Hale and Wright on the Metaontology of Neo-Fregeanism[*]

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## I. INTRODUCTION

A number of recent authors (Fraser MacBride 2003; Matti Eklund 2006; Ted Sider 2007; Katherine Hawley 2007) have discussed the issue of the *metaontology* of neo-Fregeanism. Underlying these discussions is the assumption that behind the neo-Fregeans' reliance on Hume's Principle (HP) to justify their version of platonist logicism lies some sort of reliance on a general conception of ontological questions. In my (2006), I argued that the neo-Fregeans have sometimes relied on a priority thesis to the effect that truth is in a certain sense prior to reference; one which, when consistently relied upon, entails a maximally promiscuous ontology ('maximalism'). Sider (2007) argued that the neo-Fregeans would do well in relying upon a thesis of quantifier variance such as that defended by Eli Hirsch in recent writings (e.g. 2002), according to which there are different possible quantifier meanings for an existential quantifier to have. MacBride (2003) claimed that the neo-Fregeans rely on a metaontology similar to that of Rudolf Carnap (1950) and the later Hilary Putnam (e.g. 1987, 1994). Hawley (2007) compared the maximalist reading and the quantifier variantist reading, and came out in favor of the maximalist reading.

In their (2009), Bob Hale and Crispin Wright – henceforth, H&W – respond to this literature. After dismissing the interpretive claims and suggestions for rational reconstruction made by the commentators, they present their own positive metaontological view, what they call 'minimalism'. (Despite the name, it is not the opposite of maximalism. More later on the relation between these two theses.) In this note, I will, among other things, present and critically evaluate their positive proposal, and discuss their responses to commentators.

Common to the interpretations mentioned above is the claim that H&W focus on metaontological ideas with applications beyond that of justifying abstraction principles. Given this claim, the abstraction principles should come to seem less central. This can in principle be regarded as a problem for the interpretations, given the obvious centrality of abstraction principles in the

writings of the neo-Fregeans. I will turn to this seeming problem later. But I will also emphasize a problem that comes from focusing exclusively on abstraction principles. Is such exclusive focus meant to imply that for any given type of abstract object to exist, there will have to exist the right sort of abstraction principle by means of which the claim that abstract objects of this type can be grounded? Or is the idea rather to make only a sufficiency claim: that while good abstraction principles succeed in introducing objects, the neo-Fregean philosophy is not meant to speak to all reference to abstract objects? Both alternatives are problematic.

## 2. HALE AND WRIGHT'S "MINIMALISM"

Central in H&W's (2009) description of their positive view is a comparison of the reference of singular terms with the reference of predicates on the abundant conception of properties. (They describe the abundant theorist of properties as someone "for whom the good standing, in that sense, of a predicate is *already* trivially sufficient to ensure the existence of an associated property, a (perhaps complex) *way of being* which the predicate serves to express. For a theorist of the latter spirit, predicate sense will suffice, more or less, for predicate reference".[1] They note that for singular terms, it is hardly plausible that possession of sense suffices – even 'more or less' – for reference. Accordingly they seek to, as they put it, "perfect the analogy":

> ...it is not the abstractionist view of singular terms that sense suffices for reference—the view is that the truth of atomic contexts suffices for reference. However everyone agrees with that. The controversial point is what it takes to be in position reasonably to take such contexts to be true. The point of analogy with the abundant view is that this is not, by minimalism [*recall, this is H&W's label for their own view*], conceived as a matter of hitting off, Locke-style, some 'further' range of objects. We can perfect the analogy if we consider not simple abundance but the view that results from a marriage of abundance with Aristotelianism. Now the possession of sense by a predicate no longer suffices, more or less, for reference. There is the additional requirement that the predicate be true of something, and hence that some statement in which it occurs predicatively is true. That is a precise analogue of the requirement on singular terms that some statement in which they occur referentially be true.[2]

As this is where H&W give the fullest statement of their metaontological view, let me refer to this as *the Key Passage.*

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[1] H&W (2009), p. 197f.
[2] H&W (2009), p. 208.

*Part* of what H&W say is that a singular term refers if some atomic statement in which it occurs referentially is true. But they themselves emphasize that this point is fairly uncontroversial. (That *everyone* agrees is an overstatement. But still.) The more central question concerns what it takes for an atomic statement to be true, or to be in a position reasonably to take an atomic statement to be true. Here H&W make a negative claim: it is *not* a matter of "hitting off, Locke-style, some 'further' range of objects".[3] This is metaphorical, and the metaphor is not obviously helpful. Moreover, since the claim is purely negative, no particular positive view is more than equivocally suggested.

The difficulties in interpreting the Key Passage are similar to a difficulty in interpreting Wright (1983) book to which I called attention in my (2006). Passages like the following are sprinkled throughout that book:

> According to [the "thesis of the priority of syntactic over ontological categories", which Wright presents as implied by Frege's context principle], the question of whether a particular expression is a candidate to refer to an object is entirely a matter of the sort of syntactic role which it plays in whole sentences. If it plays that sort of role, then *the truth of appropriate sentences in which it so features will be sufficient to confer on it an objectual reference; and questions concerning the character of its reference should then be addressed by philosophical reflection on the truth-conditions of sentences of the appropriate kind.*[4]

> The lynch-pin of Frege's platonism, according to our interpretation, is the syntactic priority thesis: the category of objects...is to be explained as comprising everything which might be referred to by a singular term, where it is understood that possession of reference is imposed on a singular term by its occurrence in true statements of an appropriate type.[5]

It is clear that these remarks are meant somehow to be central. But what role are they supposed to play? In part, the idea is certainly that for there to be numbers it suffices that (a) number terms are singular terms, and (b) appropriate sentences in which number terms occur are true. But surely this

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[3] The reason for the reference to Locke is that in a critical discussion, Peter Sullivan and Michael Potter (1997) compare the neo-Fregean view to a more 'Lockean' view which they prefer. What Sullivan and Potter say is,

> What did Locke realise about 'gold'? Effectively, that there is an element of blind pointing in our use of such a term, so that our aim outstrips our vision. Our conception fixes what (if anything) we are pointing at but cannot settle its nature: that is a matter of what's out there. One image of the way [Hume's Principle] is to secure a reference for its terms shares a great deal with this picture. (pp. 145-46)

[4] Wright (1983), p. 51f; my emphasis.

[5] Wright (1983), p. 53. Compare too similar passages on pp. 13f, 129, and 153.

point cannot exhaust the intended import of the passages. It is clear from the contexts that these passages are supposed to contain some sort of argument against nominalism. But a nominalist can agree on this claim: it is only that this nominalist can deny that any appropriate sentences are true; and she can back up this denial by pointing to the fact that number terms by her lights don't refer. The claim isolated can hardly be the 'lynch-pin' of Frege's, or anyone's, platonism.[6] The claim is essentially the same as that which H&W, in the Key passage, say is trivial.

I argued in my (2006) that what is supposed to pack the philosophical punch is that the nominalist's stance – the idea that the relevant sentences aren't true because the relevant terms don't refer – is supposed to in a certain sense *gets things backwards*. The fundamental question concerns the truth of the relevant sentences. Reference is secondary. In the relevant discussions, Wright refers to Frege's context principle, as he understands it: the emphasis on the primacy of truth, a semantic feature of sentences, is supposed to be justified by appeal to this principle.

One way to motivate the interpretation I suggested is to ask: *how can the above passages be understood so as to play a central role in an argument against nominalism*? Here, I suggested, is how the argument is supposed to go: The fundamental question is whether some mathematical sentences which are ontologically committing to numbers can be successfully assertively used: whether they can be used to make correct assertions. If so, then these sentences are true. Reflection on their structure – e.g. on the fact that in appropriate places they contain number terms – then yields that number terms refer and that numbers exist.

A theorist with a different kind of perspective – in some ways a more natural perspective – might find it natural to think that this reasoning is exactly backwards. She might instead reason as follows: It is only if numbers indeed exist that number terms refer and some sentences containing such sentences are true, and these sentences can be successfully assertively used. In lieu of a guarantee that numbers exist we can not be assured of the successfulness of the relevant assertions. What I take the import of the quoted passages to be is that it is the objector that is supposed to get

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[6] It may be natural to object that maybe when Wright (1983) came out, rejecting atomic mathematical sentences as untrue seemed such an outrageous thing to do that arguing that numerical terms are genuine singular terms would have been regarded as sufficient as an argument for platonism. However, many of the original reviewers of the book – John Burgess (1984), Gregory Currie (1985), Hartry Field (1984), Michael Jubien (1985), and Michael Resnik (1984) – fastened, like me, on passages like the ones I have quoted. Of these reviewers, everyone but Jubien interprets these passages in broadly the same way I do. Currie, Field and Resnik all distinguish between the rather toothless claim that a singular term refers if and only if suitable sentences in which it occurs are true, and a stronger claim to the effect that we can somehow use the right hand side of this equivalence to establish the left hand side: and they take Wright to want the stronger claim. Currie talks about how, according to Wright, "it is the truth of statements containing a term which confer reference on that term" (p. 476). Resnik says that Wright uses the context principle as he interprets it to argue that "the ordinary use of number words as singular terms and the truth of number-theoretic statements 'by ordinary criteria' are sufficient to prove that there are numbers", and says that this "threatens to promote the wildest sort of ontological splurges" and that Wright builds in special safeguards to avoid commitment to sakes (p. 779).

matters backwards: we can, the neo-Fregean thought would be, begin with assertoric success and on the basis of how things stand in this regard draw conclusions regarding reference and existence. (I also argued in my (2006) that this type of reasoning underlies the general argument against taking an error theory to be a viable form of antirealism that Wright presented in his (1992).)

Maybe the view I am ascribing to Wright is helpfully described as follows: for a singular term to refer is for it to occur in true sentences of the appropriate kind. It is a claim about what reference *consists in*. Of course, this view on reference requires that what the truth of a sentence consists isn't in turn in part that terms occurring in the sentence refer. (This is in prima facie tension with compositionality, but it is supposed a tension between the context principle and compositionality that is already familiar.)

To say that truth is prior to reference in the sense indicated is of course not to say that there are *no* substantive restrictions on what sentences are true. That would obviously be an absurd position. The idea is just that truth is, on the view under consideration, a matter of successful discourse; and philosophical doubts about whether the sentences 'really' are true, on the ground that the supposed referents may fail to exist, are somehow vacuous.[7]

Now relate back to the Key Passage. Since the only clue H&W offer as to how what they say goes beyond the claim, said by them to be trivial, that a singular term refers if it occurs in true atomic statements is that reference is not a matter of "hitting off, Locke-style, some 'further' range of objects", *nothing in the Key Passage is in conflict with ascribing the view just described to them*. This is a bit odd, since clearly a main aim of H&W's (2009) was to show how commentators have gotten the metaontology of neo-Fregeanism wrong.

If the neo-Fregean's argument for the existence of mathematical objects proceeds as sketched, via a priority thesis of the kind indicated, then it appears one can argue in an analogous fashion for a maximally promiscuous ontology, what I call maximalism. For simplicity – the consequences of maximal promiscuity are harder to gauge in the case of concrete objects – focus on pure abstracta. It would appear that, at least roughly, given the priority thesis, if Ks are pure abstracta such that the Ks can consistently exist, then the Ks do exist.[8] The reasoning is parallel to that in the case of numbers: The fundamental question is whether some sentences which are ontologically committing to Ks can be successfully assertively used: whether they can be used to make correct

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[7] *Needless* to say, the condition on what it takes for a sentence to be true stands in need of some sharpening, and providing the needed sharpening would hardly be easy. One specific worry concerns whether one can understand appeal to successful discourse in some way which doesn't entail that all sentences which are true according to the best theory of the world we can arrive at also are true: in other words, whether there is a conflict with metaphysical realism.

[8] Certain qualifications to this statement are necessary in light of how there can be types of objects such that objects of each type can consistently exist, but it is logically impossible that objects of these types should coexist. See further e.g. my (2006).

assertions. If so, then we should conclude that these sentences are true. Reflection on their structure – e.g., that in appropriate places they contain K-terms – then yields that K-terms refer and that Ks exist.[9] It does not matter whether we currently take Ks to exist or not, or whether we actually have terms for Ks. What matters is that appropriate sentences with K-terms could be successfully assertively used.

H&W use 'minimalism' as a label for their preferred view and oppose my ascribing 'maximalism' to them. The use of the labels 'minimalism' and 'maximalism' may be confusing. Regardless of what to say about the substantive issues here, minimalism and maximalism are not *opposites*. Minimalism is a particular *metaontological* view, on what reference and existence demands, so to speak. Maximalism is a regular *ontological* view on what there is.

H&W complain that what I said about priority and maximalism in my (2006) was unclear.[10] Maybe so; but the unclarity can, so to speak, be *factored out*. Focus not on the (1983) passages on which I there focused but on the Key Passage. Again to stress, H&W only make a point they regard as trivial – that a singular term refers if a sentence in which it occurs referentially is true – and a negative point, about the Locke-style fit which is not required for truth. The take home message, though, is that somehow truth is *easy* to come by: easier than it would be on other views. The talk of easiness in this context may not be fully clear. But one can still draw some tentative conclusions. There is nothing said which is specific to terms introduced by abstraction principles, or to the case of numbers. But then consider any other type of pure abstracta, the Ks, such that objects of that type could consistently exist. Since nothing has been said that is specific to the case of numbers, H&W's considerations should tell as much in favor of the existence of Ks as in favor of the existence of numbers. Even if the talk of easiness is unclear, the point should get across. If easiness has certain consequences when it comes to numbers, then, for all that has been said, it has similar consequences when it comes to Ks. Similarly for any unclarity in the talk of priority in my (2006).

There is a rather different way that the general idea underlying priority could be taken. One can think that if truth is a matter of satisfying the norms of discourse we introduce, then if we find

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[9] Good questions can be asked about the exact sense in which truth is supposed to be 'prior' to reference. Is the priority *epistemic*? In his (1995) review of Dummett (1991), Wright describes as Frege's 'key move' in his philosophy of arithmetic "The application of the Context Principle to license the thought that an *epistemology* of mathematical objects may be accomplished by an *epistemology* of statements" (p. 216; my emphasis). Or is the priority rather *conceptual or ontological*? Wright (1983) says, "What if there really are no [such objects as numbers]? And how, to reiterate the empiricist worry, can we possibly satisfy ourselves that there are such objects if there can be no empirical confrontation with them? Well, it is evident that Frege's position requires that such doubts be vacuous; that there is no possibility of such a mistake, no possibility that, the syntax of arithmetical language and the truth of appropriate statements expressed in it notwithstanding, there are no such genuine objects…" (p. 153). If Wright's Frege were only making an epistemological point, the claim would just be that the relevant doubts could never be *verified*. But it seems a stronger claim to say that they are *vacuous*. I will tend to assume the stronger, metaphysical understanding, but nothing should hinge on this.
[10] H&W (2009), p. 184.

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some purported objects, like maybe Hirsch's 'incars' – where incars are objects in many ways just like cars but cease to exist when they leave garages (so when an ordinary car leaves a garage, then the would-be coinciding incar goes out of existence) – too weird to exist, then "incars do not exist" is true. What matters are the standards we ordinarily employ. This would be in line with the views of Hirsch and Putnam, and Carnap as he is often interpreted. I do not here wish to get into the virtues and vices of this alternative interpretation, either as interpretation or substantively. It may be worth mentioning that Wright (1983) apparently seeks to distance himself from this type of view.[11] But of course, even if he does distance himself from the view, that does not mean that he is in a position to do so given his commitments.

In fact, the Key Passage can also be argued to be consistent with this other way of taking the priority claim, and hence with Sider's and MacBride's understandings of neo-Fregeanism. What a thesis of quantifier variance says is that there are multiple maximally good – in the sense of natural, or joint-carving – meanings for an existential quantifier to have. Different ways of carving up the world into objects are equally good. To use the metaphor MacBride uses when describing the view under consideration: the world in itself lacks structure; it is we who impose structure on it through language.[12] (I am here intentionally sliding over distinctions between some otherwise importantly different views. The way Hirsch understands quantifier variance it is simply a claim about there being different equally good quantifier meanings. Hirsch distances himself from any anti-realist sounding claims to the effect that we somehow create objects through our conceptualizations of the world. Other theorists in broadly the same tradition, such as Hilary Putnam, have flirted with such claims; and MacBride's metaphor suggests such antirealism.)

One can attempt to reconcile this with the Key Passage as follows: what the denial of the 'Locke-style' idea would amount to, on this reading, is the claim that there is no privileged ontological structure. From this claim it follows, according to the general kind of view that Sider and MacBride ascribe to the neo-Fregean, that there are different equally good ways of carving up the world into objects.

Now, H&W do talk of their conception of objects as one which is analogous to an abundant conception of properties, and this fits better with my claims than with those of Sider and MacBride. (Quantifier variance is neutral as between abundance and sparseness.) But, to stress, all that H&W say when explaining the analogy is that a singular term's occurring in true atomic statements suffices for the term to refer, and that truth does not require any "hitting off, Locke-style, some 'further'

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[11] See Wright (1983), p. 129.
[12] Though metaphors like that take us only so far: also a maximalist can agree that the world 'lacks structure': the maximalist can say that it is because the world lacks a privileged ontological structure that it is relatively easy for referential attempts to succeed.

range of objects". This statement by itself is consistent with Sider's and MacBride's takes on the metaontology of neo-Fregeanism.

## 3. ABSTRACTION PRINCIPLES

H&W's central characterization of minimalism, in the Key Passage, does not serve to distinguish their minimalism from the metaontological view I have ascribed to them. Nor does it distinguish their minimalism from what the friend of the thesis of quantifier variance is likely to hold. But perhaps it is wrong to look solely at the Key Passage. Other passages can be read as suggesting something more definite: specifically, that H&W think that for a given specific type of abstract objects to exist *there must be a suitable abstraction principle*. If that really is what H&W think, it might be useful to make that perfectly explicit. In (2009) H&W at one point do say,

> According to the abundant—"neo-Fregean"—metaphysics of objects and singular reference, [justification for regarding a singular term as having objectual reference] is provided by the very manner in which sense is bestowed upon abstract singular terms, which immediately ties the truth conditions of self-identities featuring such terms to the reflexivity of the relevant relation.[13]

"Abstract singular terms" are here singular terms introduced by abstraction principles. So here H&W directly relate their metaontological view to abstraction principles. The provided justification is obviously meant to be *sufficient* for taking some range of singular terms to refer. H&W may also mean it somehow to be *necessary*.

One reason it may be important to make it explicit if there is a need for abstraction principles is that if indeed H&W hold that, for every kind of abstract object, objects of that kind exist only if there is a relevant abstraction principle, then obviously the acceptability of H&W's outlook is hostage to whether abstraction principles can be found in all cases where we would want to say that the abstracta in question exist. As H&W themselves mention, "The prospects for an abstractionist recovery of a decently strong set theory remain unclear".[14] If it is necessary for sets to exist that it should be possible to recover sets by abstraction, this is a major problem. And even if *this* particular problem can be overcome, there will certainly be others: what the proponent of the view under consideration is committed to is that *all* abstract objects are recoverable by appeal to abstraction principles.

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[13] H&W (2009), p. 207.
[14] H&W (2009), p. 180fn6.

Naturally, it is possible to hold that the existence of a suitable abstraction principle can be *sufficient* for a certain type of object to exist, even while distancing oneself from the corresponding necessity claim, that there must be a suitable abstraction principle for that type of object to exist. This may sound like a more reasonable line to take. But first, a mere sufficiency claim is philosophically unsatisfactory: what is the more general conception of reference which allows for this sufficiency claim? Second, more importantly, H&W's own formulations of their stance sound as if they mean to be more ambitious: they talk about their minimalism as being an "abstractionist metaphysics of abstract objects, and of reference to them".[15] It certainly appears that they mean to cast their net more widely, and not to simply approach these ontological questions on a case-by-case basis. Third, a mere sufficiency claim is apt to seem unsatisfactory. The problems concerning the metaphysics of abstract objects seem so general that presenting an account that helps with some abstract objects but not others is a bit like presenting a purported solution to the semantic paradoxes or to the sorites paradox that only helps with *some* of the versions of these paradoxes.

There is also the question of how the passage on which we are now focusing is supposed to be related to the Key Passage. There is nothing in the Key Passage to suggest either the necessity of there being suitable abstraction principles, or that a mere sufficiency claim is being made.[16]

Appeal to HP, and the fact that Hume's principle is an abstraction principle, is central in neo-Fregean writings on the philosophy of arithmetic, and much of the discussion of neo-Fregean philosophy of arithmetic concerns how this reliance can be defended. Critics can urge that it seems clear that a sentence of the form "the number of Fs = the number of Gs" demands something more of the world – namely, that numbers exist – than does the corresponding sentence of the form "the Fs and the Gs are equinumerous". Appeal to, for example, a general metaontological thesis such as priority can in principle help ward off such criticism. If it is, so to speak, sufficiently easy for objects to exist, then the left hand side of an instance of HP does not impose a more strict demand on the world than does the right hand. However, if priority immediately leads to maximal ontological promiscuity in the way I have outlined, then there is a neo-Fregean argument for platonism which proceeds independently of abstraction principles like HP: the general argument for maximal ontological promiscuity entails platonism. This can be raised as an objection to my interpretation. Since abstraction principles are central for the neo-Fregeans and since on my interpretation it is seemingly inexplicable why abstraction principles should have this central role, my interpretation may seem suspect. (H&W even refer to their view as 'abstractionism', and that is also the label that appears in the title of the present volume.)

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[15] H&W (2009), p. 207.
[16] The Key Passage would be specifically about abstraction principles if the only singular terms it were about were only singular terms introduced by abstraction principles. But I do not see any indication that it is so.

Similar points can be made regarding appeal to quantifier variance. On the one hand, given quantifier variance, it is easier to simply stipulate that a given abstraction principle comes out true: the stipulation in part serves to endow the quantifier with meaning. On the other hand, given quantifier variance, it is unclear why appeal to abstraction principles should be so central in a defense of platonism: could we not simply decide to, so to speak, use a platonist quantifier – to carve up the world in a platonist way?

Already in (2006), I presented a response to the criticism just mentioned (focusing on priority, but someone who defends the quantifier variance reading of neo-Fregeanism can easily tell the same story). It is that we must remember that the neo-Fregean is both a platonist and a logicist of sorts. Even if the *platonism* can be made defensible without appeal to abstraction principles, for example in the way outlined, the *logicism* is another matter. If a purely conceptual transformation is sufficient to arrive at the truth of the left hand side of an instance of HP, which is overtly committing to numbers, from the right hand side, which is not overtly so, that is surely significant in a defense of the view that mathematical truth (or mathematical knowledge) is something like conceptual truth (or conceptual knowledge).

In general, and looking more at the substantive questions, if the neo-Fregean relies on a metaontology at all, she can either (i) rely on a metaontology which, although it allows for reliance on abstraction principles, does not immediately accord any special place to them, (ii) rely on a metaontology which entails that for some pure abstracta, the Ks, to exist, there must be an acceptable abstraction principle which serves to implicitly define K-terms, (iii) rely on a metaontology which yields only the sufficiency claim that given an abstraction principle which purports to implicitly define K-terms and which meets whatever formal conditions are properly imposed, then Ks exist. What I have ascribed to the neo-Fregean is (i). Options (ii) and (iii) present their own problems, as explained earlier in this section.


4. HALE AND WRIGHT'S CRITICISMS

I have stressed how H&W's characterization of their positive metaontological view is not very helpful in setting their positive view apart from what commentators have attributed to them. Now, H&W do not merely develop their positive view: they also present specific criticisms of the commentators. It might be thought that features of these criticisms make clearer what the positive view is.

However, their criticism of the claim that a thesis of quantifier variance should be attributed to them consists solely of points devoted to cast doubt on the clarity of, and tenability of, the quantifier variance view itself. Such criticism may be relevant to Sider's proposal, which is that the neo-Fregeans, given their commitments, *ought* to embrace a quantifier variance view, regardless of

what their actual metaontological view is. If the quantifier variance view is in as bad shape as H&W say it is, accepting it is arguably not the advisable route to take for anyone. (Though it should be stressed that Sider himself thinks that the thesis of quantifier variance is false, and yet suggests that the neo-Fregean does best in adopting it.) But of course the mere fact that the view is problematic does not show that the view is not one the neo-Fregean is actually committed to. Still less does it show just how minimalism is supposed to be different from a quantifier variance view.

When it comes to the views that I ascribe to them – the priority thesis, and maximalism – H&W note that it is hard to provide an adequate formulation of maximalism.[17] The slogan "whatever can exist also does exist" is for two reasons unhelpful in characterizing the thesis. First, when we restrict attention to pure abstracta: it is common to hold that whatever pure abstracta there are exist necessarily; but then the stated formulation of maximalism is trivial, and can be accepted even by someone who holds, for example, that the natural numbers are all the abstract objects they are. Second, if we look beyond pure abstracta, the slogan does even worse: surely there are possible objects such that, for contingent reasons, they do not actually exist.[18] Providing a more adequate statement of what maximal ontological promiscuity involves is hard. I did make a few remarks on the matter in (2006), but acknowledged that I only gestured toward what a proper formulation might be.[19] H&W make much of the problem of adequate formulation.

The intuitive idea is that the maximalist is, among other things, committed to intuitively weird objects (like abstract objects posited by what might appear to be hopelessly gerrymandered mathematical theories, or, in the case of concrete objects, arbitrary mereological sums and the like), but without commitment to objects such as yetis or all the gods that have ever been believed in. The trouble is how to come up with a formulation which achieves this. In (2006), I talked of what does not simply as a matter of empirical fact fail to exist. H&W are correct to point out that this is not in the end a successful way of dealing with the problem of adequate formulation. I agree, and pointed out as much myself.[20] What I do not see is that these problems of formulation should render the underlying intuitive idea unclear; or how these problems of formulation are relevant to the question of whether the neo-Fregean is committed to maximalism. Moreover, the problems with giving a suitably general formulation can be circumvented. One may just pick as example an arbitrary type of 'weird' object and ask whether the neo-Fregean is committed to there being objects of that type. If the answer is yes, my general point is made.

5. EPISTEMOLOGY AND ONTOLOGY

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[17] H&W (2009), p. 184f.
[18] Though some theorists have denied this; see e.g. Williamson (2002).
[19] Eklund (2006), p. 117fn23.
[20] Ibid.

H&W say, concerning the label "metaontology",

> One might naturally take [the label] to apply to any general view about the character of (first-order) ontological claims or disagreements, or about how certain key terms (e.g. 'object', 'property', etc,) figuring in such claims or disputes are to be understood. But some recent writers seem to have had in mind....some very general thesis about the metaphysical nature of the World which can be seen as underlying and somehow underwriting more specific ontological claims. It is beyond dispute that meta-ontology of the first sort is often useful and needed, and plausible that that there is call for a metaontology of abstraction in this sense. Certainly much of what needs to be said....if the character of abstractionist ontology is not to be misconstrued, could reasonably be regarded as metaontology of this sort. As will become clear as we proceed, however, we are sceptical about the demand for a metaontology of the second kind.[21]

They do not specify who exactly is the target of these critical remarks. As for myself, I certainly want to understand metaontology in the first sense, and what I see myself as doing is finding in the neo-Fregean writings remarks which suggest a metaontology in the first sense, and consider the implications of such a metaontology. I am not even clear on what a 'metaontology' in the second supposed sense is meant to be. It sounds like it might just be a more general ontological claim. But then, of course, the question of what justifies this more general ontological claim will arise in turn, in the same way as they arise for the original ontological claim. When, later, H&W develop their own minimalist view, that certainly seems to be a metaontology in the sense in which I would want to use the label.

Later, H&W insist that since, on their view, the truth of the right hand side of an instance of a good abstraction principle is conceptually sufficient for the truth of the left hand side, there is "no gap for metaphysics to plug, and in that sense no 'metaontology' to supply".[22] Maybe in *some* sense there is no metaontology to supply, but it is natural to think that for the view that the truth of the right hand side of an instance of a good abstraction principle is conceptually sufficient for the truth of the left hand side relies on a substantive view on the nature of the meanings of ontologically committing and other sentences. Surely, from a certain kind of perspective, the idea that the truth of a sentence not overtly committing to numbers could be conceptually sufficient for a sentence that is so committing is just plain absurd. So there is a sense – the sense that H&W themselves distinguish in the passage quoted above – in which they still rely on a metaontology.

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[21] H&W (2009), p. 181fn8.
[22] H&W (2009), p. 193.

So despite some complaints about talk of reliance on a metaontology, H&W do not really provide any reason to doubt that underlying what they say about the philosophy of arithmetic is a metaontology – a thesis of the same kind as those ascribed to them by those who have commented on the 'metaontology' of neo-Fregeanism. Their minimalism does appear to be a metaontological thesis of this kind.

The reason it may be useful to stress this is that in light of some of their recent writings one might have suspected that H&W would say that rather than relying on any particular ontological or metaontological claims, their basic concern is epistemological. In for example their joint (2000) paper, the emphasis is on when an implicit definition is successful, and how implicit definitions can ground a priori justification and entitlement. The concern there is not, or is not clearly, with ontological matters per se – not with what it takes for objects of a particular kind to exist or what it means to say that objects of a given kind to exist – but with what it takes *to be justified in taking* objects of a particular kind to exist. Surely one can hold the view that any purported implicit definition which satisfies some formal constraints – say, a conservativeness constraint, or some souped-up version of one – is successful and confers apriori justification or entitlement (I am here merely vaguely gesturing at the details), so that one can be apriori justified in believing that numbers exist due to the availability of some such implicit definition, while stressing that one does not thereby shed any light on the metaphysical question of what it is for numbers to exist, or the question of what the claim that numbers exist comes to.

The discussion in my (2006) was somewhat centered on earlier writings by Wright, and I would not have been surprised at the reaction that what I said was moot, due to a shift in emphasis from ontology to epistemology. I infer from H&W's (2009) that this is not so.

Note too that in the postscript in the collection of essays (2001), the first question H&W bring up is that of implicit definition. They say,

> First, and underlying everything else, there is the Problem of Implicit Definition, the question of whether implicit definition can, in the best case, constitute a source of apriori knowledge for (relative) cheap, and whether, if so, Hume's Principle and other abstractions on which the neo-Fregean may call can qualify as abstractions in the relevant sense.[23]

This suggests that the neo-Fregean project is at bottom epistemological and is in principle independent of any constitutive claims. But they immediately go on to say that a requirement for the second question here to be answered in the affirmative is that the two sentences flanking an instance

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[23] H&W (2001), p. 421.

of a good abstraction principle should be identical in content. Surely it is in principle possible, whether in the end reasonable, to emphasize implicit definition without committing oneself to such claims about content identity.

## 6. CONCLUDING REMARKS

By way of conclusion, let me again stress what I think is the most important issue raised in this paper: what exactly is the nature of the emphasis on abstraction principles? There are two kinds of question here.

First: The neo-Fregean writings have mostly focused on arithmetic. There has also been work on applying neo-Fregean ideas to analysis and set theory. But to what extent are the neo-Fregeans *committed* to successful applications to other cases besides that of arithmetic? If, for some branch of mathematics, one could not find suitable abstraction principles to serve as a foundation for it, would that be a problem?

Second: On either my understanding of the metaontology underlying neo-Fregeanism or the quantifier variance understanding of it, the neo-Fregean relies on ideas which generalize beyond abstraction principles, and as discussed, that can in principle be seen as a problem with the interpretations. H&W reject what is said about the metaontology they rely on. Maybe, despite my protests, they are right in doing so. But even if both these interpretations are false, the question remains: do they rely on some metaontological views which have consequences beyond that of justifying reliance on abstraction principles? And if so, how?

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