Does epistemological holism lead to meaning-holism?

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§ 1.   Holism in general.

There are various proposals for a general characterization of holism[1]. In this paper I propose the following: *a variety of holism* is the view that every X of an appropriate kind, which is part of a relevant whole W, cannot be legitimately separated or taken in isolation from W. Then, I distinguish two general kinds of holism, depending on two different reasons which can debar us from taking X in isolation from W. One reason can be that separating X from W always amounts to transforming X into something else. Correspondingly, a *strong holism* is the view that if the whole W is modified anywhere, X ceases to be X and becomes something else. Another reason why it may be illegitimate to consider X in isolation from W can be that if we separate X from W, nothing that we know entitles us to exclude that X might be transformed into something else. Correspondingly, *virtual holism* is the view that if the whole W is modified anywhere, *we can never rule out* that X ceases to be X and becomes something else.

§ 2.   Meaning-properties, epistemic properties.

A linguistic expression E can acquire two kinds of properties. First, there are those properties which the member of a linguistic community must attach to the expression E in order to *understand* E in the right way; I call them "meaning-properties". There are many different views about the nature of such properties, but now I don't want to consider any of these specific views *in particular*; I prefer to keep my exposition as general as possible. The second kind of properties are those properties which constitute the way in which speakers are willing to use the expression E in epistemic processes where E relevantly occurs (i.e. where one is not at liberty to substitute E uniformly with other expressions of the same syntactic category without jeopardizing the epistemic legitimacy of the resulting use). Properties of this kind are the acceptance of forms of inferences essentially involving E in premises or conclusions, or of modes of justification by sensory evidence of uttered sentences involving E, etc.; we can call them "epistemic properties". The *meaning* of E in a language is given by all the meaning-properties of E in that language. The *epistemic value* of E at a certain time is given by all the epistemic properties of E at that time.

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[1] The first general characterization was given by general Jan Christiaan Smuts, who coined the word, in his book *Holism and Evolution*, first published in 1926, now republished by N. & S., Cape Town 1987. Within analytical philosophy, recent contributions are offered in J. Fodor, E. Lepore, *Holism*, Blackwell, Oxford 1992 and M. Esfeld, "Holism and Analytic Philosophy", *Mind*, 107 (1998), pp. 365-380.

§ 3.   Meaning-holism.

Let me adopt a notation which distinguishes the merely syntactic expression E from the meaningful expression *E* obtained by attaching to E an adequate meaning. Meaning-holism is the following view:

Meaning-holism

Every meaningful expression *E* cannot be separated from the whole language L to which it belongs: if L changes in any way, (we can never rule out that)*E* ceases to be *E*, even though the syntactic E remains the same.

If we omit the parenthesis, we have *strong meaning-holism*. Strong meaning-holism is similar to Michael Dummett's description of a holistic view of language, which focuses on statements in particular:

> [According to] a holistic view of language […] it is illegitimate to ask after the content of any single statement […]; the significance of each statement […] is modified by the multiple connections which it has, direct and remote, with other statements in other areas of our language taken as a whole, and so there is no adequate way of understanding the statement short of knowing the entire language. [2]

One may use the notion of "language" in different ways. By using here "language", I will refer to an appropriate set of meaningful words and corresponding syntactic rules for combining those words and forming sentences. Meaning-holism is the view that no meaningful (sentential or subsentential) expression *E* of the language in question can be separated from the set of *all* meaningful words and syntactic rules of the language L to which it belongs without possibly losing its meaning, so that if a speaker does not understand *all* the words of L, (we can never rule out that) she does not understand *E*.

§ 4.   Against meaning-holism.

Like many philosophers who have dealt with this topic, I believe it can be convincingly argued that meaning-holism is wrong. More precisely, it is wrong, if it is presented as a thesis about a speaker's understanding of English, Italian or other natural languages. A conception of linguistic understanding should agree with some *pre-theoretic criteria of understanding*. Any speaker-hearer confronted with her fellow-speakers takes some of their linguistic acts as evidence showing that the interlocutors understand or do not understand some uttered words. There is uniformity in such judgements concerning linguistic understanding. Thus we may speak of pre-theoretic criteria of understanding adopted by a linguistic community. Pre-theoretic criteria of understanding are *data* which a philosophical theory of understanding should explain. If the theory conflicts with too many such data, the theory is wrong. But probably no theory conflicts with so many pre-theoretic

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[2] M. Dummett, "The Philosophical Basis of Intuitionistic Logic", in *Truth and Other Enigmas,* Duckworth, London, 1978, p. 218. Cf. M. Dummett, *The Logical Basis of Metaphysics*, Duckworth, London 1991, p. 221.

judgements of understanding as meaning-holism does. The pre-theoretic criteria tell us that it is not necessary to investigate whether someone understands "hairdryer" in order to establish whether he or she understands "strawberry": two persons can understand each other when they talk about strawberries even if one of them does not understand "hairdryer". The sets of words understood by different speakers are always (or almost always) different. Being in such a situation, however, according to pre-theoretic criteria, does not prevent us from understanding each other if one of us says: "there are two strawberries in the basket". We are convinced that we understand each other because, in spite of the differences in other areas of language, we share some relevant uses of a certain fragment of language containing "strawberry", "two", etc., which we consider sufficient for mutual understanding. Yet this plausible conviction would be *false*, if *strong* meaning-holism were true. If *virtual* meaning holism were true, on the other hand, any difference arising in other areas of language would be for the speaker whose linguistic knowledge varies potential source of an uncontrolled change of the meaning of "strawberry" (as well as of other words). The fact that *many* such differences arise would make the meaning of "strawberry" very unstable and idiosyncratic. Our conviction that we mutually understand "there are two strawberries in the basket" would become highly implausible, and thus *illegitimate*. As Dummett wrote, meaning-holism "leaves it a mystery how we manage to communicate with one another as successfully as we do".[3] So there are reasons to think that meaning-holism has absurd consequences and should be rejected.

§ 5.   The problem.

Nevertheless, several philosophers accept meaning-holism. Quine wrote: «the English sentences of a theory have their meaning only together as a body»[4]. Block[5], Davidson[6], Field[7], Harman[8], Brandom[9], to name but a few, all uphold holistic views of meaning or content[10]. On what grounds? For different philosophers different answers are appropriate. But perhaps a general answer can be given. There are reasons to believe that meaning-holism follows from another holism, which, unlike meaning-holism, seems to be clearly true, at least in some sense: *epistemological* holism. If this is the case, we have a problem: meaning-holism is absurd and epistemological holism (at least in some sense) is true; but meaning-holism seems to follow from epistemological holism. We should like to do justice to epistemological holism without falling into meaning-holism. How can we? In the sequel I shall distinguish different kinds of epistemological holism and I shall try to investigate

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[3] M. Dummett, *The Logical Basis of Metaphysics*, p. 237.

[4] W.V.O Quine, "Epistemology Naturalized", in *Ontological Relativity and Other Essays*, Columbia University Press, New York 1969, p. 80.

[5] Cf. N. Block, "An Argument for Holism", *Proceedings of the Aristotelian Society*, 95 (1994-1995), pp. 151-169.

[6] Cf. D. Davidson, "Truth and Meaning", Synthese, 17 (1967), p. 308.

[7] Cf. H. Field, "Logic, Meaning and Conceptual Role", *The Journal of Philosophy* 74 (1977), pp. 379-409.

[8] Cf. G. Harman, *Thought*, Princeton, 1974, pp. 14, 53.

[9] Cf. R. B. Brandom, *Making it Explicit*, Harvard University Press, Cambridge-London, 1994, pp. 89-91, 477-481; *Articulating Reasons*, Harvard University Press, Cambridge-London, 2000, pp. 16, 167.

[10] A survey of philosophers who favour meaning holism is in J. Fodor, E. Lepore, *Holism*.

whether, and how, they lead to meaning-holism. Then I shall make a general sketch of a solution which would enable us, without contradiction, to endorse a moderate epistemological holism and reject meaning-holism. Finally, I shall investigate to what extent particular theories of meaning (Dummett's *justificationist* theory in the first place, a kind of theory I shall call *epistemic* in the second place) satisfy the requirements formulated in the general sketch.

§ 6.   Epistemological holism.

In this section I try to offer a general characterization of epistemological holism. Let's call "*epistemic context*" the set of all epistemic values associated with the expressions of the language L in a given epistemic situation[11].   Epistemological holism is the following view:

Epistemological holism
For each expression E of L, the epistemic value of E cannot be separated from the whole epistemic context. If the epistemic context changes substantially anywhere, (we can never rule out that) the epistemic value of E changes substantially.

The adverb "substantially" serves to avoid a trivialization of epistemological holism. A change in the epistemic value of E may be insubstantial, if a new epistemic property is added which is reducible to an old one. Suppose, for example, that we have a proof *D* of a sentence S. The existence of *D* is an epistemic property P of S. Afterwards a new axiom T is added to the epistemic context. In the new epistemic context, through the new axiom and our old proof *D*, we prove the conjunction T   S, and then infer S by conjunction elimination. This is a new epistemic property P' of S, but P' is reducible to our old P: in the new proof of S the only important part is the old *D*, the rest is redundant (the conjunction T   S would be a *maximum formula* in Prawitz's terminology[12]). Therefore this change of the epistemic value of E is not substantial. If V is the epistemic value of E at time *t* and V' the epistemic value of E at a different time *t'*, we can say that V is substantially different from V' if, and only if, V' contains at least one epistemic property which is not reducible to any epistemic property in V or vice versa. The epistemic value of E changes substantially if, and only if, the new epistemic value of E is substantially different from the old one.

The epistemic value of an expression E comprises all epistemic uses where E relevantly occurs. These uses can sometimes be justifications by sensory experience of assertions involving E. But this is only a particular kind of epistemic use. Correspondingly, a particular version of epistemological holism is the so called Duhem-Quine thesis (advocated by Duhem only for hypotheses in physics[13] and

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[11] If the reader wonders about the notion of 'epistemic situation', I suggest that to describe an epistemic situation one should not only specify a language and an epistemic context – which involves a set of accepted sentences and a set of accepted arguments – but also present patterns of sensory evidence, and a set of open problems of different importance.

[12] Cf. D. Prawitz, *Natural Deduction*, Almqvist & Wiksell International, Stockholm 1965, pp. 32-38.

[13] In *La Theorie Physique* (1906) Duhem maintained that a hypothesis in physics cannot be tested in isolation, because in order to draw an observational consequence one needs other hypotheses belonging to the same physical theory, and sometimes also to other theories, and because in order to perform and to interpret an experiment one needs other theories concerning the experimental apparatus cf. P. Duhem, *La Theorie Physique*, Vrin, Paris 1993.

generalised by Quine to all language[14]). The thesis denies that single isolated sentences have their own separate empirical content. The *empirical content* of a sentence can be described as the ordered pair containing the two classes of all experiences which confirm the sentence and all experiences which disconfirm it, respectively, (or the two classes of all stimulations prompting assent and all stimulations prompting dissent[15]). According to the Duhem-Quine thesis, it is misleading to think of the empirical content of an individual sentence isolated from a whole system of sentences, because only the whole system can be subjected to the test of experience. The Duhem-Quine thesis is thus a particular version of epistemological holism, where only one aspect of epistemic value is considered: empirical content. Sometimes the thesis is identified with epistemological holism[16]. But this may lead us astray. The Duhem-Quine thesis neglects all other non-sensory aspects of the epistemic value of sentences. Therefore the equation of epistemological holism with the Duhem-Quine thesis may be connected with two mistakes: the idea that the only important aspect of epistemic value is empirical content, and the idea that only empirical content is holistic, while all inferential aspects of epistemic value remain unaffected by the epistemic context. Against these two mistakes it is good to emphasize two obvious facts. Firstly, we often justify an asserted sentence by exhibiting evidence which is not sensory, but linguistic, i.e. by exhibiting other sentences. Deductive and non-deductive inferential links connecting sentences with other sentences are thus important aspects of epistemic values. Secondly, inferential links can be as holistic as empirical content. For example, experts infer "The megalithic monuments of Île Longue were built about four thousands years before Christ" from a sentence stating levels of radioactivity of archaeological finds only because they accept many other sentences belonging to physics and even to botany[17]. Another example: a detective's inference from "we found this bloodstain in room 7" to "Tom was in room 7" is accepted because a DNA test is performed and molecular biology (including crucial sentences concerning DNA) is accepted. For any sentence, there can be relevant (linguistic and non-linguistic) evidence or counterevidence which is recognized as such only through the acceptance of systems of other sentences and in advance we cannot set any limit to the comprehensiveness of such systems: evidence and counterevidence can originate anywhere in the epistemic context.[18] Many new methods of verification for old sentences result from new scientific and technological developments: new diagnostic procedures, new tests for recognizing chemical substances, new media of communication. My opinion is that epistemological holism (in the general sense specified above) is a fact. Does this fact imply the doctrine of meaning-holism?

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[14] W.V.O Quine, "Two Dogmas of Empiricism", in *From a Logical Point of View,* Harvard University Press, Cambridge 1953, pp. 20-46.

[15] Cf. W.V.O Quine, *Word and Object*, The MIT Press, Cambridge 1960, p. 32.

[16] Cf., for example, A. Miller, *Philosophy of Language*, UCL Press, London 1998, p. 124

[17] Cf. C. Renfrew, *Before Civilization. The Radiocarbon Revolution and Prehistoric Europe*, Cambridge University Press, Cambridge 1973.

[18] Cf. J. Fodor, *The Modularity of Mind*, MIT Press, 1983, p. 105 and H. Putnam, "Meaning Holism and Epistemic Holism", in K. Cramer, H. Fulda, R. Horstmann (eds), *Theorie der Subjektivität*, Suhrkamp, Frankfurt 1987, p. 251.

§ 7. From the Duhem-Quine thesis to meaning-holism.

Those who think that there is a sound reasoning from epistemological holism to meaning-holism must assume some additional premise, which connects meaning and epistemic value. What additional premise? Historically, epistemological holism was used by Quine in "Two Dogmas of Empiricism" as a weapon against the special brand of verificationism advocated by the logical empiricists. The logical empiricists identified meaning with empirical content. They believed that the meaning of an individual sentence is given by conditions for its verification and falsification and that both verification and falsification consist merely in the occurrence of certain sensations. Quine criticizes the idea that isolated sentences have a separate meaning in this sense, but he remains in favour of the idea that meaning (if there is such a thing) is empirical content. So, when he infers meaning-holism from epistemological holism,[19] he uses two premises: the Duhem-Quine thesis and the empiricist version of the "verification theory of meaning", according to which meaning is empirical content[20]. Thus an easy route from epistemological holism to meaning-holism might be summarized as follows:

1) Empirical content is holistic (Duhem-Quine thesis);
2) Meaning is empirical content;
3) Meaning is holistic.

Quine's reasoning has not remained unchallenged. Fodor and Lepore criticized it in their book *Holism*[21], but the objections they raise can be successfully countered[22]. Endorsing premise (1) (the Duhem-Quine thesis) and accepting the foregoing inference, however, does not force anyone to espouse the conclusion (3) (meaning-holism), because one can fail to subscribe to premise (2) (empiricist verificationism). The latter remark is not new. For example Prawitz wrote:

> Only if one adds that the meaning of a theoretical sentence is to be identified with its empirical consequences does the Duhem-Quine thesis lead to strange consequences, but there is no reason to make such an identification; it would indeed amount to a very crude meaning theory[23].

and Peacocke:

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[19] W.V.O Quine, "Epistemology Naturalized", in *Ontological Relativity and Other* Essays, Columbia University Press, New York 1969, p. 80. Cf. "Reply to Roger F. Gibson Jr." in L. E. Hahn and P. A. Schilpp (eds) *The Philosophy of W. V. Quine*, Open Court, Chicago and La Salle 1986, sec. exp. ed. 1998, pp. 155-156. Moreover cf. R. F Gibson, Jr., *The Philosophy of W. V. Quine*, University Presses of Florida, Tampa 1982, pp. 80-81.

[20] W.V.O Quine, "Two Dogmas of Empiricism", p. 37.

[21] Cf. J. Fodor, E. Lepore, *Holism*, Ch. 2. Before this book Fodor had accepted the inference: " you can infer a holistic account of meaning from a holistic account of confirmation if like Quine …. you happen to be a verificationist", J. Fodor, "Banish disContent", in W. G. Lycan (ed.), *Mind and Cognition*, Blackwell, Oxford 1986, p. 437 n.

[22] Cf. S. Okasha, "Holism about meaning and about evidence: in defence of W. V. Quine", in *Erkenntnis* 52 (2000), pp. 39-61.

[23] D. Prawitz, "Review of *The Logical Basis of Metaphysics*, by Michael Dummett", in *Mind*, CIII (1994), pp. 373-376.

> In this later framework [*Word and Object*] the Quine thesis becomes the claim that sentences about the external world cannot be assigned stimulus-meanings one-by-one, but only collectively, in sets. This version of the Quine thesis is plausible, but it supports holism about meaning only if meaning is to be elucidated in terms of stimulus meaning[24].

Nevertheless, if we accept epistemological holism (and not only its limited version, the Duhem-Quine thesis), in order to avoid meaning-holism it is not enough to refrain from espousing the empiricist conception of meaning. The empiricist identifies sentential meaning with the ordered pair of all confirming and all disconfirming experiences (the formulation of *Two Dogmas*) or with the ordered pair of all stimulations prompting assent and all stimulations prompting dissent (if we prefer *Word and Object*). Both versions of empiricist verificationism are implausible and we can easily do without them, but, if we accept certain formulations of epistemological holism, a much weaker and more plausible principle about meaning is sufficient to lead us to meaning-holism.

§ 8. The connection between meaning and epistemic value.

The more plausible principle affirms that there is a *connection between meaning and epistemic value* in two ways. Firstly: in order to understand (to give meaning to) an expression E, one has to attach to E at least some epistemic properties. Secondly: if the meaning of E changes, then at least some epistemic property of E will change too. A general reason for accepting the first part is the overwhelming inclination to think that a speaker does not understand E, if she has absolutely no idea about the way in which the expression E can be used in epistemic processes, and does not know anything about the use of E in inferences, or about the assertability of sentences containing E in sensory circumstances. In favour of the second part one might say that a meaning-change without any epistemic difference would be irrelevant (it might be a change in tone,[25] which we may put aside). It is worth emphasizing, however, that the connection between meaning and epistemic value does not imply that all meaning-properties are epistemic properties, nor that all epistemic properties are meaning-properties. We can formulate the principle in the following way:

i For every meaningful expression E, at least some meaning-properties attached to E are epistemic properties of E. Moreover, if the meaning of E changes, some epistemic properties of E change.

Supporters of various conceptions of meaning would accept *i*, not only adherents to the logical empiricists' verificationism. The logical empiricists had a restricted conception of the meaning-constitutive epistemic properties, according to which only sense experience counts as meaning-constitutive evidence. Thus they accepted a particular version, or adaptation, of *i*. A different version is endorsed by those who

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[24] C. Peacocke, "Holism", in B. Hale e C. Wright (eds), *A Companion to the Philosophy of Language*, Blackwell, Oxford 1997, pp. 230-231.
[25] "Tone" is here meant in Dummett's sense, corresponding to Frege's "Färbung" or "Beleuchtung". Cf. M. Dummett, *Frege. Philosophy of language*, Duckworth, London, sec. ed., 1981, pp. 1-7.

prefer a justificationist[26] conception which explains the meaning of a sentence in terms of justifications containing both linguistic and sensory evidence in different proportions. Other versions of *i* are upheld by those who identify meaning with conceptual role or argumental role or, in more general terms, with epistemic use[27] and even by those who think, like Frege, that understanding a sentence is knowing its truth condition, because they too would agree that knowledge of truth conditions should be somehow, perhaps partially, manifested in some epistemic use of sentences. In short: many consider (or would consider) principle *i* a plausible principle. If *i* together with epistemological holism leads to meaning-holism, then avoiding meaning-holism will be more problematic than it would be if meaning-holism were only a consequence of the theory of meaning of logical empiricists: we have no qualms about rejecting the implausible verificationism advocated by logical empiricists, but abandoning *i* is rather uncomfortable. In the sequel I shall consider only conceptions of meaning which embody the connection between meaning and epistemic value.

§ 9. Extreme epistemological holism.

One of Quine's most quoted formulations of the Duhem-Quine thesis is the following:

> The dogma of reductionism survives in the supposition that each statement, taken in isolation from its fellows, can admit of confirmation or infirmation at all: my countersuggestion [...] is that our statements about the external world face the tribunal of sense experience not individually but only as a corporate body.[28]

Here Quine takes only *sensory* evidence into account and apparently maintains that a sentence in isolation from the whole system of other sentences accepted as true cannot be connected with *any single piece* of evidence or counterevidence. Notice that this tenet is more radical than the Duhem-Quine thesis in the usual formulation given above, which only states that one cannot attach to the isolated sentence the *two classes* of *all* favourable or unfavourable pieces of sensory evidence. If we employ the more general notion of epistemic property and substitute Quine's notion of a "corporate body of all statements about the external world" with our analogous notion of "epistemic context", we obtain:

ii For every epistemic property P attached to an expression E, P could not be attached to E in isolation from an epistemic context; if the epistemic context changes

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[26] This is a new terminology, adopted by Dummett in "Realism and Anti-Realism", *The Seas of Language*, Clarendon press, Oxford 1993, p. 475; and followed by Anat Matar in *From Dummett's Philosophical Perspective*, De Gruyter, Berlin 1997, p. 95; cf. also M. Dummett, "Meaning and Justification", in B. McGuinness (ed.), *Language Logic and Formalization of Knowledge*, Bibliotheca, Gaeta 1998, pp. 11-30. In the new terminology "justificationist" substitutes for the previous "verificationist" introduced, I believe, in "What is a theory of meaning ? (I)" (1974) and specially in "What is a theory of meaning ? (II)" (1976), now both in *The Seas of Language*.

[27] For example, Paul Horwich, cf. his *Meaning*, Clarendon Press, Oxford 1998 or Robert Brandom, cf. *Making it Explicit*.

[28] W.V.O Quine, "Two Dogmas of Empiricism", p. 41.

substantially anywhere, (one can never rule out that) P is transformed into some substantially different epistemic property.

This is a version of epistemological holism. I call it "*extreme* epistemological holism". If we endorse it and accept the connection between meaning and epistemic value, we shall have to conclude that (we are entitled to say that) a speaker understands an expression in the right way only if she accepts the whole epistemic context.

§ 10. Epistemic manifestability of language-change.

A consequence of *i*, the connection between meaning and epistemic value, which is convenient to make explicit in order to show that extreme epistemological holism leads to meaning-holism, is the following:

iii If the language changes anywhere, the epistemic context changes.

Any change in a language involves some change in its meaningful expressions. Such a change, if *i* holds, involves some change of epistemic properties, hence a change in the epistemic context. Let me call *iii* "*the epistemic manifestability of language-change*".

§ 11. From extreme epistemological holism to meaning-holism.

A path from extreme epistemological holism to meaning-holism can now be delineated.

i) Some epistemic properties of E are meaning-properties; and if the meaning of E changes, some epistemic properties of E change;	*the connection between meaning and epistemic value*;
ii) for every epistemic property P of E, if the epistemic context changes, (we can never rule out that) P is transformed into some different epistemic property;	*extreme epistemological holism*;
iii) if the language L changes anywhere, the epistemic context changes;	*epistemic manifestability of language-change*; *from* (i);
iv) there is at least one epistemic property P of E such that, if P changes, the meaning attached to E changes;	*From* (i);
v) if the epistemic context changes, (we can never rule out that) the meaning attached to E changes;	*From* (iv), (ii);
vi) if L changes anywhere, (we can never rule out that) the meaning attached to E changes;	*From* (v), (iii).

Clearly, a generalization of (vi) is meaning-holism.

§ 12. Moderate epistemological holism.

If meaning-holism is wrong and the argument in the preceding section is right, at least one of the premises, (i) or (ii), should be wrong. If, for the reasons explained in § 8, we accept (i), the connection between meaning and epistemic value, we should conclude that (ii), extreme epistemological holism, is wrong.

Perhaps this conclusion does not surprise the reader. By reading the statement of extreme epistemological holism carefully, we realize that it is much stronger than the original formulation of epistemological holism. The latter stated that the *epistemic value* of an expression E, i.e. the *set* of all epistemic properties of E, may change if the epistemic context somehow changes, and thus the epistemic value depends on the epistemic context. Much more radically, extreme epistemological holism says that each single *epistemic property* of E – i.e. each *element* of the set – is attached to E by a speaker only if the speaker accepts the whole epistemic context, and may change if this changes. Hence extreme epistemological holism says that every epistemic property depends on the whole epistemic context. This sounds implausible.

In what sense can an epistemic property *depend* on the epistemic context? To say that an epistemic property depends on a certain share of what we consider knowledge in a certain epistemic situation means that we must *use* what belongs to that share in order to *justify* our attaching the epistemic property to the expression in question, if its legitimacy is disputed. Let's consider the example of the epistemic property of "Tom was in room 7" consisting in its being inferred from "we found this bloodstain in room 7". We imagined a DNA test was performed; thus if the inference were challenged, it could be justified only by employing sentences of molecular biology; but to meet the challenge one would not employ Fermat's Last Theorem. In order to justify a particular epistemic property of an expression, we have to employ *a relevant portion* of the epistemic context, *not all* of it. The relevant portion is relative to the single epistemic property and varies, if a different epistemic property is in question. If someone challenges a mathematical theorem which, as the Four Colour Theorem, is proved by a computer-assisted proof, some evidence for the reliability of computers should be given, to justify the claim that the proposed argument can count as a proof[29]; but one would not resort to molecular biology, in this case. The relevant portion varies also if we consider a different epistemic property *of the same expression*. If the detective concluded "Tom was in room 7" from the established facts that a gun was fired, an examination of the bullet's trajectory revealed it had been fired from the window of room 7 and a chemical test indicated traces of gunpowder on the windowsill and on Tom's clothes, the relevant portion of the epistemic context would be different and would not include molecular biology. The moral of these remarks is that *each epistemic property of an expression* E *depends on a specific relevant portion of the epistemic context*. Hence the tenet of extreme epistemological holism, that every epistemic property depends on the whole epistemic context, seems to be ungrounded.

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[29] Cf. T. Tymoczko, "The Four-Color Problem and its Philosophical Significance", in *The Journal of Philosophy*, 76 (1979), pp. 57-83.

As far as empirical content is concerned, Quine himself remarked that, though we cannot set fixed and precise limits to the system of auxiliary sentences which in particular circumstances we may have to employ in order to test a sentence empirically, such a system of sentences is in practice never the *complete totality* of science. Quine clarifies this point in "Five Milestones of Empiricism":

[...] how inclusive should we take this system to be? Should it be the whole of science? or the whole of *a* science, a branch of science? This should be seen as a matter of degree, and of diminishing returns. All sciences interlock to some extent; they share a common logic and generally some common part of mathematics, even when nothing else. It is an uninteresting legalism, however, to think of our scientific system of the world as involved *en bloc* in every prediction. More modest chunks suffice [...].[30]

In the same paper Quine calls the doctrine proposed in this passage "moderate holism". According to moderate holism, usually, in our testing a sentence empirically science is not involved in its totality, but "more modest chunks" suffice.

To reject extreme epistemological holism is not to reject epistemological holism. Even though single epistemic properties of an expression E do not depend on *all* the epistemic context, the *set* of all epistemic properties of E, i.e. the epistemic value of E, can depend on the whole epistemic context. A weaker version of epistemological holism is still well confirmed by our epistemic practice. I call it "moderate epistemological holism"[31]:

Moderate epistemological holism

For every expression E, given any part of the whole epistemic context, we cannot rule out that such a part is necessary for a justification of *some* epistemic property of E. Therefore if the epistemic context changes, we cannot rule out that some epistemic property of E dissolves (becomes unjustified), or some substantially new epistemic property arises.

§ 13.   Primitive epistemic properties.

Suppose we accept moderate epistemological holism and the view that some epistemic properties are meaning-constitutive (i.e. the connection between meaning and epistemic value). Does meaning-holism follow? It depends on what epistemic properties we take to be meaning-constitutive. If *all* epistemic properties were also meaning-properties, meaning-holism would be inevitable. A picture of the workings of language which does not lead to meaning-holism must show that only *few* epistemic properties are meaning-constitutive. Therefore, if we try to sketch such a picture, the question is: how can we draw the line which distinguishes the epistemic properties which are meaning-constitutive from those which are not? Such a line of

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[30] W. V. Quine, "Five Milestones of Empiricism" in *Theories and Things*, Harvard University Press, Cambridge, Massachusetts, 1981, p. 71.

[31] This is not the same view that is called "moderate Quinean holism" by Sanford Shieh in "Some Senses of Holism", in R. Heck (ed.) *Language Thought and Logic*, Clarendon Press, Oxford 1997, p. 83.

demarcation should not be *ad hoc* and should not be drawn arbitrarily. A prior problem is: are there reasonable criteria according to which we can assess a proposal concerning the demarcation of meaning-constitutive epistemic properties? Since the issue is what constitutes linguistic understanding, we already know (cf. § 4) that there are pre-theoretic criteria of understanding with which our proposal ought to agree. This requirement suggests the way to tackle our problem. Any speaker-hearer takes some linguistic acts as evidence for judgements to the effect that the interlocutors understand or do not understand some uttered words. In our search for meaning-constitutive epistemic properties we thus have to consult the speakers' pre-theoretic attributions of understanding and misunderstanding. Are there epistemic properties *P* such that, if a speaker did not attach *P* to the relevant expression, the other members of the linguistic community would pre-theoretically judge that the speaker does not understand the expression?

Imagine the following case. Tom declares "I remember well that I was in room 7". No counterevidence indicates that Tom's assertion is unreliable. So we conclude "Tom was in room 7". Ethel, accepts Tom's assertion, but rejects our conclusion "Tom was in room 7". Ethel is rejecting an epistemic property of the latter sentence: its being correctly (though defeasibly) assertable on the basis of Tom's testimony reporting his memory. It is worth emphasizing that Ethel does not doubt Tom's testimony. Of course, she might say that Tom is lying or that memory fails him. But, since there is no evidence to that effect, she doesn't say anything like that. She doesn't challenge Tom's assertion. On the contrary, she accepts it and is willing to grant that Tom is sincere. Nevertheless, she refuses to draw the conclusion "Tom was in room 7". Can we respond to Ethel's refusal with an argument which Ethel ignores and which justifies our inferring the conclusion in question? We cannot. We can't see the possibility, nor the need of giving any further justification. We are sure that Ethel's refusal is an error. But we realize that such an error does not depend on lack of information, on sensory illusion, or on inadvertence in a chain of reasoning, and cannot be eliminated by giving the right information, by detecting the illusion or the inadvertence; it is an error which can only depend on misunderstanding and can be corrected only by saying that if one understands a sentence like "Tom was in room 7", then one uses it in that way.

Such a response to Ethel's challenging the epistemic property in question is a *datum* of our linguistic and epistemic practice. Let's say that an epistemic property which gives rise to such a response is a *primitive epistemic property*. Of course epistemic properties of this kind do not only pertain to the sentence "Tom was in room 7". Every meaningful expression has similar properties. When we play the game of asking for reasons or justifications we ultimately reach a point which we could describe with Wittgenstein's famous metaphor: "I have exhausted the justifications, I have reached the bedrock and my spade is turned"[32].

On the other hand, it is clear that not all epistemic properties are primitive. We have considered three different epistemic properties of "Tom was in room 7". The

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[32] L. Wittgenstein, *Philosophical Investigations*, transl. by G. E. M. Anscombe, Blackwell, Oxford 1953, § 217.

first was its being inferred from "we found this bloodstain in room 7". The second was its being asserted on the basis of an examination of a bullet's trajectory and a chemical test indicating traces of gunpowder. The third its being assertable on the basis of Tom's testimony. Only the third is primitive. Now we can draw the line which demarcates the epistemic properties which are meaning-constitutive: epistemic properties are meaning-properties only if they are primitive.

§ 14.   A possible solution.

The main points of the foregoing section can be summarized by a definition and a thesis:

Definition. An epistemic property P of E is *primitive* if, and only if, competent speakers
  a) attach P to E;
  b) use E in such a way that they neither acknowledge the possibility, nor the need of giving any justification of P by means of an argument consisting of more elementary steps;
  c) treat any deviation with respect to P as indicating a lack of understanding of E.

According to the connection between meaning and epistemic value, for every expression E, some meaning-properties of E are epistemic properties of E. Our thesis specifies the nature of meaning-constitutive epistemic properties: they are primitive.

Thesis on primitive properties. The only meaning-constitutive epistemic properties are primitive epistemic properties.

A consequence is that for every meaningful expression E, there are some primitive epistemic properties of E. The latter conclusion can be checked against the data of linguistic practice.

Our thesis on primitive properties suggests a possible solution of the problem presented in § 5. The possible solution can thus be formulated: if we have a theory of meaning which embodies not only the connection between meaning and epistemic value, but also the thesis on primitive properties, then, perhaps we can consistently accept moderate epistemological holism, and reject meaning holism.

In favour of the possible solution is the observation that speakers who use an expression E with a primitive epistemic property P treat P as a property for which *a justification is neither necessary nor possible*. Hence moderate epistemological holism does not affect P. If any remote part of the epistemic context is necessary for a justification of *some* epistemic property of E, the latter epistemic property will not be primitive. If it is not primitive, it isn't meaning-constitutive. Thus it is not necessary to know that remote part of the epistemic context in order to understand E. With respect to justification, primitive epistemic properties do not depend on the epistemic

context. This independence blocks the inference from moderate epistemological holism to meaning-holism.

However, a theory of meaning should also take into account the fact that primitive epistemic properties of an expression E can establish connections of a different kind between E and other expressions, so that a different kind of dependence can arise. From "Tom was in room 7" we can infer "There were walls around Tom". We can reasonably assume that this epistemic property of "Tom was in room 7" is treated as primitive. It depends on a primitive epistemic property *P1* of the component word "room" which we can represent by the schema

P1 $\dfrac{x \text{ is in a room}}{\text{there are walls around } x}$

In order to understand the word "room" a speaker, let's name her Ethel again, must be prepared to use it in accordance with *P1*. But this is not sufficient. One of her fellow speakers would not say that Ethel understands "room" if she then used the word "wall" in accordance with an aberrant form of inference like

$\dfrac{x \text{ is a wall}}{\text{you can drink } x.}$

This aberrant use would show that Ethel does not understand "wall", and if she did not understand "wall", because of the connection between "room" and "wall", she would not understand "room" either. (Here I am focusing on the prior problem concerning what constitutes Ethel's understanding of her *first* language. I am not considering the understanding of a language by means of another language already understood: of course an Italian speaker can acquire a *partial* understanding of the English word "room", by associating it with the Italian translation "stanza", without knowing the English word "wall".)

The primitive epistemic property *P1* establishes a connection between the word "room" and the word "wall": if Ethel does not understand the latter, she does not understand the former. We may call "presupposition" this particular relation of dependence between words or, more generally, expressions. A meaning-theoretical statement of presupposition, for example «"room" presupposes "wall"» concerns the linguistic practice of a group of relevant speakers: it ought to describe what counts as understanding for these speakers. If it is true, the relevant speakers will pre-theoretically tend to infer «*x* does not understand "room"» from «*x* does not understand "wall"». If "room" presupposes "wall", in order to understand "room", a speaker (our Ethel) must attach the right meaning-constitutive epistemic properties to "wall", one of which might be:

P2 $\dfrac{x \text{ is a wall}}{x \text{ is made by people.}}$

Through the latter primitive epistemic property *P2* a new connection between "wall" and "people" is established. The relevant speakers' pre-theoretic judgements could then indicate that an understanding of "wall" presupposes an understanding of "people". Presupposition is a transitive relation. According to the examples above the word "room" presupposes the word "wall" and, since the latter word presupposes "people", "room" presupposes "people" as well. In this way multifarious interconnections can be woven together and a problem arises: do they lead us to meaning-holism?

I believe that they don't: the relation of presupposition on the set of words of a natural language is *transitive* and obviously *reflexive*, but an investigation of our pre-theoretic criteria of understanding would show that it is not a connected relation (there can be distinct words which are not presupposition-related) and is not symmetric (the presupposition relation and its inverse relation do not coincide). It is not connected: there is no presupposition-link between "strawberry" and "hairdryer". It is not symmetric: pre-theoretic judgements can indicate that a word depends on another word by virtue of a primitive epistemic property, but they can also indicate that this dependence does not hold in the reverse direction. The relevant speakers can be inclined to consider *P2* constitutive of an understanding of "wall", and, at the same time, disinclined to consider *P2* constitutive of an understanding of "people". Ethel (the daughter of an English explorer, who has always lived in the desert and never heard about buildings) can understand "people" – they might say – without understanding "wall" and without accepting *P2*.

The acknowledgement that an understanding of certain words (and thus sentences) can involve the understanding of other words (and sentences) is therefore fully compatible with a rejection of meaning-holism. A theory of meaning for a language L is holistic if, and only if, it attributes to L a relation of presupposition which is both connected and symmetric on the set of all words of L. To avoid holism it suffices that presupposition is not connected or not symmetric. *A fortiori*, if the theory of meaning, in agreement with pre-theoretic data, attributes to L a relation of presupposition which is not connected and not symmetric, the theory is not holistic; it is a *molecular* theory. According to a molecular theory, in order to understand a sentence, a speaker must understand only a *language fragment presupposed* by the sentence, which is a sub-language of the whole language.[33] As Dummett writes:

> The difference between a molecular and a holistic view of language is not that, on a molecular view, each sentence could, in principle, be understood in isolation, but that, on a holistic view, it is impossible fully to understand any sentence without knowing the entire language, whereas, on a molecular view, there is for each sentence, a determinate fragment of the language a knowledge of which will suffice for a complete understanding of that sentence[34].

Thus, a solution of our problem includes the adoption of a theory of meaning admitting a relation of presupposition which is not connected and not symmetric.

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[33] The notion of presupposition and other related notions are treated at greater length in C. Cozzo, *Meaning and Argument*, Almqvist & Wiksell International, Stockholm 1994, Ch. 3, pp. 85-98.
[34] Cf. M. Dummett, "What is a Theory of Meaning? (II)", p. 44.

Sketch of a possible solution. An endorsement of both moderate epistemological holism and the connection between meaning and epistemic value can consistently cohabit with a rejection of meaning-holism for a language L, if an appropriate theory of meaning T for L is adopted such that:
1) T involves the thesis on primitive properties;
2) T attributes to L a relation of presupposition which is not connected and not symmetric.

I kept my exposition general because it seems to me that the suggestion contained in the above sketch of a possible solution might be developed in different ways, according to different conceptions of meaning and understanding. This is perhaps a merit of the sketch, but it is also a limit. Just because it is only the generic picture of a solution, it does not indicate a particular kind of theory of meaning. It does not specify the central notion, in terms of which T explains sentential meaning. It doesn't tell us yet whether an appropriate theory of meaning which satisfies conditions (1) and (2) is really available. An *actual* solution ought to show that the two conditions are fulfilled by a theory of meaning of a certain form, centred on a particular notion. Moreover, it ought to show that the theory in question, in the light of the particular way in which the two conditions are fulfilled, is appropriate and really consistent with moderate epistemological holism. It is now time to look for an actual solution. The first candidate is the justificationist theory. Can a justificationist theory provide an actual solution?

§ 15. Justificationist theories of meaning and primitive epistemic properties.

A justificationist in Dummett's sense distinguishes between direct (or canonical) justifications and indirect justifications. This distinction can be viewed as an instance of the distinction between primitive and non-primitive epistemic properties. In a justificationist theory of meaning the sense of a sentence is explained in terms of what counts as a direct justification of an assertion of that sentence. The notion of *direct* or *canonical* justification is the central notion of the theory. As Dummett writes:

> For every statement, there will be what we may call the *canonical* or *typical* means of recognizing it as true. It is this which is given with its sense; an understanding of the statement demands only an ability to recognize its truth in this canonical or typical manner.[35]

In a justificationist theory of meaning the conditions fixing what counts as a direct justification of an asserted sentence S, satisfy the requirement of molecularity: they are specified in terms of a fragment of the language containing sentences the complexity of which is lower than or equal to the complexity of S. However, there are always other means of justifying an assertion of S. Dummett calls them *indirect* justifications. One of Dummett's examples[36] of the dichotomy between direct and indirect justification is the following. A direct justification of an assertion of "there

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[35] M. Dummett, "Meaning and Justification", p. 20.
[36] Cf. M. Dummett, *The Logical Basis of Metaphysics*, p. 178.

are more apples than oranges in the basket" consists in verifying the statement: "if all oranges from the basket are paired off with apples from the basket, at least one apple will be left over". In order to recognize such a justification a speaker must understand a fragment of language containing sentences like "all oranges from the basket are paired off with apples", "this is an apple", "this is a basket", etc. If an understanding of "there are more apples than oranges in the basket" consists in an ability to recognize a piece of evidence of this kind as a justification, then it presupposes an understanding of a finite number of other sentences, but it does not presuppose knowledge of all the language. However, there are many other ways of justifying this assertion, for example: "We paid so much for the oranges, and so much for the apples, and each of those amounts admits only the following factorisations, as the products of two primes, and so we must have bought so many apples and so many oranges, and then we gave five oranges to So-and-so, and put just under half the apples in the carrier bag, so … ". The latter justification is *indirect*. It is an arithmetical computation. A computation is a piece of evidence that is conceivable and can be constructed only within an arithmetical part of the language whose knowledge is not necessary in order to *understand* "there are more apples than oranges in the basket".

The conditions of *direct* justification for S are primitive epistemic properties of S, since «the possibility of establishing a statement directly must be envisaged by anyone who grasps the meaning of the statement»[37]. Hence, for a speaker who understands S it is neither necessary, nor possible, to give a further justification to show that pieces of evidence satisfying the conditions of direct justification for S can count as justifications of assertions of S; the competent speaker will treat any refusal to comply with the conditions of direct justification for S as indicating a lack of understanding of S. By applying Frege's context principle we can conclude that the sense of a subsentential expression E will amount to its contribution to the conditions of direct justification for the sentences in which E can occur and that the (implicit) principles fixing such a contribution are primitive epistemic properties of E.

On the other hand, the possibility of establishing S by *indirect* means need not be envisaged by the speaker who understands S[38]. Therefore «such indirect means have […] to be justified in the light of the direct means»[39]. When a statement is established indirectly, the question arises: «in what sense would it be right to say that, in accepting it as so established, we have remained faithful to the meaning we originally gave it?»[40]. Dummett's answer is that we have to «require a harmony which obtains only if a statement that has been indirectly established always could (in some sense of 'could') have been established directly»[41].

In conclusion, the rules fixing what counts as a direct justification for a sentence correspond to primitive epistemic properties. With this in mind, the

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[37] M. Dummett, "The Justification of Deduction", in *Truth and Other Enigmas,* p. 312.
[38] Cf. M. Dummett, "The Justification of Deduction", p. 313.
[39] M. Dummett, "Truth from the Constructive Standpoint", *Theoria*, 64 (1998), p. 132.
[40] M. Dummett, "The Justification of Deduction", pp. 299-300.
[41] M. Dummett, "The Philosophical Basis of Intuitionistic Logic", p. 222.

justificationist would subscribe to the thesis on primitive properties. Moreover, according to Dummett, a justificationist theory for a language should involve a «relation of dependence [which] imposes upon the sentences of the language a hierarchical structure deviating only slightly from being a partial order»[42]. Hence, the justificationist attributes to the object language a relation which is similar to the non-connected and non-symmetric relation of presupposition of § 14.

We can conclude that conditions (1) and (2) of our sketch of a possible solution are fulfilled by a justificationist theory of meaning as Dummett describes it. To see whether a theory of this kind provides an actual solution, we have to answer the next question: in the light of the particular way in which a justificationist theory fulfils the two conditions, is such a theory consistent with moderate epistemological holism?

§ 16. Conservativeness and moderate epistemological holism.

The answer depends on how the justificationist conceives of direct justifications and of their relation with indirect ones. Dummett's views seem to be rather restrictive. He often maintains that the aforementioned requirement of harmony between direct and indirect arguments should be made more precise through «an adaptation of the logician's concept of a conservative extension»[43]. In other words, Dummett's justificationist requires that the introduction of a new expression into the language should not enable speakers to construct arguments leading from sentences of the old language to other such sentences, if the possibility of a legitimate inference from the former old sentences to the latter ones was not already there, before the introduction of the new expression: no new possibility of such an inference should arise by virtue of the new expression[44]. In this sense the new language should be a conservative extension of the old one. It is quite clear that the requirement of conservativeness clashes with moderate epistemological holism. Moderate epistemological holism allows that for any sentence S, any part of the epistemic context may be relevant for the justification of some epistemic property of S. This implies that, through the introduction of a new expression E, it may happen that substantially new epistemic properties involving only the old sentence S and other sentences of the old language become justifiable by exploiting the epistemic properties of the new expression E added to the language, which have enriched the epistemic context. For example, the detective's inference from "we found this bloodstain in room 7" to "Tom was in room 7" became possible only after the vocabulary of molecular biology was added to the language. But conservativeness forbids the possibility that substantially new epistemic properties directly involving only old sentences arise as a consequence of the introduction of new expressions.

However, Dag Prawitz proposes a version of justificationism that abandons the requirement of conservativeness. Prawitz agrees with Dummett about the requirement of *molecularity*, according to which a justificationist theory for a language should specify conditions of direct justification for any sentence S of the language in terms

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[42] M. Dummett, *The Logical Basis of Metaphysics*, p. 223.
[43] M. Dummett, *The Logical Basis of Metaphysics*, p. 217.
[44] Cf. M. Dummett, *The Logical Basis of Metaphysics*, p. 220.

of the notion of justification for sentences of lower or equal complexity. Prawitz also agrees about the requirement of *harmony*, according to which, if a sentence has been verified indirectly, then it could (in some sense of 'could') have been verified directly. But he emphasizes that, even if *the conditions* fixing what counts as a direct verification of a sentence must be specifiable only in terms of a fragment of language of lower or equal complexity, the possibility remains that a particular direct verification which satisfies those general conditions can employ much more complex parts of the language. For example in mathematics, intuitionistically, a canonical proof of A→B is a proof of B from the hypothesis A, which is a method for obtaining a (canonical) proof of B from a (canonical) proof of A. This *specification of the condition* fixing what counts as a canonical proof of A→B employs only the notions of a canonical proof of A and of a canonical proof of B. Thus it satisfies the requirement of molecularity. But Prawitz puts «no restrictions on the sentences or formulas that can occur» in *a particular canonical proof*. On the contrary, he underlines that some sentences occurring in a hypothetical proof of B from A may be of higher logical complexity than A and B, and may use «new mathematical concepts and principles of reasoning» or «notions so far unheard of».[45] A similar remark can be made about a canonical proof of $\forall x$A(x), which is a method for obtaining a (canonical) proof of A(t), given any individual term t. Thus it can happen that, when a new expression (and so a new concept) is introduced into the language, new canonical proofs of sentences of the old language become available. If this is the case, the new language is not a "conservative extension" of the old language. Hence Prawitz thinks that «it cannot be demanded that the addition of a new type of sentence and of the rules for it yield only a conservative extension of the language». This follows from Gödel's theorems: «we know from Gödel's incompleteness result that a sentence of the form $\forall x$A(x) might be established only by means of the addition of new concepts and accompanying rules. The reason is that these rules might be used in a canonical proof of $\forall x$A(x)»[46].

§ 17. Harmony and moderate epistemological holism.

Prawitz's version of justificationism drops the requirement of conservativeness. Therefore, at least as far as mathematics is concerned, the conflict between this version of justificationism and moderate epistemological holism is less clear. Nevertheless, the requirement of harmony, which Prawitz accepts, does set a limit on what can count as a justification of an assertion. Such a limit can conflict with epistemological holism. Let me illustrate this point through the example of the detective's inference from "we found this bloodstain in room 7" to "Tom was in room 7". This inference can be the last step of an indirect justification of an assertion of "Tom was in room 7". Harmony requires that if a statement has been indirectly established, then it could have been established directly. What could a direct

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[45] Cf. D. Prawitz, "Dummett on a Theory of Meaning and its Impact on Logic", in B. Taylor (ed.), *Michael Dummett : Contributions to Philosophy*, Nijhoff, Dordrecht 1987, pp. 159-161.
[46] D. Prawitz, "Dummett on a Theory of Meaning and its Impact on Logic", p. 147.

verification of "Tom was in room 7" be? This is a statement in the past tense. What is a direct verification of a statement in the past tense? In "The Reality of the Past" Dummett wrote:

> We learn the use of the past tense by learning to recognise certain situations as justifying the assertion of certain statements expressed by means of that tense. These situations of course include those in which we remember the occurrence of some event which we witnessed, and our initial training in the use of the past tense consists in learning to use past-tense statements as the expression of such memories.[47]

So if we remembered Tom in room 7, we would have a direct justification of our assertion. Moreover, during our training in the use of statements in the past, after having learnt to use them in giving reports of our memory, we have learnt that among the situations which defeasibly justify the assertion of a statement of this kind are the memory-reports of other persons[48]. Thus, if Tom declares "I remember well that I was in room 7" and no counterevidence indicates that Tom's assertion is unreliable, we have a direct justification of "Tom was in room 7". Finally, Dummett mentions a third kind of direct justification for a statement in the past tense: «recognising simple evidential traces»[49] of the event or state of affairs it reports. In our example, we can imagine that Tom's bag is found in room 7, and this might be considered a direct, though defeasible, evidence in favour of "Tom was in room 7". Clearly this kind of "simple" evidential trace, which every competent speaker can recognize as such, is very different from the bloodstain in room 7 because the relevant portion of the epistemic context involved in recognising the bloodstain as a trace of Tom's presence is extremely wide and surely does not belong to what a speaker must know in order to understand our sentence, "Tom was in room 7".

If these are the conditions of direct verification for "Tom was in room 7", on what grounds can the justificationist accept the detective's way of verifying it indirectly, through an inference from "we found this bloodstain in room 7"? Does the detective remain faithful to the meaning originally given to the sentence by attaching to it the above described conditions of direct verification? Is there any guarantee that this statement, which has been indirectly established in this way, could have been established directly? And how should we take the latter question? Surely the question is not, whether it is *logically possible* that someone verifies the statement directly; if this were the question, the answer would trivially be in the affirmative: certainly there is no contradiction in the hypothesis that someone remembers seeing Tom in room 7 (but neither is there a contradiction in the hypothesis that someone remembers seeing Tom on the moon, and we don't want to conclude that "Tom was on the moon" can be verified directly in our sense). Rather, the problem seems to be whether we *now* are in principle *capable of providing* a direct verification. If direct verifications are reports of our memory, memory-reports of others, or acts of recognition of simple evidential traces, the answer seems to be in the negative. There is no guarantee that we could verify the statement by these means. Imagine that Tom is dead and no

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[47] M. Dummett, "The Reality of the Past", in *Truth and Other Enigmas,* p. 363.
[48] Cf. M. Dummett, "Truth from the Constructive Standpoint", p. 133.
[49] M. Dummett, "Truth from the Constructive Standpoint", p. 133.

witness saw Tom in room 7; the only evidence we have in room 7 is a bloodstain, the result of a DNA-test tells us that it is Tom's blood. From the justificationist standpoint, one ought to say that the detective's way of arguing for the assertion is *not* justifiable in the light of the meaning-constitutive conditions of direct verification, because nobody is (even in principle) capable of obtaining a direct verification. The requirement of harmony conflicts with moderate epistemological holism.

I have touched a topic which Dummett once described as «the thorniest problem»[50] for a justificationist. It is not only a problem for those who try to marry justificationism with moderate epistemological holism. Dummett has highlighted a similar difficulty concerning indirect justifications of assertions about the past by means of (intuitionistically acceptable) *deductions*: «a wholly constructive proof may lead from premises that have been verified to a conclusion that cannot be directly verified, because its subject-matter is no longer accessible to observation»[51]. This predicament can induce the justificationist to deny that non-trivial constructively valid pieces of deductive reasoning are applicable to empirical statements about the past. As Dummett writes: «we shall then have made it virtually impossible to deduce anything about the past from what we know of it by memory or direct records»[52].

A possible way out is to say, as Prawitz does, that «a sentence in the past tense such as "it rained yesterday" can be directly verified only by an appropriate observation at the time in question, i.e. yesterday»[53]. Prawitz proposes that the justificationist should take as a direct verification of a statement in the past tense the direct verification of its present-tense counterpart which could have been asserted at the time in question: a direct verification of "Tom was in room 7 yesterday" would be the same observation which could have been a direct verification of "Tom is in room 7" uttered yesterday. For a justificationist, the conditions of direct verification of a statement constitute its meaning. However, from Prawitz's proposal it does not follow that the present-tense and the past-tense statement have the same meaning, because the conditions fixing what respectively counts as a direct verification for the two statements are different. Only the condition of direct verification for the statement in the past tense relates the latter to an observation which is not possible at the time of utterance, but only could have been made on a preceding occasion. Nevertheless, one may object that Prawitz is stretching the notion of direct verification beyond its original point. There are two reasons for this objection. In the first place, the notion of a direct verification originally referred to those ways of establishing a sentence which are initially taught to a child *learning* her first language[54]. Hence, one should demand that direct verifications of statements of any given kind be available during a child's training in the use of statements of that kind. A child can learn the meanings of the relevant statements only if direct verifications

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[50] M. Dummett, "The Reality of the Past", p. 368.
[51] M. Dummett, "Realism and Anti-realism", p. 473.
[52] M. Dummett, "Meaning and Justification", p. 28.
[53] D. Prawitz, "Comments on Michael Dummett's paper 'Truth from the Constructive Standpoint' " in *Theoria* 64 (1998), p. 290.
[54] Cf. D. Prawitz, "Meaning and Experience", *Synthese* 98 (1994), p. 137.

of a sufficient number of those statements are present and recognizable during her learning process. Memories and simple evidential traces are available, present and recognizable. On the contrary, observations (or direct empirical verifications of other kinds) which were or could have been made in the past are *never* present and available during the child's learning process. When the observations were made, they can be remembered; but then what is available is only the memory of an observation, not the observation itself. Secondly, the conditions fixing what counts as a direct verification were originally meant as a feature of the correct *use* of those statements. A use is correct, one can argue, only in virtue of some aspects of the situation of utterance. Past observations, that once were but are no longer possible, do not belong to the situation of utterance. This twofold objection explains Dummett's hesitation about Prawitz's proposal.

§ 18. An epistemic theory of meaning.

The problem presented in § 5 was: how can we consistently accept moderate epistemological holism and reject meaning holism? The sketch of a possible solution made in § 14 suggested that in order to solve the problem we need a theory of meaning T for a language L, which involves the thesis on primitive properties and attributes to L a relation of presupposition which is not connected and not symmetric. We have seen that a justificationist theory satisfies such conditions, but seems to be still in conflict with moderate epistemological holism. One of the reasons is that not all primitive epistemic properties are meaning constitutive for the justificationist. Guided by the definition of § 14, one can detect the primitive epistemic properties associated by speakers to expressions of a language on the basis of data of their epistemic practice. But not all the resulting primitive epistemic properties correspond with the justificationistic picture. Justificationism places on the form of meaning constitutive properties *a priori* restrictions that many primitive epistemic properties don't satisfy. As far as sentences are concerned, meaning-constitutive properties should be compositionally specifiable conditions of direct *verification*. Epistemic properties which, like *P2* in § 14, fix the *consequences* that can be drawn from a sentence are considered only in so far as they lead to *indirect* verifications. Therefore, they are not meaning constitutive. They may even be declared incorrect and rejected, if they don't satisfy the requirement of harmony. (Such is the fate, for example, of the classical form of inference of double negation elimination).

In my opinion, it is more straightforward to take the view that *all* primitive epistemic properties are meaning-constitutive, even if they are not verification-conditions or don't have the form required by justificationists. Developing this idea leads to conceive a theory of meaning centred upon the notion which I propose to name *immediate epistemic role*. In the sequel I try to give a rough outline of such a theory[55]. I call "the epistemic conception of meaning" the general view that a theory of meaning for a language L centred on immediate epistemic role is an adequate

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[55] A more extensive treatment of a similar theory, centred upon "immediate argumental role", is in C. Cozzo, *Meaning and Argument*, Almqvist & Wiksell International, Stockholm 1994.

picture of a speaker's understanding of L. The first basic tenet of the epistemic conception of meaning concerns the smallest meaningful units, words:

α The sense of a *word* in a language L is the set of all primitive epistemic properties concerning that word in L.

The next section is devoted to making this first principle precise by clarifying the notion of 'concerning'.

§ 19. Primitive epistemic properties concerning a word.

Since the same epistemic uses often involve more than one expression, it is often the case that the epistemic property of an expression determines an epistemic property of another expression, and vice versa. In such a case, a description of the one epistemic property implies a description of the other. For example, in § 14 the epistemic property *P2* of the word "wall" was represented by the schematic description

$$\Sigma \qquad \frac{x \text{ is a wall}}{x \text{ is made by people.}}$$

Σ is a pattern of use which underlies at the same time both *P2* and an epistemic property *P3* of the word "people". Let's say that *P2* and *P3* are *correlated epistemic properties*. *P2* (we assumed in § 14) is a primitive epistemic property of "wall". Thus a speaker who understands "wall" should attach *P2* to "wall". I shall say that *P2* immediately-concerns "wall". In general:

β P is a primitive epistemic property *immediately-concerning W* if, and only if, P is a primitive epistemic property of *W* .

On the other hand, you will remember Ethel, the girl of § 14, who has always lived in a desert without buildings and can understand "people" without understanding "wall": from this example we reasonably concluded that "people" does not presuppose "wall"; hence *P3* is not a *primitive* epistemic property of "people", and (in our sense of "concern") does not concern the latter word. An epistemic property may be correlated with a primitive property without being primitive. However, another epistemic property *P4* of "people" consists in the immediate assertability of the sentence:

Ψ \qquad people are human beings.

P4 can be taken to be primitive (we are assuming that "people" presupposes "human being"). Hence, for β, *P4* immediately-concerns "people". Since "wall" presupposes "people", a speaker understands "wall", only if she understands "people", which implies that she accepts Ψ. Thus, even though Ψ does not touch "wall" directly, attaching *P4* to "people" and accepting Ψ is constitutive of an understanding of "wall". I express this fact by saying that *P4 concerns* "wall", though not immediately. In general:

γ   A primitive epistemic property P *concerns* a word *W* in a language L if, and only if, there is a word *W** in L such that
       1) P immediately-concerns *W**;
       2) *W* presupposes *W** in L.

Thus an epistemic property concerning *W* may be a primitive epistemic property of some *other* word *W** which *W* presupposes.

§ 20. Immediate epistemic role and moderate epistemological holism.

Once the notion of an epistemic property *concerning* a word is clarified, the notion of *sense of a word* according to the epistemic conception is also clear, if we bear principle α in mind: the sense of a word *W* is given by all the primitive epistemic properties concerning *W*. After that, one can easily introduce the notion of *sense of a sentence*. The epistemic conception accepts Frege's distinction between sense and force[56]. The *force* is a general ingredient of understanding which is common to all linguistic acts belonging to a certain category, like assertions, requests, commands, questions etc. The *sense* constitutes the specific ingredient of understanding attached to a particular sentence which can be used in such linguistic acts. To know the sense of a sentence is to know its *immediate epistemic role*, which can be explained compositionally, by the second basic tenet of the epistemic conception:

δ   To know the immediate epistemic role of a *sentence* in L is to know the syntactic structure of that sentence and to know the senses of the words occurring in it .

According to this view, since the relation of presupposition is not connected and not symmetric, to be able to understand a sentence S only requires knowledge of a fragment of language presupposed by the immediate epistemic role of S, a sublanguage which only contains those words of L which are presupposed by the words occurring in S. Hence the epistemic conception avoids meaning-holism.

On the other hand, in agreement with the connection between meaning and epistemic value, knowledge of the immediate epistemic role of a sentence S implies knowledge of its *primitive* epistemic properties. We may call the set of such properties *the immediate epistemic value* of S. Immediate epistemic value is not global epistemic value. The latter, as we already know from §2, can be thus defined:

η   The global epistemic value of   an expression *E*   is the set of all (primitive and non-primitive) epistemic properties of *E*.

The epistemic conception is compatible with moderate epistemological holism because *it does not require the global epistemic value of a sentence to be justifiable in terms of its immediate epistemic value* (nor of its immediate epistemic role). In other words, this view abandons the idea that a connection analogous to the relation that Dummett calls "harmony" should exist between the meaning-constitutive epistemic properties of a sentence and the other epistemic properties of the same

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[56] Cf. M. Dummett, "What is a Theory of Meaning? (II)", pp. 38-40.

sentence. The global epistemic value of *S* may contain epistemic properties allowing us to assert *S* in circumstances in which *S* would not have been assertable, if only the language fragment presupposed by its immediate epistemic role had been available. The detective's inference from "we found this bloodstain in room 7" to "Tom was in room 7", unlike our asserting it on the basis of our memory, or of memory-reports of other persons, does not belong to the immediate epistemic value of "Tom was in room 7", because it depends on molecular biology: molecular biology is not part of the language fragment presupposed by the immediate epistemic role of "Tom was in room 7". When the detective asserts "Tom was in room 7" in this way, it may be impossible to justify the assertion on the basis of memory reports or simple evidential traces. By adding molecular biology to the language, we substantially extended the global epistemic value of this sentence. Other modifications of the language or of the epistemic context, can engender other substantial changes of the global epistemic value, other new epistemic properties of the sentence in question which are not reducible to its sense.

§ 21. Two objections.

At least two objections could be raised. The proponent of the epistemic conception abandons the idea that the epistemic properties of a sentence S which are not meaning-constitutive should be justified on the basis of the sense of S. Dummett would object that abandoning this idea amounts to taking our linguistic practice as «sacrosanct». He would ask: «is our practice justifiable, or is it simply what we do, without the need for any rationale?». The view sketched in §§ 18-20 would involve the answer: «this is simply what we do», which Dummett has sometimes described as «nihilistic»[57].

On the other side, Fodor and Lepore might object that the solution here proposed to the problem of § 5 misses the mark, because its aim was to show how one can consistently endorse a molecular theory of meaning, moderate epistemological holism and the connection between meaning and epistemic value without falling into meaning-holism, but:

> *Whatever* your argument for semantic holism might be [...] it's going to fail if the analytic/synthetic distinction can be sustained.[58]

The solution here proposed is beside the point, Fodor and Lepore might say, because, as they wrote in their book, it is clear that one can avoid meaning-holism if one sustains the analytic/synthetic distinction, but this is precisely what the proponent of the epistemic conception of meaning does by resorting to the distinction between primitive and non-primitive epistemic properties. Such a proposal is uninteresting since «the only context in which a discussion of semantic holism is worth having is one in which the failure of the analytic/synthetic distinction is taken as common ground»[59]. In the next sections I shall try to counter both objections.

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[57] Cf. M. Dummett, "Realism and Anti-realism", p. 476.
[58] J. Fodor, E. Lepore, *Holism*, p. 31.
[59] J. Fodor, E. Lepore, *Holism*, p. 23.

§ 22. Understanding and critique of language.

Michael Dummett very rightly urges the importance of a critical attitude towards linguistic practice:

> Our linguistic practice is no more sacrosanct, no more certain to achieve the ends at which it is aimed, no more immune to criticism or proposal for revision, than our social, political, or economic practice.[60]

The proponent of the epistemic conception of meaning can reply to the objection attributed to Dummett in § 21 by expressing complete agreement with Dummett's warning that linguistic practice is not sacrosanct. Granted that, however, two questions arise: how should the critique of linguistic practice be developed? Is such a critique the task of a theory of meaning, that is: of a theory of *understanding*?

A radical criticism of linguistic practice is aimed at the language itself: not only at some statements or arguments within the language, but at the *meanings* expressed in the language. A critique of language in this sense plays an important role in the history of science. For example, the chemical revolution of the eighteenth century did not merely involve a criticism of certain statements which contained the word "phlogiston". It was the rejection of the whole phlogiston-language and the proposal of a new language, put forward by Lavoisier in 1787 in a book whose title, *Methode de nomenclature chimique*, is emblematic of the role of the critique of language in this scientific turning point[61]. Thus, the critique of language is a decisive aspect of scientific inquiry. Moreover, it is clear that the issue in this case was not whether the criticized language was intelligible. The phlogiston-language was understood, but in the epistemic situation of that time it became gradually clear that the grid provided by the phlogiston-language was not the best means of imposing an order on experience. As Dummett wrote, «to impose an order on reality as it is presented to us»[62] is (together with being a medium for communication) one of the two fundamental roles of language. In the eighteenth century Lavoisier showed that the phlogiston-language was not the best means to achieve this end. The reasons why the old language was eventually abandoned and the new language adopted had to do with the higher epistemic fruitfulness of the new language, in particular with the possibility of establishing more precise quantitative laws accounting for the available observations and experimental results in that epistemic situation. In other cases the reasons for criticizing a language are different. Relatively to the given epistemic situation, a language shared by a community can turn out to be wrong in various respects, according to different criteria of language-correctness. It can prove itself paradoxical, like the language of the Newtonian method of fluxions. It can clash with recalcitrant empirical evidence, like the zoological language two hundred years ago, when someone brought the first specimens of platypuses to Europe from Australia: the "paradoxical"[63] animals which lay eggs and give milk to their young. Moreover,

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[60] M. Dummett, *The Logical Basis of Metaphysics*, pp. 214-215.
[61] Cf. M. Beretta, *Lavoisier: la rivoluzione chimica*, Le Scienze S.p.A., Milano 1998, ch. 8, pp. 57-64.
[62] M. Dummett, "The Justification of Deduction", p. 309.
[63] Cf. U. Eco, *Kant and the Platypus*, Harcourt, New York 1999, the platypus was baptized "*Ornythorinchus paradoxus*".

though I don't want to pursue this side of the matter further, the critique of language can also start from moral or political reasons.

When the critique of language takes the shape of a charge of unintelligibility, it is mostly because the criticized fragment of language disagrees with some philosophical ideas about what understanding should be. However, if the notions of understanding and intelligibility are to serve for an explanation of the human capacity to coordinate social interactions through language, we cannot legitimately say that a linguistic practice shared by a community, or by a group within a community, is unintelligible. It can be wrong, but not unintelligible. A shared language must be understood by those who share it and use it. If a theory of understanding has to explain linguistic practice, and to agree with pre-theoretic data, then it must show how the relevant speakers can understand the linguistic practice in question, even if it is wrong, or even paradoxical. The proponent of the epistemic conception of meaning thinks that the task to explain what it is to understand a language should be accomplished by a theory of meaning even if the language and the corresponding practice are wrong. In any case, such a task should not be confused with the task of justifying the linguistic practice, or providing foundations for it. According to this view, the critique of language is extremely important, but it is not the business of a theory of understanding. Dummett's analogy between linguistic practice and social, political or economic practice is enlightening on this point: a theory investigating the conditions which make social, political or economic practices possible should account for the many actually existing practices which are wrong and it is clearly distinct from the legitimate critique of those practices.

An epistemic theory of understanding, by considering linguistic practice, can detect the primitive epistemic properties of a word *W* in a language. The primitive epistemic properties of *W* are meaning-constitutive because speakers treat any deviation with respect to them as lack of understanding of *W*, and not as a mistake which can be dispelled by an argument or a piece of information. This is what speakers simply do. But they have no guarantee that what they do, giving shape to those meanings, is correct. They don't know in advance whether the meaning-properties of *W* harmonize well with each other; *a fortiori* there is no guarantee in advance that the meaning- properties of *W* harmonize well with the primitive epistemic properties of other words in the complicated network of language. Such a guarantee is not necessary in order to *understand* the language. An epistemic theory of meaning can give a systematic picture of the criteria by which speakers would judge that the language is *understood*. But this picture does not inform us about the criteria by which someone, after he, or she, understood the language, could judge, in a particular epistemic situation, whether the language is *correct*.

§ 23. Truth.

In what sense can a language be correct or incorrect? Why are the epistemic properties of an expression wrong, if they are wrong? If the epistemic properties of *E* consist in the role played by *E* in the justification of assertions, then they may be wrong because these assertions are not *true*. If the epistemic properties determine the role of *E* in inferences, then they may be wrong because these inferences do not lead

speakers from true premises to true conclusions. So far, I have deliberately avoided mentioning the notion of truth because the epistemic conception of meaning is compatible with different notions of truth. One might combine it with a minimalist conception of truth or with a realist conception.[64] Anyway, a notion of truth is arguably necessary for an explication of *assertoric force*: to assert a sentence S is to raise the claim that S is true.

What does this claim amount to? In spite of the compatibility of the epistemic conception of meaning with different views on truth, the notion of truth which best agrees with the general spirit of this conception of meaning is an *epistemic notion of truth* which explains truth in terms of epistemic concepts. According to one epistemic conception of truth, a statement S is true if, and only if, there is a correct argument for S. A careful consideration of our practice of accepting and rejecting arguments and assertions reveals that we are willing to improve the languages in which arguments are constructed and assertions are made in order to attain to an ideal balance between the different criteria of language-correctness mentioned in § 22[65]. Therefore, the notion of correct argument in terms of which truth is explained should not be limited to arguments which can be constructed within the currently accepted language, on the basis of the current epistemic context. The relevant notion of correct argument should be the notion of an *ideal* argument. From this point of view, S is true if, and only if, there is an ideal argument for S. *An ideal argument for* S can be defined as an argument for S (that of course may contain also sensory evidence) on the basis of which we would accept S in an *ideal epistemic situation* for S, which *would be reached* if an inquiry concerning S were to be pursued in the best way, by employing enough time, collecting all relevant information, exerting enough thought, performing enough experiments etc. so that, after having reached such an epistemic situation, no further investigation concerning S could bring about a rational change of our attitude towards S.

Suppose that S is true in this sense, because an ideal argument exists. It does not follow that the ideal argument for S is constructed in the language fragment presupposed by the sense of S. The ideal argument could be constructed in a much richer language accepted in the ideal situation, which would not alter the immediate epistemic role of S, but would yield radically new non-primitive epistemic properties of S. Thus the immediate epistemic role of S, the sense of S, *does not determine its truth conditions*. In the course of an inquiry leading to an ideal argument for S an activity of *rational extension and revision of the language* is included. The assertoric force that we attach to an asserted sentence makes our language open and dynamic, it drives us beyond the set of epistemic properties that we presently accept, towards possible rational changes of the epistemic context. The inquiry must start from a language, but can lead to changes of language. As Peirce wrote: «men and words reciprocally educate each other»[66].

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[64] Cf. C. Cozzo, *Meaning and Argument*, ch. 6.

[65] Cf. *ibidem*.

[66] Cf. C. S .Peirce, "Some Consequences of Four Incapacities", *Journal of Speculative Philosophy*, 2 (1868), now in *Collected Papers*, 5.313, Harvard U.P., Cambridge 1931-1935.

The immediate epistemic role of S does not determine the truth conditions of S, because the above described view marries epistemological holism with the epistemic conception of truth. This leads to a holistic conception of truth: the truth-conditions of S do not depend only on the fragment of language presupposed by S, but on the whole course of inquiry and on the language which would be accepted in an ideal epistemic situation for S. Thus the epistemic conception of meaning avoids meaning-holism in the sense of § 3, but if we combine it with moderate epistemological holism and the epistemic conception of truth, we have a holistic view of truth[67].

§ 24. Rejection of analyticity.

The proponent of the epistemic conception of meaning, as we saw in § 22, agrees with Dummett that linguistic practice may be incorrect. But he, or she, distinguishes between what constitutes a speaker's understanding of a language and what makes the practice of using that language rationally acceptable in a given epistemic situation. Such was the reply to the objection attributed to Dummett in § 21. In the light of this reply, the reader can perhaps already guess the answer to the second objection, attributed to Fodor and Lepore.

The second objection is the following: the epistemic conception of meaning implies the analytic/synthetic distinction, the first of the two dogmas criticized by Quine, i.e. the view that there is «some fundamental cleavage between truths which are *analytic*, or grounded in meanings independently of matters of fact and truths which are *synthetic*, or grounded in fact»[68]. Implying the analytic/synthetic distinction would make my approach to meaning-holism uninteresting, because, according to Fodor and Lepore, any argument for meaning-holism is clearly fated to fail if the analytic/synthetic distinction can be sustained. I am not going to discuss the latter thesis. I want to focus only on the premise of this objection: the claim that the epistemic conception of meaning implies the analytic/synthetic distinction. According to Fodor and Lepore, this is in itself a serious flaw. Quine's arguments against analyticity were successful and now «practically everybody thinks [...] that there aren't any expressions that are true or false solely in virtue of what they mean»[69].

A supporter of the epistemic conception of meaning can simply answer that his (or her) view is fully compatible with a rejection of the analytic/synthetic distinction. The critic will object that this answer cannot be right, because the distinction between primitive and non-primitive epistemic properties implies the analytic/synthetic distinction. This is erroneous. Though the primitive/non-primitive distinction is a principled, i.e. non-arbitrary, distinction, as we saw in § 13, it does not imply the analytic/synthetic distinction. In particular, primitive epistemic properties do not yield analytic truth or analytic validity, for many reasons. First, primitive epistemic

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[67] Cf. M. Dummett, *The Logical Basis of Metaphysics*, p. 231: «Holism is better characterised as the doctrine that the application of the predicate 'true' to a sentence cannot be explained in terms of its composition; more exactly, that no meaning-theory according to which each sentence is determined as true or otherwise in a manner corresponding to its internal composition can do justice to every feature of our use of the language».

[68] W. V. Quine, "Two Dogmas of Empiricism", p. 20.

[69] J. Fodor, E. Lepore, "Why Meaning (Probably) Isn't Conceptual Role", in S. Stich & T. A. Warfield (eds), *Mental Representation*, Blackwell, Oxford 1994, pp. 145-146.

properties can underlie defeasible assertions. Secondly, primitive epistemic properties can involve sensory evidence. Finally, the third and most basic reason is that primitive epistemic properties, even when they are *treated* by the relevant speakers as conclusively valid or *a priori* true, don't guarantee truth or validity. There are no truths "grounded in meanings" if meanings are constituted by primitive epistemic properties. Primitive epistemic properties underlie patterns of reasoning or assertions which may be wrong, even though they are *treated* as right. At the time of Joseph Priestley a primitive epistemic property of "phlogiston" was the immediate assertability of the sentence:

    a) phlogiston is present in all flammable material.

This was treated as a conceptual truth about "phlogiston". But the course of inquiry led to the rejection of the phlogiston-language: we now agree that a sentence like (a) is not (and never was) true. *A fortiori* it is not (and never was) true in virtue of meaning. Similarly, at the end of the eighteenth century zoologists would have treated as embodying primitive epistemic properties of the word "mammal" the assertability of sentences like:

    b) all mammals have nipples
    c) no mammals lay eggs.

Yet, after it was discovered that the female-platypus lays eggs and has no nipples (milk oozes through slits in the abdomen), they were forced to change the taxonomic grid through which animals can be described. Present zoologists agree that sentences (b) and (c) are not true. *A fortiori* they are not true in virtue of meaning. If a language is not rationally acceptable in an ideal epistemic situation, the corresponding primitive epistemic properties can underlie assertions that are not true and inferences that are unsound. If a language is acceptable in an ideal epistemic situation, the corresponding primitive epistemic properties underlie true assertions. But the latter assertions are not true solely in virtue of what they mean. They are true because the language is accepted in the ideal situation, and the acceptability of the language depends also on its empirical adequacy (as the examples of phlogiston and platypus illustrate). Therefore, in any case, primitive epistemic properties do not yield *analytic* truths, and are not the source of *a priori* knowledge.