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WAYS FROM MEANING TO METAPHYSICS[1]
A CRITICAL STUDY OF DUMMETT'S
"THE LOGICAL BASIS OF METAPHYSICS"

1

Dummett's book *The Logical Basis of Metaphysics*, published in 1991, is a revised version of the William James Lectures 1976 which Dummett gave at Harvard. Despite its originally oral nature, which is retained to some extent in the published version, and its modest aim as a mere prolegomenon to a discussion on the problem of realism, it is an extremely difficult book which presents Dummett's complete thinking about the general form and structure of a theory of meaning in a systematic and concise format. A great many things, particularly in the chapters on Frege's doctrines, will appear familiar to the reader of Dummett's earlier expositions of the subject dating back to the seventies. The book as a whole is a splendid and vivid defence of the impact of meaning theory and logic on metaphysics and has the self-contained character of a full statement of the programme of a verificationist theory of (Fregean) sense.

In the following I mainly focus on two of the most important themes of this book, namely the significance which theories of meaning have for metaphysics, and the relation between theories of meaning and the various semantic theories used in logical theory. After a brief and selective survey of the book I shall start with the first of these issues, and return to it in the end. In between I will compare some of Dummett's ideas with another current neo-verificationist theory of meaning, that of Per Martin-Löf. I shall also highlight the need for more

ontological theory in Dummett's logical and meaning-theoretical analysis of metaphysical issues, which this book, despite its metaphysical aims, seems rather devoid of.

2

A theory of meaning, according to Dummett, has a *semantic theory* as its base, with the notion of truth as a central notion. Dummett's book largely consists of a defence of this substantial claim, taken for granted by many meaning theorists, and a reflection on the extent to which the choice of particular semantic theories as used in logic is consistent with the purposes of a theory of meaning: indeed, such purposes seem rather different from those of logic: the latter is concerned with all possible interpretations of a language, the former with a single, i.e. the so-called *intended* one; also, how reference is determined is inessential for logic, but essential for meaning.

Consisting of three parts, a semantic theory has to characterize, (i) the concept of a semantic interpretation in specifying *semantic values* for syntactical categories of each type, relative to a domain for the bound variables; (ii) it lays down how semantic values of all types are *determined*; (iii) it specifies what it means for a formula to come out true under an interpretation (ch.1).

Among theories which ultimately do not qualify as candidates for semantic theories in Dummett's sense are distinguished, (i) theories employing 'internal' interpretations, which are said to be 'merely programmatic' for the task of a semantic theory: they state the semantic values of logically complex sentences straightforwardly in terms of the truth or otherwise of its constituents (Dummett presupposes that this

semantic programme is doomed to fail, i.e. to remain merely programmatic); (ii) interpretations employing an *indexed* or *relativized* notion of truth, (iii) polyvalent theories, employing more than two truth values, i.e. theories whose semantic values are not indexed and in this sense absolute values, but which still are 'objectivist' semantic theories insofar as they think of the elements of the set of truth values as belonging to sentences in an objectively determined way (ch.2). With regard to the task of the second part of a semantic theory, a genuinely compositional semantic theory is distinguished from merely formal or 'algebraic' ones, only some of which will serve the aims of the theory of meaning (ch.3, esp. pp. 151-157).

Built upon the semantic theory as a basis, the *theory of sense* forms the core part of the meaning theory, but is to be supplemented by the theory of *force* as well as the theory of *tone*, where force and tone are not *ingredients* of the meaning of an utterance but play a systematic role in the way in which the theory of meaning relates the grasp of sense and the *use* to which a sentence which expresses this sense is put. The crucial idea is that not every semantic theory, in specifying a notion of truth-under-an-interpretation, makes the more involved task of a theory of sense possible: in particular, the latter is not *absorbed* by the semantic theory or theory of truth but rather forms an independent part of the theory of meaning. In adding the requirement that a viable semantic theory must serve the aims of a theory of sense we leave the bounds of logic, which, taking the notion of truth for granted, does not analyse it in respect of its systematic interrelations with the concept of meaning. To ask for an analysis of the notion of truth is to ask what someone who is told what the truth conditions are for any sentence of a language he does not have any knowledge of, *still* has to come to know in order to be able to engage in communication with speakers of this language (52). *This* is only explicable, if at all, by relating a general theory of how assertoric content is determined, to the actual *use* of

sentences in linguistic practice, i.e. to the practice of asserting, asking, or commanding, where a knowledge of this language, and a knowledge of the meaning of constructions such as 'asserts that …', 'asks whether…' etc. is not to be presupposed.

Chapters 4-7 are relatively familiar from earlier writings of Dummett, and deal with the notions of sense, understanding, knowledge of language, and the dispute with Donald Davidson and John McDowell concerning 'modest' meaning theories. A highly interesting account is given in chapters 4-5 of the extent to which a Tarskian truth-definition throws light on the concept of truth as needed for the purposes of the theoretical representation of the practice of speaking a language: it is argued, paradoxically, that Tarski's truth definition explains 'is true' as it occurs *within the object language only*, i.e. not as a predicate used in the metalanguage, in which we do the meaning theory and reflect on the semantics of the object language; a Tarskian truth theory cannot contribute to a meaning theory: it *exploits* the understanding of the sentences to which 'is true' is applied, and does not explain it (67-9) (ch. 5).

As an alternative to a strongly truth-theoretic compositional meaning theory, Dummett finally suggests an alternative theory about how to state the way the content of what a speaker says is compositionally determined: it is constituted by *two essential aspects* of the use we make of the sentence expressing it: the conditions which *warrant* an assertion of a proposition, which is the verificationist part of the meaning theory, and the *consequences* which flow from an acceptance of the sentence as true (the 'difference' it makes for the speaker who utters it), which is called the 'pragmatist' part of the theory (317-321). Conceiving these two aspects of language use as built into the notion of truth it is possible for us to actually *criticize* and *justify* logical laws (ch. 11-13).

The vital concept in this crucially anti-Wittgensteinian project is that of *harmony*: intuitively, harmony between the above two aspects

of linguistic practice obtains, on the one hand, if we draw no consequences from the meaning of a statement apart from those which the acknowledged grounds for asserting it entitle us to draw, and, on the other, if we do not have justifications for asserting it other than those determined by the consequences we conventionally draw from it. If both these conditions for harmony are fulfilled, *stability* obtains (ch. 13). If both harmony and stability fail, the linguistic practice may have to be revised (246-251, ch. 7, and 320-321). This whole project of revision, however, depends on a rejection of a strong form of holism (ch. 10).

3

As far as the first of the two themes mentioned above is concerned, i.e. the relation of the theory of meaning to metaphysics, Dummett argues that there are, in a sense, no genuine metaphysical disputes: as it turns out, they are best construed as disputes about meaning. They are therefore to be dealt with in the philosophy of language. Opposing metaphysical systems, he argues, are informed by certain metaphorical pictures of some part of reality – the mind, the realm of mathematical objects, the past, etc. The metaphysical controversy in all these cases is understood to be the question whether we should be 'realists' in regard to some or other of these parts of reality. Now, once an analysis of the pictures which fit a realist or other view of one or the other part of reality is transformed into a *meaning-theoretical* analysis of a certain fragment of the language referring to that part of reality, an adequate model of meaning for the sentences of this fragment must be achieved: this then will by itself *reveal* what non-metaphorical content, if any, some one of the metaphysical pictures actually has. A *realist* picture of mathematical reality, for instance, will be excluded automatically by the way in which the meaning of mathematical statements is construed in the intuitionistic tradition. The meaning-theory will thus in itself determine a

metaphysics, and whatever is involved in the latter will be treated as a consequence of the former. An attack on realism, so conceived, is thus actually an attack on a specific model of meaning constructed for a given class of sentences.

Classical two-valued semantics, so Dummett's argument goes, fundamentally misrepresents the compositional semantic mechanism of language by which the semantic value of a complex sentence is determined by those of its constituents. Dummettian anti-realism would then amount to the claim that a theory of sense, conceived in accordance with some general principles to be accepted both to the realist and the anti-realist, if in fact possible at all, has not yet been accomplished for a classical two-valued semantic theory. The task, thus, is to provide some variant of the classical semantics adequate to serve as a basis for a compositional meaning theory. This involves as central the task of analysing how the meanings of complex sentences depend on the meanings of the logical constants they contain and the semantic structure which they determine. A basis for investigation of metaphysical disputes, thus, is not only meaning-theoretical but also logical, and it is this logical basis that Dummett sets out to construct.

4

The first two chapters may be described as working out a differentiation of various logics (intuitionistic logic, quantum logic, and polyvalent systems are the main examples) on the basis of the way in which we can provide a semantics for them. The general task of a semantic theory, devised for the purposes of logic, Dummett says, is to state how the truth of a sentence is compositionally determined. What determines the general form of a semantic theory, however, varies from logic to logic, and is taken to be given by a choice of what the semantic values for the various grammatical categories are to be (30). (Here the notion of a se-

mantic value of a category, belonging to the level of reference (24), refers to that feature of it by virtue of which it contributes to the determination of the truth or otherwise of a complex sentence of which it is a constituent.)

Classical logic, in Dummett's characterization, stands out as unique in virtue of the fact that the semantic values of sentences are simply truth or the lack of it: the truth of a complex sentence can be given a straightforward analysis in terms of the truth or falsity of its constituents (31-32). A good case is made by Dummett that such an analysis is impossible *even in the classical case*: even here, Dummett argues, the *stating* of a semantic value of a complex in terms of the truth or the lack of it of its constituents will not reveal how they are actually *determined* by these semantic values (38).

That such a straightforward analysis is to be rejected in the case of a language obeying a non-classical logic, is more clearly seen. For on an intuitionistic interpretation the semantic value of a sentence is not a truth value. If it were, we might think to be justified in claiming that we could give the meanings of the logical constants by stating the truth conditions of the complex sentences of the language in using straightforward stipulations, while presupposing an intuitionistic understanding of these logical constants in the metalanguage: thus would be an explanation of an implication of B by A in terms of the truth of A, and the truth of B, where in this explanation an intuitionistic logic is used and thereby 'read into' the object language. But in such a case the intuitionistic understanding of the logical constants in the metalanguage will still fail to show how the semantic value of the implication is determined (cf. 38). Indeed, it seems we *always* have at our disposal this semantic method, and the means to frame it in a Tarski-style theory of truth, whatever the logic is. We won't capture, however, with such a specification of what the semantic value of a sentence is to be, the feature by which intuitionistic logic differs from its classical counterpart, namely the restrictions it

imposes on the kinds of functions from objects to sentence-values which are taken to exist, and to have meaningful propositions as values (31). The aspects of the theory of meaning underlying a semantic theory for intuitionist logic, which results in the admission only of *effective* mappings, would not be reflected in this semantic theory's straightforward explanations of the logical constants in terms of truth values, considered as the semantic values of sentences.

A semantic theory which would reflect this would be *presupposed* if one stuck to classical statement values but switched to an intuitionistic understanding of the logical constants in the metalanguage. In early intuitionism, by contrast, the intuitionistic explanation of the meanings of the logical constants went along with substantial *changes in ontology*: the intuitionistic notion of a *species*, which differs from its classical analogue, the notion of set, in being neither determinate nor extensional, is a choice of a semantic value which changes the concept of a semantic interpretation altogether (29). An analogous conceptual shift with respect to sentences is lacking, and, as far as I can see, not provided by Dummett (a point to be dealt with below). In other words, using the terminology introduced above, an 'internal interpretation' of a formula, in classical logic, is in itself, if it is one at all, a genuinely semantic one, whereas an internal interpretation of an intuitionistic complex formula, without an assignment of some non-classical semantic value to sentence letters and predicate expressions, could only fail to provide its semantics.

5

In the new picture, semantic values of propositions are not two truth values, nor are they related to truth values via evaluation functions; instead, they are taken to correspond to something that *makes* a proposition *true*. It seems this would have to be taken as a fact, or a state of affairs. A realist's truth-maker for declarative sentences will, for instance, be a fact - an on-

tology to which Dummett avoids commitment (322). Someone searching in this book for an ontological analysis of the anti-realist's various truth-makers would do so in vain.

It is worthwhile to look at Martin-Löf's theory of meaning at this point: the truth-maker of a sentence A, in this theory, would be the existence of a *proof-object* for the proposition expressed by A: the correctness of an utterance of A is thus explained by reference to the fact that the set of those constructions whose being carried out would prove the proposition is non-empty. A claim about non-emptiness is a claim to the effect that a concept, namely, the concept 'proof of A' has an instance (cf. [6]). If this content is actually judged, and this judgement is to be correct, it must be possible to actually provide an instance of this set, because from a mere possibility to provide an instance there is intuitionistically no reason to conclude that there will actually be a time when this possibility is actualized.

As I have already said, Dummett thinks 'the concepts of meaning and of truth can only be explained together' (158); he also takes the notion of truth-under-an-interpretation to be the central notion of a semantic theory (35), and takes the notion of a truth-preserving inference to be the central notion of the theory of deduction – all this while leaving the nature of the concept of truth, and therefore of proposition, relatively undecided. If the notion of truth-of-a-proposition is analysed as the existence of a proof-object intuitionistically understood, the information value transferred by a valid deductive argument from premisses to conclusions exceeds the sort of information that something is true if something else is. If the conclusion in a deductively valid argument is to be a piece of knowledge, inferred from the premisses, this will hold solely upon assuming that the judgements which constitute the premisses are *actually* true, or made evident: this information must be an integral part of the proof for the conclusion. Truth, as such, can never be a part of a proof-object which serves as the content of

the act which makes it the proof-object that it is: i.e., the proof.

Dummett's insistence on the indispensability of the notion of truth in the application of constructive inferential reasoning about non-mathematical reality is officially based on the ground that, without it, a verificationist theory of meaning would lack the semantic resources to account for the practice of deductive inference. This is really a puzzling feature of his position, as this book makes strikingly clear, since insistence on this concept, as Dummett himself agrees (181-183), automatically takes the realism on board which this concept carries with it. To defend such a notion involves, in Dummett's framework, a defence of the view that such a concept avoids two dangers: on the one hand, it should not collapse straightforwardly into a realistic notion; on the other, taking justi-fication conditions for a sentence to be *built into* the conditions for its truth should not deprive this notion of some of its natural-seeming properties. Astonishingly little, to clarify the needed notion of truth, is made of the idea that in any verificationist theory of meaning the distinction between the notion of actual and the notion of potential truth is vital. Without it verificationism amounts to absurd claims, such as that there are no propositions which are both meaningful and not yet verified.

So exactly which notion of truth could be brought together with the semantic category of propositions as intuitionistically explained? Dummett insists that the knowledge of the proposition which a sentence expresses is to be sharply separated from the knowledge of the truth of the sentence (an insistence which repeatedly accompanies a refusal to be committed to an ontology of propositions (70)). A differentiation of the notion of truth, it seems to me, considered as ambiguous when applied to judgements, propositions, or sentences, would perhaps allow for an understanding of the truth of a *judgement* as being based on a given evidential basis for making the judgement,

whereas *propositions* would remain subject to a realistic notion of truth.

That the absolute (i.e. non-indexed) notion of truth which Dummett seeks to characterize may turn out to be best construed as *tensed*, in harmony with the fact that the availability of evidence entitling us to assert a proposition is temporal, seems to me to be an option which may open up many ways both for an adequate concept of truth and for an anti-realist's ontology and metaphysics. Perhaps this view might lead us to regard propositions and concepts themselves as temporal, changing with the situation of language use and being without some metaphysical Platonic stability and persistence.

That a proposition is true means intuitionistically that a proof of it has been constructed. If the intuitionistic explanation of what a proposition is is transferred to empirical languages, however, proofs may be ephemeral things and may lose their availability, for instance if they come to lie too far in the past and the past is not considered, in accordance with an anti-realistic logic of tense, as unchangeable and unassailably real. Trying to make something of the idea that recognition, or evidence, are temporal notions if considered as actual, but not if considered as potential,[2] does not seem to help in this issue: we would be close to collapsing intuitionistic truth into classical truth.[3] In general, if the ways to prove the proposition are constitutive for its semantic character, as the anti-realist is bound to hold, propositions will not be unaffected if their method of proof changes or becomes unavailable. Of course, the plausibility of such a step is counterbalanced by all the arguments, well known from Frege, that propositions must be eternal sorts of things.

6

As I have already indicated, Dummett carefully argues, both that truth is the central notion for logic (46), as against other relational candidates such as being-truer-than, or truth-in-the-sense of a Kripke-model, *and* that truth, in some (weak) sense, is the central notion of a meaning theory (cf. 148-151, 138-140, and [3], p. 44). Once the latter is assumed, then, the task, as noted above, is to state *which* semantic theory makes the more involved task of a theory of sense possible (140, 148). This task originates with Frege, whom Dummett takes to have initiated it as a programme.

In Dummett's understanding of it, the notion of sense is taken to be a function of the speaker's *knowledge* of language (the knowledge he has just in virtue of being a speaker of it), and it is defined to be that which is sufficient for the speaker to *determine* a semantic value. It follows, then, that, if the semantic values of predicate expressions are sets, as is the case in classical model-theoretic semantics, and extensions of predicate expressions are given in a way independent of ways a speaker might come to know them, it cannot be true that it is such semantic values that are determined by a knowledge of sense.

Frege's argument for senses, illustrated with identity statements, in fact depends, once we generalize it to all atomic sentences, on the assumption that the semantic value of a predicate expression is its extension, i.e. its being true or false of each object in the domain (134). This assumption involves substantial realistic *ontological assumptions*, about what the referents of our linguistic expressions in the world are. Whether it is true that these are indeed the classical extensional objects that they are assumed to be by the realist depends on the semantic theory we adopt: classical, two-valued semantics in this case. Assuming that the semantic value of a sentence is its extension, i.e. an object, but not assuming that the principle of bivalence holds, we need not grant that a singular

2. As suggested in [6], p. 142.
3. The difficulty is finding a notion of potentiality which is dependent on and conceptually posterior the notion of actuality without collapsing into it.

term is actually understood, even if its reference cannot be effectively determined. Acceptance of the principle of bivalence, however, leads us precisely to admit an understanding of senses whose semantic values cannot be effectively determined from a grasp of them.

In this classical picture of the relation of sense and meaning to truth, the gap between the theory of meaning and the theory of reference, in its shape as model-theoretic semantics, seems too wide to be bridged. A model does not specify what a speaker knows about the interpretation of a word he or she uses, nor what he or she intends it to mean: what the model gives is information about an arbitrary entity's being assigned to the word such that it is true of this entity; which is not what we need, since it is not what we intend. No help lies in the talk of the 'intended' model, if the intended one is specified via the speaker's knowledge of meaning, so that this knowledge is clearly not what is specified by the selection of one specific model as the intended model. The problem of the gap between the theories of reference and sense raises its head in the assumption that Kripke-models or Beth trees can serve as semantic theories for intuitionistic languages, an assumption that Dummett has repeatedly criticised, from *Elements of Intuitionism* onwards.[4] For a theory of meaning, the mere specification of an abstract structure of possible worlds, given by an algebraic characterization of their relative possibilities, need not serve the purposes of a theory of meaning qua theory of understanding (156). It is not guaranteed to capture corresponding *sense properties* of a vocabulary, and does not serve as a semantic interpretation of that vocabulary. For an arbitrarily specified extension there need not be an intension whose correlated extension it is.

All this holds if extensions have their being in, or depend for their existence on intensional entities such as senses, which are assumed to

determine these extensions in an effective way.[5] Such senses, on Dummett's account, will only be determinable by supplying an abstract semantic structure with verification conditions for the atomic sentences. This seems to mean that one would have to make a modal semantics using indexed truth values somehow constructive: to show how possible worlds are constructed, instead of taking them as the 'raw material' of a semantic theory, seems then to be the task. In a certain sense, the semantics of possible worlds is not at all incompatible with a verificationist theory of sense: a bivalent notion of truth may be assumed to hold locally, relative to single worlds, whereas assertibility will still mean truth-in-all-worlds, so that bivalence will fail as a global principle; some sentences, then, will not have determinate truth conditions, and reality will not be determinate in respect to them (319).

7

Intuitionistically, to know a proposition is to know a proof of it, or a method of verification, since a proposition is defined via what counts as a proof of it. Following Gentzen, we can spell out the same idea in terms of introduction rules for logical operators, which state conditions for a proposition containing them to be canonically proved. That a proposition, or the meaning of a sentence, is defined via the rules governing its principal operators, however, is only plausible if what Dummett terms 'the Fundamental Assumption' (254, 257) in fact holds: namely, that, for any valid argument deriving a complex sentence, a proof of it can be constructed which ends with the application of the introduction rules for its principal operator. As far as there are limits to how this assumption can be cashed in for all the logical constants, limits which under Dummett's own investigations leave the assumption 'shaky'

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4. Still more difficult would be the employment of them in a semantic theory for natural languages (cf. 319).

5. That sense, together with relevant facts from external reality, determines semantic value is indeed an assumption Dummett does not doubt.

(277), there are limits to the verificationistic explanation of the notion of proposition.[6]

If we look at the kind of semantic value for sentence-letters Dummett ultimately suggests, we find, among other mentioned options, quoted with approval that 'a proposition is a decidable classification of constructions (into those that are and those that are not proofs of the statement).'(29). Decidability seems here to imply the requirement that, for any element of the universe of constructions, it either recognisably *is* a proof of the proposition, or recognisably *is not* (see [9], p. 144). This requirement does not seem too far removed from realism. An account is needed of what a proof is, to prevent the universe of proofs, or constructions, from appearing to be given independently of our cognitive access to it. Another way of looking at this notion of the semantic value of a proposition, however, seems to be to regard such a notion of semantic value for sentences as embodying a notion of sense according to which the sense of a sentence would be the *method of computing its truth value*.[7] Decidability of the proof concept means here that a proposition is the process of computing it into a canonical truth value (a non-canonical truth value, such as the semantic value of 'A ∨ B', being defined as a logically complex object which is computable into one of the two canonical truth values Truth and Falsity in an effective way).

This does not make sense for infinitary languages, however, in which we quantify over infinite domains. In this case we do not have effective procedures to get a canonical truth value from a non-canonical one. Still we may accept propositions to be non-canonical truth values (or have them as values), while preserving effective decidability for the epistemic notion of *judgement*: there would be propositions, then, which we understand well, even if there would be no effective proof procedure or method of verification associated with them (cf. [7]). Such propositions, then, could not be among the possible contents for a correct judgement which asserts it to be true. If, by contrast, proposition is regarded as an epistemic notion as well, meanings of undecidable sentences which employ quantification over infinite domains cease to exist.[8] Considering in addition the fact that there are in general problems with seeing the meaning of universal quantification as exhaustively given by its standard introduction rules[9], it seems that the advantages

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6. Confirmation for this comes from a point which can be made against Dummett's construction of the notion of proposition in terms of introduction rules and harmony requirements by an appeal to Gödel's incompleteness theorems: an assessment of Gödel's undecidable sentence as true, Peacocke argues ([8], p. 178), can only go through in a realistic semantics: for here a form of *semantic* conservatism with respect to the formal system which Gödel's sentence extends, is kept, while *deductive* conservatism is violated (the sentence does not have a derivation in the non-extended system).

7. It seems one might view this as letting the notion of semantic value correspond to the sense, rather than to the reference of an expression as Dummett proposes. Knowledge of sense, then, contrary to Dummett's proposal (cf. 123), could not possibly fall short of knowledge of semantic value. Martin-Löf has indeed suggested something like this though I am not quite sure whether this is what he meant.

8. I.e., we could not state, in terms of the manifestability of a grasp of their meaning in actual linguistic practice, what a grasp of their truth-conditions 'consists in': they would lack a relativization to our recognitional capacities, which must make the claim that we have grasped a meaning here questionable).

9. Edwards has recently argued that Dummett's version of a verificationist theory of sense as presented in the book we are dealing with has even difficulties in justifying quantification over *finite* domains. According to Dummett the sense of an assertion is at least partly constituted by what counts as a justification for it. Edwards' argument starts from Dummett's verificationist constraint on the logical complexity of propositions that are warrants for other judgements (see 258 and 283). According to this constraint a proposition which serves as a warranting premise in the canonical derivation of another proposition must not be greater in logical complexity than it. Edwards shows that even in finite cases of a proposition in the last step of whose derivation the introduction

one has with respect to quantification theory, given a realistic understanding of the notion of proposition, outweigh the advantages of its at present still rather undeveloped verificationist counterpart.

8

Dummett claims (see [4], p. 322) that the identification of propositions with sets of their proof-objects, as suggested by the intuitionistic type theory of Martin-Löf, is not explanatory for the notion of proposition. For then an element of the set of proof-objects for a given proposition A is in itself a *g r o u n d* for asserting the proposition, since it is an instance of the concept 'proof of A'. This transforms, he argues, the ordinary notion of set into that which we ordinarily think of as a proposition, for it is now rather a claim to the effect that the set of proof-objects for A is non-empty. Against this view of Dummett's one may hold that this latter claim is actually not what type-theory equates with the notion of set, but is rather a way of giving the meaning of a *judgement* of the form 'A is a set', or 'A is a p r o p o s i t i o n', these notions being conceptually prior to that of proposition, or set.

Whether this organization of the order of explanation solves the ontological question 'What is a set?', or 'What is a proposition?', is another question. Crucially, a feature of an ontology for an intuitionistic semantic theory would indeed be that elements of sets are actually more than that, namely *grounds for judgements*, which seems to contradict the intuition that individuals are not the right kind of things for providing reasons for uttering a sentence. Another feature

would be what appears to be the essential intensionality of its objects: it is essential to their nature how they are given to us. We may not be able to decide, from two ways in which an object is given, that they present the same object, conceived as independent of those ways in which it is given (cf. 125). The intensionality which is involved here enters into the realm of reference, not of sense.

9

It does not seem adequate, or desirable, to view Dummett's work as an exposition of manifestly anti-realistic views: too much is said in favour of the force of possible realistic objections to the anti-realistic challenge, and too little about what the world of the anti-realist actually looks like. Perhaps Dummett's project is better described as an attempt, not only to attain a viable formulation of what realism consists in, but as an attempt to convince the realist that there is something in his metaphysics and ontology which he actually has to defend. If he would succeed, 'anti-realism' would be revealed as not really being a doctrine, but something like an attitude which actually helped to bring about a defensible realism.[10] It seems, however, that the ontological problems, which Dummett's suggestions about the proper form of a meaning theory involve, require ultimately a more direct treatment, not independent of meaning theoretic issues, but not as their automatic consequences either. It seems to me that Dummett may indeed be right

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rule of the universal quantifier is applied as a warrant for an assertion of the universally quantified conclusion, the speaker may have to grasp warrants for assertions with respect to the premises where the logical complexity of those warrants is equal or greater than that of the conclusion. (See [5]).

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10. In this direction, a remark in a paper of Bell and Hallett may seem a significant stimulus for further research: employing category-theoretic means of description, they say, quantum logic not less than intuitionistic logic, 'can be reconciled with what we shall call for convenience ontological (or set-theoretic) realism, that is to say the view that the (mathematical) world is a realm of independently existing real objects. (…) intuitionistic logic too may be regarded as a logic of ontological realism, provided the essential variability of the world is taken into account' (see [1], p. 369 f.).

in saying that a characterization of what realism consists in needs to employ semantic notions, such as 'denotation' or 'truth', over and above purely metaphysical ones (325). Realism with respect to a given class of sentences then will come out as employing crucially a bivalent notion of truth, or at least a notion of truth according to which every statement is determinately either true or not true (326). But, as Dummett himself remarks in this context, this definition of 'realism' does not encompass many forms of realism which seem however to deserve the name though, such as realism about vagueness, i.e. the view that vagueness is ontologically real, and independent of language. This may be not accidental, because it is simply not clear how realism, in its formulation as a semantic thesis, reaches out to ontology.

In early intuitionism one arrived, from a picture of the constitution of reality, and views about how meaning is to be construed, at a non-classical logic. Dummett, from a construal of meaning, and a view of how a logic can be validated by such a picture, wants to arrive at a metaphysics. Its contours have not become clear to me from reading this book. Non-determinately either-true-or-false statements and thoughts, Dummett says, must leave reality as something itself indeterminate, or 'containing gaps' (318). Much as stories leave blank spaces in the possible world they determine, there will be no matters of fact as to the truth or falsity of statements concerning the details which were not filled in. But will there be, then, facts of the matter as to what propositions constitute gaps, i.e. will the gaps be subject to the practice of assertion? In what way could a description of an anti-realist's gap-containing reality be true to that reality? Generally, with regard to *what reality* are we semantic realists, or anti-realists?

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In conclusion, I have suggested that a theory of semantic value which acts as a basis for a compositional meaning theory and actual under-

standing in Dummett's sense will have to be related to ontological theory, i.e. to a theory of (mental and non-mental) objects which are involved in giving the semantics of a language. That the correct metaphysics, after the construction of a workable meaning theory, 'will force itself on us' (339), though, remains a bold thesis. As far as metaphysics includes a general ontology of reality it seems doubtful indeed.

[1] Bell, J.&Hallett, M. [1982], "Logic, Quantum Logic and Empiricism", in: *Philosophy of Science* 49.

[2] Dummett, M. [1991], *The Logical Basis of Metaphysics*. Cambridge / Massachusetts: Harvard University Press.

[3] Dummett, M. [1993], *The Seas of Language*. Oxford: Clarendon.

[4] Dummett, M. [1994], "Reply to Sundholm", in: B. McGuiness/G.Oliveri (eds.), *The Philosophy of M. Dummett*. Dordrecht: Kluwer, pp. 318ff.

[5] Edwards, J. [1995], "The Universal Quantifier in Dummett's Verificationist Theory of Sense", in: *Analysis* 55.2, pp. 90-97.

[6] Martin-Löf, P. [1991], "A Path from Logic to Metaphysics", in: *Atti del congresso Nuovi problemi della logica e della filosofia della scienza*. Viareggio, 8-13 gennaio 1990, Vol.II, pp. 141-149, Bologna, 1991. CLUEB.

[7] Martin-Löf, P. [1995], "Verificationism Then and Now". Talk given at the conference *The Foundational Debate: Complexity and Constructivity in Mathematics and Physics*. Vienna, 15-17 September 1994. Unpublished Manuscript.

[8] Peacocke, Ch. [1993], "Proof and truth", in: Haldane/Wright (eds.), *Reality, Representation, Projection*. Oxford: OUP, 165-190.

[9] Sundholm, G. [1994], "Vestiges of Realism", in: B. McGuiness/G.Oliveri (eds.), *The Philosophy of M. Dummett*. Dordrecht: Kluwer, pp. 137ff.