and its heirs ought to be tempted to treat as exhaustive[29]. By contrast to this either/or, in a picture according to which conceptual contents are conferred by being caught up in a social practical structure of inferentially articulated commitments and entitlements, material inferential commitments are a necessary part of any package of practices that includes material assertional or doxastic commitments.

The circumstances and consequences of application of a concept may stand in a substantive material-inferential relation. To ask what sort of 'harmony' they should exhibit is to ask what material inferences we ought to endorse, and so what conceptual contents we ought to employ. This is not the sort of a question to which we ought to expect or welcome a general or wholesale answer. Grooming our concepts and material-inferential commitments in the light of our assertional commitments, including those we find ourselves with noninferentially through observation, and the latter in the light of the former, is a messy, retail business. Dummett thinks that a theory of meaning should take the form of an account of the nature of the 'harmony' that ought to obtain between the circumstances and the consequences of application of the concepts we ought to employ. The point I want to make is that we should not expect a theory of that sort to take the form of a specification of necessary and sufficient conditions for the circumstances and consequences of application of a concept to be harmonious. Rather, insofar as the idea of such a theory makes sense at all, it must take the form of an investigation of the ongoing elucidative process, of the 'Socratic method' of discovering and repairing discordant concepts, which alone gives the notion of harmony any content. It is given content only by the process of *harmonizing* commitments, from which it is abstracted. In Sellars' characterization of induction, with which we began, inductive inference is assigned an expressive role insofar as its

conclusion is understood as being an inference license making explicit a commitment that is implicit in the use of conceptual contents antecedently to play. Rules of this sort assert an authority over future practice, and answer for their entitlement both to the prior practice being codified and to concomitant inferential and doxastic commitments. In this way they may be likened to the principles formulated by judges at common law, intended both to codify prior practice, as represented by precedent, expressing explicitly as a rule what was implicit therein, and to have regulative authority for subsequent practice. The expressive task of making material inferential commitments explicit plays an essential role in the reflectively rational Socratic practice of harmonizing our commitments. For a commitment to become explicit is for it to be thrown into the game of giving and asking for reasons as something whose justification, in terms of other commitments and entitlements, is liable to question. Any theory of the sort of inferential *harmony* of commitments we are aiming at by engaging in this reflective, rational process must derive its credentials from its expressive adequacy to that practice, before it should be accorded any authority over it.

III

In the first part of this paper I introduced three related ideas: the inferential understanding of conceptual content, the idea of materially good inferences, and the idea of expressive rationality. These contrast, respectively, with an understanding of *content* exclusively according to the model of the representation of states of affairs, an understanding of the *goodness of inference* exclusively on the model of formal validity, and an understanding of *rationality* exclusively on the model of instrumental or means-end reasoning. In the second part of the paper, these ideas were considered in relation to the representation of inferential role suggested by Dummett, in terms of the *circumstances* of appropriate application of an expression or concept and the appropriate *consequences* of such application. In the time that remains, I want to consider briefly how the lessons extracted from those discussions may be applied in understanding the form of the question we should be asking about nomological induction.

The general counsel that may be extracted from the foregoing considerations is that to understand the concept of nomologicality or lawlikeness, we ought to look first to the role of that concept in reasoning. No doubt that role involves relations to representations of how things are, but we have learned not to insist at the outset that the concept be understood as a way of representing how things are. Other roles are possible. The typical conclusion of a nomologically inductive inference is a modally qualified conditional. The model qualification indicates the special role and status in the game of giving and asking for reasons that is being according to the inference expressed explicitly in the conditional. Ascending a level, we can apply the broadly inferential way of representing conceptual roles considered before, in terms of their appropriate circumstances and consequences of application, to the conceptual role associated with commitments to nomologicality. To do that we ought to begin by asking after the consequences of applying the concept of nomologicality. What do we commit ourselves to when we assert that the expansion of metals upon an increase in temperature is not merely a *regular*, perhaps even *universal*, occurrence, but a matter of *law*? What is the conceptual surplus of claims to nomologicality over claims of regularity, where the regularity may be only accidental?

Sellars understands that surplus in terms of the notion of unactualized possibilities, in a way that Goodman and others have since made commonplace. One treats a generalization as lawlike insofar as one treats it as supporting counterfactual inferences, inferences concerning what would happen, or would have happened, if some other circumstance that will not or has not obtained did. This is to say that the appropriate consequences of applying the concept of nomologicality, rather than merely regularity, to a generalization essentially include subjunctive or counterfactual conditionals[30]. It follows from the lawfulness of the relation between heating metals and their expansion that if Agamemnon's brazen shield had been heated by the fires that destroyed Troy, it would have expanded. The concept of lawlikeness is to be understood in terms of the inferential licensing of such conditionals. Of course a great deal more must be said about those conditionals and the material inferential relations they codify, and Sellars does. But for here it is enough to note that by their means the consequences of application of the concept of nomologicality can be specified.

When one inquires about the justification of nomological induction, what is at issue is not the *consequences* of application of the notion of a natural law, but its *circumstances* of application. Inductive inference treats some sets of particular statements describing instances conforming to a regularity as permissively sufficient to entitle one to apply the concept of a lawful regularity. (Of course, the application of nomological concepts can be warranted by the application of other nomological concepts as well, as when a specific law is derived from a more general one, but these are not the controversial cases.) In fact, although inductive inference is one form taken by the circumstances of application of the concept of natural law, what is at issue is not so much those circumstances as their connection with the counterfactual conditional commitments that constitute the consequences of such application. What warrants the application of a concept must warrant what follows from that application. The question is precisely one of the Dummettian 'harmony' of these two aspects of the inferential significance of nomological concepts. Those who feel the need for a vindication of inductive inferential practice[31] want to be reassured that the concept of a natural law, a concept that permits one to apply it on the basis of a finite number of instances conforming to some regularity, and whose consequences of application license commitment to subjunctive conditionals expressing what would happen under various counterfactual circumstances, is not a defective one, in the way for instance that 'tonk' and 'Boche' show themselves to be.

The tenor of the preceding remarks has been that it would be a mistake to import into the discussion of this issue the preconceptions about how the circumstances and consequences of acceptable concepts must be related that derive from consideration only of formal concepts. For concepts embodying purely formal logical inferences, we have seen, it is legitimate to require the exhibition of a *derivation* of the consequences of application from the circumstances, a derivation, moreover, whose appropriateness is demonstrable before the concept in question has been introduced into the language. For the criterion of adequacy for the introduction of formal concepts is inferential conservativeness, which is demonstrated by such derivation. If inductive inferences are material inferences, if the endorsement of nomological claims introduces new conceptual contents, then such a demand is out of place. It is

a question of whether and when it is rational to commit ourselves to the inference from circumstances to consequences of application that is implicit in the employment of nomological concepts. Sellars' strategy is to show that the kind of material inferential commitment implicit in inductive justificatory practice is essential to the rational, reflective rectification of our empirical concepts and commitments. Concern is thus shifted from the question of *whether* to accept inductive justifications, to *which* ought to be accepted, that is to say, to which material concepts or contents we ought to employ. The general position of Sellars that I hope to have shed some light on here is the conjunctive claim: first, that the nomological conditional is an essential bit of semantically expressive, that is, *logical*, vocabulary, in that any set of linguistic practices without it would be expressively and so reflectively impoverished, and second that each particular nomological commitment codifies a substantive material inferential commitment, which must redeem its entitlement by holding up under Socratic scrutiny.

NOTES

[1] In *Action, Knowledge and Reality*, ed. Castaneda, Bobbs-Merrill 1975, p. 285.

[2] I offer detailed accounts of their efforts, understood along these lines, in "Leibniz and Degrees of Perception" *Journal of the History of Philosophy*, vol. 19 #4, October 1981, pp. 447—479, and "Adequacy and the Individuation of Ideas in Spinoza's Ethics" *Journal of the History of Philosophy*, vol. 14, April 1976, pp. 147—162. One piece of a contemporary approach is presented in my "Reference Explained Away", *Journal of Philosophy*, LXXXI #9, September 1984, pp. 469—492, also reprinted in the *Philosopher's Annual*, 1984, Grim, Martin, Simon, eds.

[3] *Begriffsschrift* (hereafter, *BGS*) section 3.

[4] P. 175. Sellars' reference is in "Inference and Meaning" reprinted in *Pure Pragmatics and Possible Worlds*, J. Sicha ed: Ridgeview Publishing Co. 1980 (hereafter, *PPPW*), pp. 266/318. At this point it may be noticed that both Frege and Carnap look only to the consequences of a claim, that is, its premissory inferential role. It is then appropriate to wonder about the role of a claim as conclusion. For familiar formal systems, the same inferences are recoverable either by specifying for each sentence all the good inferences in which it plays a role as premise, or for each specifying all those in which it plays a role as a conclusion. For reasons discussed further along, though, individual material conceptual contents should individuated at least by pairs of sets of inferences to and inferences from it.

[5] Michael Dummett, *Frege's Philosophy of Language*: Harper & Row, New York, 1973 (hereafter *FPL*), p. 432.

[6] *FPL* p. 433. For another way to understand Frege's (and our own) use of truth locutions, see Brandom, "Pragmatism, Phenomenalism, and Truth Talk," in *Midwest Studies in Philosophy*, in press.

[7] "Inference and Meaning", in *PPPW* pp. 261—313.

[8] "Inference and Meaning" *PPPW* pp. 265–317.
[9] "Inference and Meaning" *PPPW* pp. 284–336. This talk about the "framework" of logical transformation rules is just one expression of the attitude toward the relation between formal and material inference in this essay. It would not be underwritten by the approach endorsed below, where logical vocabulary is picked out by its expressive role, and then used to derive a notion of formal validity from material correctnesses of inference.
[10] "Language, Rules, and Behavior" footnote 2 to p. 136–296 in *PPPW*).
[11] Here is another early statement of this important Sellarsian theme:

Now, among the linguistic activites which can be discriminated are the 'explicative' or 'analytic' which, to use Ayer's phrase [*LTL* p. 17] 'elucidate the proper use' of linguistic expressions. Furthermore the anthropologist . . . can distinguish within language activity between that which "deals directly with the environment" and that which attempts to mirror, within language itself, the relation of language to the world. In connection with this fichtean self-diremption, the language user makes use of such words as 'means', 'true', 'verified' and so on. This is linguistic activity as semantic and pragmatic metalanguage. But the language activity of human organisms can achieve an even greater degree of internal complexity, such as comes out most clearly in the 'explicative' metalinguistic activity of the logician and epistemologist, but is also to be found, highly confused, in more practical beings. The Realm of Ideal Being is the illusory precipitate of this doubling in (tripling in, etc.) of language upon itself. Thus, under the guise of 'exploring' the 'realm of possibility' we have been rehearsing explicative metalinguistic activity of the sort which is characteristic of the 'analytic philosopher' who is but a few steps from common sense.

from "Concepts as Involving Laws and Inconceivable Without Them" *PPPW* pp. 122–314.
[12] From "Boole's logical Calculus and the Concept-script", *Posthumous Writings* (hereafter *PW*) pp. 12–13.
[13] Ibid. *PW* p. 13.
[14] Ibid. *PW* p. 46.
[15] *Begriffsschrift* Preface, in van Heijenoort (ed.) *From Frege to Godel* Harvard Press, 1967 p. 7.
[16] Op. cit. *PW* p. 16.
[17] See Brandom, "Varieties of Understanding", in *Reason and Rationality in Natural Science*, ed. N. Rescher, University Press of America 1985, pp. 27–51.
[18] The actual procedure defines the introduction of a connective only as the principal connective in a formula, and defines how to eliminate only principal occurrences. Full generality is nonetheless assured by working recursively. It should be remarked that the standard Gentzen-style definitions for logical connectives will still be possible for conjunction and disjunction, but on the line to be presented, the expressive role of conditionals, negation, and many other bits of logical vocabulary requires that they be understood as having quite another sort of introduction rule.
[19] *FPL* p. 453.
[20] Consider the inferential commitments undertaken by asserting various conditionals in which these claims appear as antecedents. The significance of this sort of example is explored in Brandom, "Truth and Assertibility" *Journal of Philosophy* vol. 73, March 1976, pp. 137–149.
[21] *FPL* p. 455, second passage at *FPL* pp. 453–454.
[22] Lord Stanley, an ancestor of Wilfrid's on his paternal gradmother's side, appears in Bosworth Field in *Richard III.* See *Roy Wood Sellars*, by W. Preston Warren, G. K. Hall & Co. (Twayne Publishers, Boston, 1975 p. 19).
[23] *FPL* pp. 456–457.

[24] *FPL* p. 454. It should be noted that inferential conservativeness is a weaker condition than derivability of circumstances from consequences (or vice versa). Showing how to derive one aspect from the other, using logic or prior inferential commitments, is sufficient but not necessary for conservativeness. I am grateful to Michael Kremer for this point.

[25] "Tonk, Plonk, and Plink", *Analysis* XXII (1962) pp. 130—134. Commenting on Prior's "The Runabout Inference Ticket" *Analysis* XXI (1960—1) pp. 38—39.

[26] *FPL* p. 454.

[27] *FPL* p. 455n.

[28] *FPL* p. 358.

[29] In Quine's *From a Logical Point of View*, Harvard U. Press 1953, pp. 20—46. As already pointed out, talk of derivability is strictly stronger than talk of conservativeness. On the other side of the divide, the notion of a completely factual issue that Dummett appeals to in this passage is one in which the applicability of a concept is settled straightforwardly by the application of other concepts, the concepts that specify the necessary and sufficient conditions that determine the truth conditions of claims involving the original concept. This conception, envisaged by a model of conceptual content as necessary *and* sufficient conditions, seems to require a conceptual scheme that is ideally transparent in the way mentioned above, in that it is immune to Socratic criticism. For that conception insists that these coincide in that the individually sufficient conditions *already* entail the jointly necessary ones, so that it is attractive to talk about content as *truth conditions*, rather than focussing on the substantive *inferential commitments* that relate the sufficient to the distinct necessary conditions, as recommended here.

[30] I am inclined to think that this is a case where one *must* have conditionals, and not merely inferences. For it is difficult to see how practices of endorsing counterfactual inferences could be understood apart from these expressive resources.

[31] This phrase is not intended to refer to Sellars. His view is that induction *is* a kind of practical vindication, not that it *needs* one.

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