"Inference and Meaning" (1953—*Mind*) Passages

1.   Twenty or so years ago it was received dogma among the great majority of empirically-minded philosophers that the inference which finds its expression in "It is raining, therefore the streets will be wet" is an **enthymeme.** Explicitly formulated, it was claimed, the argument thus presented would read, "Whenever it rains the streets will be wet, it is raining; therefore the streets will be wet". As the validity of this reasoning rests on purely formal principles, it was concluded that the same is true of the briefer argument above, it being in all respects save formulation, identically the same [I-3]

2.   The claim seems to be that even if it made sense to speak of non-logical principles of inference, there would be no need for them [I-4]

3.   **Kant** was on the right track when be insisted that **just as concepts are essentially** (and not accidentally) **items which can occur in judgments, so judgments** (and, therefore, indirectly concepts) **are essentially** (and not accidentally) **items which can occur in reasonings or arguments.** [I-4]

4.   Those who take this line claim that "It is raining, therefore the streets will be wet", when it isn't an enthymematic abridgment of a formally valid argument, **is merely the manifestation of a *tendency to expect*** to see wet streets when one finds it raining, a tendency which has been hammered into the speaker by past experience. In this latter case it is the manifestation of a process which at best can only *simulate* inference, since it is a **habitual transition** of the imagination, and as such is not governed by a principle or rule by reference to which it can be characterized as valid or invalid. That Hume dignified the activation of an association with the phrase "causal *inference*" is but a minor flaw, they continue, in an. otherwise brilliant analysis. It should, however, be immediately pointed out that before one has a right to say that what Hume calls "causal inference" really isn't inference at all, but a mere habitual transition from one thought to another, one must pay the price of showing just how *logical* inference is something more than a mere habitual transition of the imagination. Empiricists in the Humean tradition have rarely paid this price, a fact which has proved most unfortunate for the following reason. An examination of the history of the subject shows that **those who have held that "causal inference" only simulates inference proper have been led to do so as a result of the conviction that *if it were genuine inference, the laws of nature would be discovered to us by pure reason*.** [I-5]

5.   But might it not be possible for an empiricist to hold that material rules of inference are as essential to meaning as formal rules? That **the specific nature of a factual concept is determined by the material rules of inference governing it**, as its generic nature is determined by formal rules of inference? That **the meaning of a term lies in the materially and formally valid inferences** it makes possible? [I-7]

6.   In effect, then, 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 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". [I-7]

7.   In Carnap's terminology, a rule of inference, conceived to be a syntactical rule, is called a "transformation rule". He emphasizes the central role played by the concept of a transformation rule in the definition of a language. Indeed (p. 168) he contends that once we know the circumstances under which one expression of a language, is the direct consequence of another, we have the key to the logical structure of the language. [II-8]

8.   **[H]e defines the *content* of a sentence as the class of non-valid sentences which are its consequences (i.e. can be inferred from it).** [II-8]

9.   **In Quine's useful terminology, descriptive terms occur *vacuously* in logically valid arguments; *essentially* in extra-logically valid arguments.** [II-8]

10.   Let us now raise the question whether, granted that a language must have rules of inference, it must have both L-rules and P-rules... *Carnap...makes it clear that in his opinion a language containing descriptive terms need not be governed by extra-logical transformation rules*. Indeed, be commits himself to the view that for every language with P-rules, a language with L-rules only can be constructed in which everything sayable in the former can be said. [II-9,10]

11.   [W]hen one turns to Carnap's book with these questions in mind, one is startled to find no account whatsoever of the grounds on which it might be expedient to adopt a language governed by P-rules as well as L-rules. What we do find is an emphasis on the disadvantage of adopting P-rules. He points out that to the extent that empirical generalizations are erected into P-rules, science is put into a strait-jacket. "If P-rules are stated, we may frequently be placed in the position of having **to alter the language**" (p. 180). [II-11]

12.   [A]ccording to Carnap, P-rules, like L-rules, may take either one of two forms: (1) They may be formulated as rules of inference. This is the form we have supposed them to have in the above discussion. (2) They may be formulated as sentences to the effect that certain sentences in the object language are "primitive sentences", that is, *privileged* sentences in that their assertion is unconditionally authorized by the rules of the language. [II-11,12]

13.   Metaphysicus notes that we have been asking whether Carnap's P-rules authorize any linguistic activity which, dispensable or not, is incapable of being authorized by L-rules alone...**What Metaphysicus has in mind, of course, are such subjunctive conditionals as "If I *had released* this piece of chalk, it *would have fallen*", and "If there *were to be* a flash of lightning, there *would be* thunder".** [III-12]

14.   He points out that "If anything were red and square, it would be red" cannot plausibly be claimed to assert the same as "(In point of fact) all red and square things are red", and suggests that **this subjunctive conditional conveys the same information as the logical rule permitting the inference of *x is red* from *x is red and x is square*....".** Metaphysicus now argues that if we accept this analysis, **we must interpret the subjunctive conditionals with which we began this paragraph as expressions of *material* rules of inference.** [III12,13]

15.   He therefore claims to have shown beyond reasonable doubt not only **that there are such things as material rules of inference,** but, which is far more important, *that they are essential to any conceptual frame which permits the formulation of such subjunctive conditionals as do not give expression to logical principles of inference*. Since we are all conscious of the key role played in the sciences, both formal and empirical, in detective work and in the ordinary course of living by subjunctive conditionals, this claim, if substantiated, would indeed give a distinguished status to material rules of inference. [III-13]

16.   Now, unless some other way can be found of interpreting such **subjunctive conditionals** in terms of logical principles of inference, we have established not only that they **are the expression of material rules of inference,** but that the authority of these rules is not derivative from formal rules. In other words, we have shown **that material rules of inference are essential to the language we speak**, for we make constant use of subjunctive conditionals of the type we have been examining. **It is very tempting to conclude that material rules of inference are essential to languages containing descriptive terms. Yet to draw this conclusion would be hasty, for the most we have shown is that if there are descriptive languages which are not governed by material rules, they do not permit the formulation of material subjunctive conditionals.** [III-15]

17.   *[W]here the object language does not permit us to say "If a were ϕ, it would be ψ" we can achieve the same purpose by saying "'ψa' may be inferred from 'ϕa'".* [III-16]

18.   To sum up the results of the last few paragraphs: Alternative (4) has been shown, at least provisionally, to be untenable. This would leave Carnap with alternative (3)—(material rules of inference are dispensable but underived). However, in the process of disproving alternative (4) **we have been led to notice the importance of the function played in natural languages by material subjunctive conditionals. Since these are object language expressions of material rules of inference, and since the same function can be performed by the formulation of a rule of inference in the metalanguage,** it has occurred to us that alternative (2)—material rules of inference, though not essential to the meaning of descriptive terms, are indispensable features of languages containing descriptive terms, and have an authority underived from formal rules though rejected by Carnap, is worth reconsidering. [III-16]

19.   [T]he Humean suggestion that causal inferences are really not inferences at all, but rather habitual expectations masquerading as inferences, loses all plausibility when it is stretched to cover ostensible material subjunctive conditionals, particularly when contrary to fact. [III-16]

20.   [T]he basic moral of the above discussion is that if a definition is, with any plausibility, to do the work of a rule, the definiendum must have the normative flavour characteristic of "ought", or "ought not" or "may" or "may not". [IV-18]

21.   **[A] rule is always a rule for *doing* something.** [IV-18] [BB: Note that when WS later introduces the distinction between "ought to do"s and "ought to be"s, he must modify this claim.]

22.   Let us now pause to sum up the substance of the last few paragraphs. We have been pointing out that **a syntactical rule**, like any other rule**, prescribes or permits a certain kind of action in a certain type of circumstance. In the case of syntactical rules, the relevant kind of action would seem to be *asserting*,** a concept of which we have offered no analysis, but which is, we shall assume, to be understood in terms of the concept of a token, so that to assert a sentence is to bring about the existence of a token of that sentence. [BB: This is hopelessly inadequate.] (Though after Ryle's painstaking analysis of mentalistic terms we must be prepared to find that even the "event" of asserting has a dispositional component.) Be this as it may, it follows from our analysis that **a syntactical metalanguage cannot permit the formulation of syntactical *rules*, unless (1) it contains a term for the activity of asserting, and (2) it contains an expression having the force of "ought". To** the extent that a so-called "syntactical metalanguage" falls short of these requirements, it is an abstraction from a syntactical metalanguage proper. It is undoubtedly convenient to study calculi by means of such truncated metalanguages as mention only the structural inter-relationships of the sign-designs of these calculi, but it is essential for our purposes to stress that these truncated metalanguages become capable of formulating *rules* only when supplemented by the equipment mentioned above. [IV-20]

23.   We are now in a position to develop an account of the logical and physical modalities which, though based on Carnap's account in his *Logical Syntax of Language*, is an improvement in that it explicitly takes into account **the *rulishness* of syntactical rules**. It will be remembered that the central

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concept of Carnap's treatment is that of a **quasi-syntactical sentence**. As a simple example we may take the sentence **"Red is a quality". This is a quasi-syntactical sentence in that it conveys the same information as the syntactical sentence "'Red' is a one-place predicate". Furthermore, "red is a quality" is a quasi-syntactical sentence in the *material* mode of speech, as opposed to the *autonomous* mode of speech, in that "'red' is a quality" is not a syntactical sentence conveying the same information as "red is a quality".** Carnap tells us that

... The material mode of speech is a **transposed** mode of speech. In using it, in order to say something about a word (or a sentence) we say instead something parallel about the object designated by the word (or the fact described by the sentence...) … [V-20]

24.   Consider, now, the sentence "If a is red and square, then it is *logically necessary* that a be red". According to Carnap's account, this is a quasi-syntactical sentence in the material mode of speech which conveys the same information as the syntactical sentence "'a is red' is an L-consequence of 'a is red and a is square'". Now, as I see it, this account is essentially sound, and is vitiated only by the fact **that Carnap's account of the consequence relation makes it merely a matter of a structural relationship obtaining between two expression designs.** If, in accordance with our earlier proposal, we reformulate the above in terms of the syntactical predicate "derivable", then the claim becomes **that the sentence "If a is red and square, then it is logically necessary that a be red" is a quasi-syntactical sentence <u>conveying the same information as</u> the syntactical sentence, "'a is red' is L-derivable from 'a is red and a is square'"**. [V-21]

25.   Returning now to the problem of interpreting modal sentences, we notice that Carnap's analysis has become the claim that sentences involving the phrase "logically necessary" convey the same information (the use of the vague expression "convey the same information" is deliberate) as syntactical rules to the effect that we may do thus and so, and ought not do this and that, in the way of manipulating expressions in a language. **The language of modalities is interpreted as a "transposed" language of norms**. [V-21] [BB: See passage [23] above for the use of 'transposed'.]

26.   This theory, as it stands, is open to two related and rather obvious objections. (1) It might be objected that **the thought of necessity is radically different from the thought of permission-*cum*-obligation.** (2) It might be objected, that the sentence "If a, is red and square, then a must, of logical necessity, be red", mentions neither linguistic expressions nor language users, and consequently cannot mention an obligation of language of language-users to use linguistic expressions in certain ways; whereas, as we have seen, the sentence "'a is red' is L-derivable from 'a is red and a is square'" does both. [V-21]

27.   [T]here are two senses in which an utterance can be said to **convey information**. There is the sense in which my early morning utterance, "The sky is clear", **conveys** meteorological information; and there is the sense in which it conveys information about my state of mind. Let us use the term "asserts" for the first sense of "conveys", and "conveys" for the second. [V-22].
BB: Semantic vs. pragmatic inferences. Embedding test.

28.   [T]he utterance "'ψa' is L-derivable from 'φa'", being a **normative** utterance, **does not *describe*** the psychological mechanisms of the speaker. [V-22]

29.   I shall assume that concepts are meaningfully used predicates. **"Necessary" and "ought", as occurring in living English usage, then, are concepts.** [BB: Odd argument, since 'necessary' is *not* a predicate (but a sentential operator), and 'ought' at least arguably also belong in this category.] Indeed, they would seem to be as much concepts as "red" or "longer than". **Yet there is an important difference between logical, modal and normative predicates, on the one hand, and such predicates as "red" on the other.** In the case of the former, it is obvious that their conceptual meaning is entirely constituted by their "logical grammar", that is, by the fact that they are used in accordance with certain syntactical rules. In the case of the latter, this is not obvious—though, as we are about to argue, it is equally true. [V-23]

30.   **[M]odal terms, normative terms and psychological terms are mutually irreducible.** [V-23]

31.   **A modal or normative property (if we permit ourselves to speak of them as such) cannot significantly be said to be exemplified by a particular (or pair of particulars).** [BB: Why not? Aren't *dispositional* properties instantiated, for instance? And can't I instantiate the to-be-doneness (propriety) of dishwashing?] On the other hand, it does make sense to speak of a particular as an instance of *red*, and of a pair of particulars as an instance of *longer than*. It does make sense to speak of "red" as a learned response to red objects. It would therefore seem open to us to hold that the conceptual meaning of "red" is constituted (apart from its purely formal properties) by this relationship. [V-23]

32.   Now, that at least some of the descriptive predicates of a language must be learned responses to extra-linguistic objects in order for the language to be *applied*, is obvious. But that **not even these predicates ("observation predicates") owe their conceptual meaning to this association** should be reasonably clear once the following considerations are taken into account:
(1)   By no means all descriptive predicates which are not themselves observation predicates are explicitly definable in terms of observation predicates. The conceptual meaning of those which are not cannot consist in being learned responses to objects of the kind they are said to mean. ... [**BB: He means *theoretical* descriptive predicates.**]
(3)   "(In Schmidt's language) 'rot' means red" (S_1) appears to assert an empirical relationship between "rot" as used by Schmidt, and the class of red objects. Once this is taken for granted, it is natural to infer that this relationship consists in Schmidt's having learned to respond to red objects with "rot". If one should then notice that "(In Schmidt's language) 'und' means and" (S_2) can scarcely be given the same interpretation, one is likely to say that S_2 concerns a different species of meaning, and informs us that Schmidt uses "und" in accordance with rules which are analogous to our rules for "and". Now the truth of the matter is that *neither S_1 nor S_2 makes an empirical assertion*, though both *convey* empirical information about Schmidt's use of language. **The "means" of semantical**

statements...is no more a *psychological* word than is the "ought" of ethical statements or the "must" of modal statements, even though it is correctly used, and gains application through being used, to *convey* psychological information about the use of language. And once we cease to be hypnotized by the form "'red' means red" into taking for granted that the psychological fact (conceptual meaning) corresponding to S_1, is a dyadic relation between Schmidt's "rot" and red, and realize that since the fact in which we are interested is conveyed rather than asserted by S_1, so that the logical form of the latter is no guide to the form of the fact for which we are looking, we see that "rot" might well owe its conceptual meaning to Schmidt's using "rot" in accordance with rules analogous to our rules for "red".

(4)   That **it is fruitful to distinguish those aspects of the use of an observation predicate which relate to its *application* from those which relate to its conceptual meaning**, has been obscured by a careless use of the term "rule". There is at first sight some plausibility in saying that the rules to which the expressions of a language owe their meaning are of two kinds, (a) syntactical rules, relating symbols to other symbols, and (b) semantical rules, whereby basic descriptive terms acquire extra-linguistic meaning. It takes but a moment, however, to show that this widespread manner of speaking is radically mistaken. **Obeying a rule entails recognizing that a circumstance is one to which the rule applies. If there were such a thing as a "semantical rule" by the adoption of which a descriptive term acquires meaning, it would presumably be of the form "red objects are to be responded to by the noise *red*". But to recognize the circumstances to which this rule applies, one would already have to have the concept of red, that is, a symbol of which it can correctly be said that it "means red".**

(5)   **A uniformity in behaviour is rule-governed not *qua* uniformity, for then all habitual responses would be obeyings of rules—which is clearly not the case—but *qua* occurring, in a sense by no means easy to define, because of the conception of the norm enjoined by the rule.** Yet the fact that both rule-governed and merely associative uniformities are *learned* uniformities, and differ in this respect from, say, the uniformities studied in chemistry, has blinded many philosophers to the important respects in which they differ from one another, and has led to much of the nonsense peddled under the heading "ostensive definition". [V-23-5]

BB: Recall passage from LRB:

The stress laid by many empiricists on "ostensive definition" is on the one hand a sound recognition of the patent fact that a meaningful language system must tie up with the environment, and on the other hand a sad confusion between learning the *definition* of a word, that is to say, learning to use it in a rule-regulated manner according to socially recognized rules, and learning (being conditioned) to respond with the word-noise to certain environmental stimuli. This confusion is exhibited by the ambiguous usage of the phrase "ostensive definition." (ftnt. 6)

33.   It will be remembered that at the end of section III we had arrived at the conclusion that P-rules are indispensable to any language which permits the formulation of material subjunctive conditionals, though the use of the latter may be avoided by a direct statement of the rules themselves. This, in turn, inclined us to hold that P-rules are essential to any language which contains non-logical or descriptive terms. This would eliminate all but the first two interpretations of the status of material rules of inference listed at the end of section I. If, however, the argument of section V is sound, it is the first (or "rationalistic") alternative to which we are committed. [VI-25]

34.   In traditional language, **the "content" of concepts as well as their logical "form" is determined by rules of the Understanding**. The familiar notion (Kantian in its origin, but present in various disguises in many contemporary systems) that the form of a concept is determined by 'logical rules', while the content is 'derived from experience' embodies a radical misinterpretation of the manner in which the 'manifold of sense' contributes to the shaping of the conceptual apparatus 'applied' to the manifold in the process of cognition. The contribution does not consist in providing plums for Jack Horner. There is nothing to a conceptual apparatus that isn't determined by its rules, and there is no such thing as choosing these rules to conform with antecedently apprehended universals and connexions, for the "apprehension of universals and connexions" is already the use of a conceptual frame, and as such presupposes the rules in question. **The role of the given is rather to be compared to the role of the environment in the evolution of species;** though it would be misleading to say that the apparent teleology whereby men "shape their concepts to conform with reality" is as illusory as the teleology of the giraffe's lengthening neck. After all, it is characteristic of modern science to **produce deliberately mutant conceptual structures w**ith which to challenge the world. For primitive thought the analogy is much less misleading. [VI-25,26]

35.   Our thesis, in short, turns out, as we have developed it, to be quite unlike the dogmatic rationalism of Metaphysicus. For whereas he speaks of *the* conceptual-frame, the system of formal and material rules of inference, we recognize that there are an indefinite number of possible conceptual structures (languages) or systems of formal and material rules, each one of which can be regarded as a candidate for adoption by **the animal which recognizes rules**, and no one of which has an intuitable hallmark of royalty. They must compete in the market place of practice for employment by language users, and be content to be adopted haltingly and schematically. **In short, we have come out with C. I. Lewis at a "pragmatic conception of the *a priori*". Indeed, my only major complaint concerning his brilliant analysis in *Mind and the World Order***, is that he speaks of the *a priori* as *analytic*, and tends to limit it to propositions involving only the more generic elements of a conceptual structure (his "categories"). As far as I can gather, Lewis uses the term "analytic" as equivalent to "depending only on the meaning of the terms involved". In this sense, of course, our *a priori* also is analytic. But this terminology is most unfortunate, since in a perfectly familiar sense of "synthetic", some *a priori* propositions (including many that Lewis recognizes) are synthetic and hence *not* analytic (in the corresponding sense of "analytic"). That Lewis does not recognize this is in part attributable to his ill-chosen terminology. It is also undoubtedly due to the fact that in empirically-minded circles it is axiomatic that there is no synthetic *a priori*, while the very expression itself has a strong negative emotive meaning. Whether or not it is possible to rescue this expression from its unfortunate associations I do not know. I am convinced, however, that **much of the current nibbling at the distinction between analytic and synthetic propositions** is motivated by what I can only interpret as a desire to recognize the existence of synthetic *a priori* propositions while avoiding the contumely which the language traditionally appropriate to such a position would provoke. [VI-26,27]