<u>The Question of Ontology</u>

As philosophers, we ask do numbers exist? , do chairs and tables exist? , do elementary particles exist? . But what are we asking when we ask such questions?

There is an answer to this meta-question that derives from Quine [1948] and is commonly accepted in contemporary ontology (it is accepted in one form or another by all of the other contributors to the present volume, for example). It is that when we ask do numbers exist? , we are asking are there numbers? Of course, it might be thought that the question of whether there are numbers is open to interpretation in much the same way as the question of whether numbers exists; and by way of clarification, it is usually supposed that this other question may be formulated in the idiom of quantification theory. Where $\pm x$ is the existential quantifier, the question is whether $\pm x(x$ is a number)?

The quantifier and quantifier phrases are often used with an implicit restriction in mind. Thus I may ask is everyone here? meaning is everyone who was invited here? . It is clear that in asking $\pm x(x$ is a number)? , it is our intention that the quantifier should not be subject to a restriction, such as to material things, that might stand in the way of our giving a positive answer. If we believe in the intelligibility of completely unrestricted quantification, then an appropriate degree of generality is most naturally achieved by requiring the quantifier to be completely unrestricted. However, some philosophers have been unhappy with the idea of unrestricted quantification; they have thought that it was impossible to understand the quantifier without imposing some or another restriction on its range. And for such philosophers, the appropriate degree of generality may alternatively be achieved by supposing that the quantifier is restricted in a suitably relaxed way - to mathematical objects, say, when we ask whether there are numbers or to material objects when we ask whether there are chairs and tables.

Let us call the question asked by philosophers *ontological* and questions of the form $\pm x(x$ is ...)? (with unrestricted or suitably restricted $\pm x$) *quantificational*. The commonly accepted view, then, is that ontological questions are quantificational questions.

There are a number of difficulties with the standard quantificational view. They are for the most part familiar but it will be worth spelling them out, if only to make clear how far removed our understanding of the ontological question is from our understanding of their quantificational counterparts. Philosophers may have learned to live with the disconnect between the two, but their tolerance of the situation should not lull us into thinking that it is tolerable.

One difficulty concerns the substantive character of ontological questions. It is usually supposed that the answers to ontological questions are non-trivial. Thus whatever the answer to the ontological question of whether numbers exist, it is neither trivially true nor trivially false; and similarly for the existence of chairs and tables or the like. However, the answer to the corresponding quantificational questions *are* trivial. Thus given the evident fact that there is a prime number greater than 2, it trivially follows that there is a number (an x such that x is a number); and, similarly, given the evident fact that I am sitting on a chair, it trivially follows that there is a chair (an x such that x is a chair).

It is also usually supposed that ontological questions are philosophical. They arise from within philosophy, rather than from within science or everyday life, and they are to be answered

on the basis of philosophical enquiry. But the question of whether there are numbers is a mathematical question (though of negligible mathematical interest) that is to be settled on the basis of purely mathematical considerations and the question of whether there are chairs or tables is an everyday matter that is to be settled on the basis of common observation.

It would be going too far to say that no quantificational questions are non-trivial or non-philosophical. The question of whether there are electrons is far from trivial; and the question of whether there are mereological sums or temporal parts is perhaps philosophical. Certainly, there is no other area of enquiry in which the latter questions are raised or in which an answer to them is sought. There may even be quantificational questions that are both non-trivial and philosophical. The question of whether there are concrete possible worlds, for example, might well deserve this double honor.

But there is little comfort to be gained from these exceptions to the rule. For it is plausible to suppose that there should be a *general* account of the nature of ontological questions. We should be able to say that --- F---? is what we are asking when we raise the ontological question of whether F s exist, where what fills the blanks is the same from one F to another. But if this is so, then it cannot be correct to say that what we are asking when we raise the ontological question of the existence of mereological sums or of concrete worlds is whether there *are* mereological sums or concrete worlds, given that this is not the right kind of way to construe the ontological question in the case of numbers, say, or of chairs and tables.

I believe that the case of mereological sums and temporal parts has been especially misleading in this regard. For the question of their existence has often been taken to be a paradigm of ontological enquiry and, indeed, it is this case more than any other that has given rise to the recent resurgence of interest in meta-ontology. But the case is, in fact, quite atypical since it is one in which the quantificational question is also philosophical and hence is much more liable to be confused with the ontological question (we shall later come across another major respect in which the case is atypical).

A third difficulty concerns the autonomy of ontology. Suppose we answer the quantificational question in the affirmative. We go along with the mathematician in asserting that there are prime numbers between 7 and 17, for example, or go along with the scientist in asserting that this chair is partly composed of electrons. Then surely the ontological questions of interest to philosophy will still arise. The philosopher may perhaps be misguided in so readily agreeing with his mathematical or scientific colleagues. But surely his willingness to go along with what they say, of accepting the established conclusions of mathematics or science, should not thereby prevent him from adopting an anti-realist position. Yes , he might say, the mathematician is correct in claiming that there are prime numbers between 7 and 17 but do not think that numbers really exist. We talk that way - indeed, correctly talk that way - but there is no realm of numbers out there to which our talk corresponds.

Philosophers have not been unaware of these problems and they have gone to extraordinary lengths to maintain some kind of distance between our ordinary commitment to objects of a certain kind and a distinctively ontological commitment. Again, it will be helpful to review some of their suggestions if only to bring out how difficult it is to keep the two forms of commitment apart.

Philosophers working within the Quinean tradition have sometimes supposed that what is distinctive of ontological commitment is its being the product of a thorough-going application of the scientific method. We unreflectively suppose that there are numbers, just as earlier generations unreflectively supposed that there were spirits , but a proper application of the scientific methods shows that numbers, as much as spirits, are dispensable for the purposes of scientific explanation and that there is therefore no reason to think that they exist.

The argument from dispensability has no general force applied across the board. Thus for all normal cognitive purposes, I can get by with saying that Casanova was an unmarrried man rather than that he was a bachelor. The ideology of bachelorhood is dispensable. But that gives me no reason to give up my belief that Casanova was a bachelor.

The argument does indeed have some force in the case of the theoretical entities of science but that is because of their special explanatory role. The sole reason we have for believing in the theoretical entities of science is that they are required for the purposes of scientific explanation. Thus showing that some putative theoretical entities are not in fact required for these purposes removes the sole reason we have for supposing them to exist (and, in the absence of any reason for thinking them to exist, we may well have good reason to think that they do not exist).

But many of the questions of interest to ontology do not concern objects with this special explanatory role. Our reason to believe in couples or in chairs and tables, for example, has nothing to do with their role in explanation. John and Mary are together and that is reason enough to suppose that they are a couple; the object over there has a certain form and function; and that is reason enough to suppose that it is chair. It is not even clear, as it is the case of the theoretical entities of science, what the explanatory role of these objects might sensibly be taken to be. But even if we were somehow capable of identifying an explanatory role for these objects, a demonstration that something else was better suited to play that role could do nothing to undermine our confidence in their existence.

My own view is that something similar should be said in the case of the objects of mathematics. In contrast to the case of ordinary material objects, mathematical objects *do* figure in the explanations of science and this has led many philosophers to suppose that they should be regarded as just another kind of theoretical entity (as in Field [1980], for example). But mathematical objects are also like ordinary objects in having a life outside of science; and it seems to me that this provides us with reasons for believing in their existence that has nothing to do with their role in scientific explanation. Just as the fact that two people are married is reason enough to think that a couple is married, so the fact that there are no goblins is reason enough to think that the number of goblins is 0 (and hence that there is a number). Thus I doubt that dispensability arguments can properly be used to undermine our belief in numbers or the like and that such arguments are best viewed as showing us something about the essentially non-numerical character of physical reality rather than something about the nature or non-existence of the numbers themselves.

But even if it is granted that numbers *should* be treated in the same way as the theoretical entities of science, we will still face a form of the autonomy objection raised above. For suppose that it is determined on the basis of the most thorough-going application of the scientific method that numbers are indispensable for the purposes of science and that we should therefore conclude

that they exist. It will still be in order for the anti-realist to insist that numbers (and perhaps theoretical entities in general) do not *really* exist - that we talk that way, and even correctly talk that way, despite the fact that there is no realm of objects out there to which our talk corresponds. Indeed, given that the anti-realist was originally willing to go along with the opinion of the mathematician in maintaining that there are numbers, then why should it be any more difficult for him to go along with the opinion of the scientifically enlightened mathematician in continuing to maintain that there are numbers? If the conclusion that there are numbers is compatible with an anti-realist position, then how can it matter how that conclusion might have been reached?

Quine s approach to ontology appears to be based on a double error. He asks the wrong question, by asking a scientific rather than a philosophical question, and he answers the question he asks in the wrong way, by appealing to philosophical considerations in addition to ordinary scientific considerations. This marriage of a misguided methodology to an ill-conceived question produces the semblance of a question properly asked and properly answered, since the philosophical considerations to which he appeals are in many ways appropriate to the question he should have asked; and it no doubt partly because the one error compensates for the other that philosophers have found it so easy to be oblivious to both. Perhaps something useful can come from following such a cock-eyed procedure but true progress can only be achieved by getting the question right and getting the methodology to fit the question.

Another way in which philosophers have attempted to create a distance between two forms of commitment is to downplay the significance of the ordinary commitment. Thus it has been supposed that when we ordinarily claim that there is prime number between 8 and 12 or that there is a chair over there we are not aiming to speak the strict and literal truth, but that when the philosopher claims that numbers do not exist he *is* aiming to speak the strict and literal truth. He possesses not a superior method for determining the truth, as with the previous Quinean philosopher, but a superior attitude towards the truth.

There are variants of this view depending upon how exactly the significance of the ordinary commitment is to be deflated. Thus it might be thought that there is an element of make-believe in our ordinary claims or that they are merely taken to be acceptable for certain limited purposes. But the objection to them is the same in that there would appear to be no reasonable basis for distinguishing in the proposed manner between the deflated and non-deflated claims. There is of course a distinction between speaking strictly and loosely or between speaking literally and figuratively. I may for dramatic effect claim that someone is mad even though, strictly speaking, his behavior has merely been bizarre; and I may claim that someone is a fruitcake in order to convey how eccentric he is even though he is, of course, not literally, a fruitcake. But in claiming that there is a prime number between 8 and 12 or that there is a chair over there, I would appear to have as good a case of a strict and literal truth as one could hope to have. If these are not strict and literal truths, then one is left with no idea either of what a strict and literal truth is or of what the strict and literal content of these claims might be (cf Hirsch [2005], p. 110, and Yablo [1998], 259)

A related attempt to create a distance between the two forms of commitment downplays not the significance of the ordinary commitment but the strength of its content. Thus it is

supposed that when we ordinarily claim that there is a chair over there what we are claiming is that there are some simples arranged chair-wise over there, or some such thing, whereas what the philosopher is denying when he denies that there is a chair over there is a genuinely quantificational claim to the effect that for some x, x is a chair and is over there. Thus despite its apparent logical form, the ordinary claim is a quantificational claim about simples rather than chairs.

One cannot help feeling, much as before, that this philosopher s logico-linguistic beliefs have been put at the service of his ontological prejudices. It may indeed be granted that some apparently quantificational statements of ordinary language are not genuinely quantificational or not genuinely quantificational over the objects that appear to be in question. Thus it might be thought that there is zero chance he will come is like there is no chance that he will come and does not involve quantification over a domain of entities that includes a zero chance. But these are cases in which there is linguistic data (for example, that we cannot properly say there is *a* zero chance that he will come) which suggests that the construction is not to be understood along familiar quantificational lines. The apparently quantificational claims of interest to ontology, by contrast, have as good a claim as any to be considered genuinely quantificational; and if they are not genuinely quantificational, then we lose all track of what it is to be genuinely quantificational or of what the content of a genuinely quantificational statement might be.

A final suggestion also concerns content, but it works by playing up the content of the ontological commitment rather than by playing down the content of the ordinary commitment. Both the ordinary person and the philosopher, on this view, are making a quantificational statement about chairs when they claim that there are chairs. But whereas the ordinary person is using the quantifier in a thin , ontologically neutral sense, the philosopher is using the quantifier in a thick , ontologically loaded sense.[1]

I am not altogether unsympathetic to this suggestion but I do not believe that it can be correct as stated. For how is the distinction between the two senses of the quantifier to be understood? One possible proposal is that the thick sense of the quantifier is to be understood as a restriction of the thin sense; to say that there is an x in the thick sense is to say that there is an x in the thin sense that is blah , for appropriate blah . But it would now appear that ontological claims lack the appropriate degree of generality, that it is only some restriction on the range of the quantifier that prevents us from being realists. It would also appear that our interest in the existential claim is misplaced, since our more general interest should be in *which* objects blah and not simply in whether *some* objects blah (this is a point to which I shall return).

Another possible proposal is that both the thin and thick senses of the quantifier are to be understood as unrestricted, i.e. neither is to be understood as the result of restricting some other sense of the quantifier. Now it is presumably true that every object in the thick sense is an object in the thin sense ($\pm x \pm y(x = y)$ (where $\pm$ is the thick and $\pm$ the thin quantifier) and not true - or, at least, compatible with the senses of the quantifiers that it not be true - that every object in the thin sense is an object in the thick sense ($\sim \pm x \pm y(x = y)$). For many philosophers, these fact would be enough in itself to establish that the thick sense was a restriction of the thin sense for how, they

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[1]Dorr [2005] and Hofweber [2005] hold such a view and it is discussed by Chalmers in the present volume.

would argue, could something in the thin sense fail to be something in the thick sense unless the thick sense were already restricted and how, in addition, could everything in the thick sense be something in the thin sense unless the thick sense were a restriction of the thin sense?

I myself am not sure (and so much the worse for my opponent if my doubts are misplaced). For it is not altogether implausible that before the introduction of complex numbers, it would have been incorrect for mathematicians to claim that there was a solution to the equation $x^2 = -1$' under a completely unrestricted understanding of there are even though, after the introduction of complex numbers, it would have been correct for them to claim that there was a solution. In such a case, there is no substantive question as to whether there are complex numbers but only the questions of whether one can consistently extend the domain in the proposed manner and of whether it is useful to do so (to which the answer in both cases is yes). [2]

I am inclined to take a similar view on the more recent debate over whether there are arbitrary mereological sums or temporal parts. Just as one can extend the domain of discourse to include solutions to the equation $x^2 = i$ so, it seems to me, can one extend the domain of discourse to include objects that satisfy the conditions x is a sum of the G s or x is a temporal part of the object b at t ; and just as those who deny that there are mereological sums or temporal parts may well be correct in the ordinary sense of there are that prevails prior to the extension of the domain, so those who claim that there are mereological sums and temporal parts may also be correct in the sense of there are that prevails once the extension has been made. And again, the only substantive questions are whether one can consistently extend the domain in the proposed manner (which one can, subject to certain limitations) and whether it is useful to do so (which will depend upon the role that such objects are called upon to play).

However, the majority of quantificational disputes are not subject to a similar ambivalence. Consider the question of whether there are atoms or electrons, for example. This a substantive scientific matter and there is no plausibility at all in the suggestion that it might simply be resolved by introducing atoms or electrons into the domain of discourse in much the same way in which it has been supposed that the mathematician might introduce complex numbers or the philosopher might introduce mereological sums or temporal parts; and similarly, it would seem, for a good many other quantificational questions of interest to philosophers. This then is another major respect in which the debate over mereological sums and temporal parts is different from other quantificational debates and fails to provide a good paradigm for what might be at issue.

But the ambivalence, even when it exists, is still of no help in drawing a relevant distinction between a thin and thick sense of the quantifier. For realist and antirealist alike can agree that in the initial unextended sense of the quantifier it will be correct to say that there are

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[2]I argue for such a view in Fine [2006]. Despite the superficial similarity, I do not think that we here have a case of quantifier variance in the manner of Carnap [1950] or Hirsch ([2005[, [this volume]). On my view, it is only certain kinds of formal objects, such as those that one finds in mathematics, that can be introduced into the domain in this way; and the manner of introduction calls for very special mechanisms that have no application to any other kind of object.

not complex numbers while in the subsequent extended sense it will be correct to say that there *are* complex numbers. But what we wanted was a thick ontologically loaded sense of the quantifier over whose application the realist and antirealist could sensibly disagree. What we have in the distinction between the unextended and extended sense of the quantifier is a subdivision within the thin rather than a distinction between thick and thin.

I myself doubt that there is any other way in which the interpretation of the unrestricted quantifier might be subject to variation. Once we allow for the possibility of domain extension , there is simply only one way to understand *what* - without qualification - *there is*. But I suspect that, in so far as there are any other candidates, they will be subject to a similar fate and will provide us with no basis for distinguishing between a thick and thin sense. If this is right, then any understanding we might have of the thick quantifier must derive from our having an independent understanding of how the objects in its range are to be restricted; and we are back to the first proposal.

None of these attempts to rescue the quantificational view are altogether successful; and one cannot help feeling that they simply arise from an attempt to express the ontological claims we wish to make by means of an inadequate linguistic form. The ontological impulse is not something that will go away and, in the absence of any other means by which it might be communicated, the quantificational idioms will somehow be pressed into service, no matter how strange or contorted the outcome might be.

Is there perhaps a more adequate account of ontological claims? In considering this question, it will be helpful to consider one other objection to the quantificational view. It may be less fundamental than the others but is more suggestive, I believe, of the direction in which a correct account should go.

Consider a realist about integers; he is ontologically committed to the integers and is able to express his commitment in familiar fashion with the words integers exists . Contrast him now with a realist about natural numbers, who is ontologically committed to the natural numbers and is likewise able to express his commitment in the words natural numbers exist . Now intuitively, the realist about integers holds the stronger position. After all, he makes an ontological commitment to the integers, not just to the natural numbers, while the realist about natural numbers only commits himself to the natural numbers, leaving open whether he might also be committed to the negative integers. The realist about integers - at least on the most natural construal of his position - has a *thorough-going* commitment to the whole domain of integers, while the natural number realist only has a *partial* commitment to the domain.

However, on the quantificational construal of these claims, it is the realist about integers who holds the weaker position. For the realist about integers is merely claiming that there is at least one integer (which may or may not be a natural number) whereas the realist about natural numbers is claiming that there is at least one natural number, i.e. an integer that is also nonnegative. Thus the quantificational account gets the basic logic of ontological commitment wrong. The commitment to F s (the integers) should in general be weaker than the commitment to F&G s (the nonnegative integers), whereas the claim that there are F s is in general weaker

than the claim that there are F & G s.[3]

Not only does the claim that there are F s fail to give proper expression to a commitment to F s, it is not even clear how to give proper expression to a commitment to F s on anything like the standard quantificational account (in which only a thin sense of the quantifier is recognized). For what might such a commitment amount to? In the case of the integers, it might be thought to amount to the belief in something like the following set of propositions:

(i) there is an integer that is neither positive nor negative,

(ii) each integer has a successor, and

(iii) each integer is the successor of some integer

along perhaps with some propositions concerning the behavior of sign and successor. Someone with such a set of beliefs would then be committed to an integer that was neither positive nor negative, to the successor of that integer, to the integer of which it is the successor, to the successor of the successor of the integer, and so on - which would then appear to amount to a commitment to the integers.

But such an account is completely ad hoc. When it came to a commitment to real numbers, say, or to sets or to chairs, we would have to give a quite different account. In the case of the reals, for example, we would need to have our realist believe that for every cut on the rationals there is a corresponding real and, in the case of the chairs, we would have to have him believe that for any simples arranged chair-wise there is a corresponding chair - or something to that effect. Yet surely there should be a uniform account of what it is to be committed to F s. There should be a general scheme $\dot{\varepsilon}$ (F), where what it is to be committed to F s is for $\dot{\varepsilon}$ (F) to hold.

Nor is it even clear what we should put for $\dot{\varepsilon}$ in particular cases. What should we say in the case of sets, for example, or elementary particles? There is considerable controversy over the principles governing their existence. Are we therefore not in a position to take a realist stand on the existence of sets or elementary particles until we know what these principles are?

It might be thought that our mistake is to be too specific about the content of $\dot{\varepsilon}$. With any kind F may be associated a theory T_F that states the conditions under which the F s should exist. In the case of the integers, for example, T_F might be taken to be constituted by the three propositions listed above. To be committed to F s is then to believe in the truth of T_F. Since belief in the truth of T_F does not require that we know what the theory T_F is, the previous difficulties over the need for uniformity and the possibility of ignorance are avoided.

But what exactly is the role of the theory T_F? One naturally takes it to be the *true* theory of the F s (or the true theory governing the existence of the F s). But then, of course, everyone - realists and anti-realists alike - will believe in the truth of T_F; it is just that the realist will think that it contains certain existential propositions while the anti-realist will think that it does not contain them or that it contains their negations. One might try appealing here to the idea that T_F should consist of the statements that *would* be true if there were at least one F. But given that there are in fact no sets, why should the counterfactual situation in which there were at least one set require the truth of any one version of set theory as opposed to any other (and similarly for elementary particles or the like)? And it is hard not to believe that our understanding of what is

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[3]A similar line of argument is pursued in Fine[2001], 5-6.

true in the counterfactual situation, if it is to do the work required, is already informed by an independent conception of what the theory T_F should be.

In the light of these additional difficulties, I would like to suggest that we give up on the account of ontological claims in terms of existential quantification. The commitment to integers is not an existential but a universal commitment; it is a commitment to each of the integers not to some integer or other. And in expressing this commitment in the words integers exist , we are not thereby claiming that there is an integer but that every integer exists. Thus the proper logical form of our claim is not $\pm xIx$, where I is the predicate for being an integer, but $\pm x(Ix \pm\llbracket Ex)$, where E is the predicate for existence.

If this is right, then contemporary ontology has been dominated (and, alas, also vitiated) by the failure to recognize the most elementary logical form of its claims. They have been taken to be existential rather than universal. Of course, the mistake is understandable. For the most natural reading of electrons exist is that there are electrons while, on our own view, the proper reading, for philosophical purposes, should be modeled on the reading of electrons spin in which it is taken to mean that every electron spins. The term exists should be treated as a predicate rather than a quantifier.

Once we accept this alternative account, all of the previous difficulties will disappear. The commitment to integers ($\pm x(Ix \pm\llbracket Ex)$) will be stronger than the commitment to natural numbers ($\pm x(Ix \ \& \ \sim N(x) \pm\llbracket Ex)$); there will be a uniform method for stating a commitment to F s, one that does not vary from F to F; ignorance of the conditions for the existence of F s will not stand in the way of stating a commitment to F s; and ontological claims will have the appropriate degree of generality as long as the outer quantifier $\pm x$ is taken to be completely unrestricted (or suitably restricted).[4]

However, the view appears to be subject to a version of the difficulty that we previously raised against the account in terms of existential quantification (and it is no doubt also partly for this reason that the view was not seriously considered). For what is meant by the predicate exists ? We are used to understanding it in terms of the existential quantifier; for x to exist is for there to be a y that is identical to x ($Ex =_{df} \pm y(y = x)$). But on this understanding, it will be a logical triviality that F s exist. Thus an anti-realist position will not merely come up against our substantive judgements in other areas of enquiry, it will come up against the basic principles of logic.

It seems to me that this difficulty can only be removed by supposing that the predicate exists is being used in a thick ontologically loaded sense. In saying that a particular number exists, we are not saying that there is something identical to it but saying something about its status as a genuine constituent of the world. Given that there is such a thick sense, it will then of course be a significant question whether a particular object or objects of a particular kind exist.

I myself would prefer not to use the term exists to express the thick sense given its customary association with the thin sense. A better term would be real . Thus we should say

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[4]It might be wondered why, on the present view, it is not inappropriate to express a thorough-going realist position in the words there are F s . Perhaps this is because there are is taken in the thick sense and it is presupposed that if some F s exists then every F exists.

that the realist about numbers is committed to the reality of numbers rather than their existence; and it would be preferable for the realist to express his commitment in the words numbers are real rather than numbers exist . From the present point of view, it can only be regarded as unfortunate that ontological claims are commonly formulated using terms like exists or there is that lend themselves so readily to a thin reading

On the present realist construal of ontological claims, there will be a spectrum of positions relating to the reality of F s, with thorough-going realism ($\pm x(Fx \pm [\![Rx)$ at the one extreme and thorough-going anti-realism ($\pm x(Fx \pm [\![\sim Rx))$ at the other. In between will be various intermediate positions that differ on which of the F s are taken to exist and which not. Thus if G represents the dividing line, an intermediate position will take the form: $\pm x(Fx \pm [\![Rx \pm$ Gx). Under the quantificational account, by contrary, the realist and anti-realist positions will be contradictories ($\pm xFx$ versus $\sim \pm xFx$) and there will be no room for an intermediate position.

In principle, the question of whether to be a realist or anti-realist in our sense will be independent of the question of whether to be a realist or an anti-realist in the usual sense; and likewise for the intermediate positions. For since the claims that constitute the positions on the realism/anti-realism axis are all universal, they will say nothing as to whether there are any F s to which they apply. Thus one might hold that every number is real or that every number is not real compatibly with believing that there are numbers or that there are no numbers.

However, the intended import of the various realist/anti-realist positions will rest upon adopting a realist stand in the usual sense, i.e. upon supposing that there are F s. For if the anti-realist in our sense were to be an anti-realist in the usual sense (i.e. were to think there are no F s) then he would be in agreement with the realist in our sense, since his claim that every F is real would be vacuously true. Indeed, the intended import of these various positions rests upon supposing not merely that there are F s but that there are all the F s that we commonly take there to be. The realist and anti-realist about natural numbers, for example, will most likely take themselves to be disagreeing on the reality of each of the natural numbers - 0, 1, 2, ...; and this would not be possible unless each of them supposed that there was such a number as 0, 1, 2, ... It is only if the existence of these objects is already acknowledged that there can be debate as to whether they are real (Quine s error, we might say to continue the joke, arose from his being unwilling to grasp Plato by the beard).

This shows how badly wrong the usual characterizations of realism and anti-realism actually are. Strictly speaking, the realist and anti-realist have no business passing judgment on the question of realism or anti-realism as it is usually understood. For it is up to the mathematician to say whether there are numbers, or to the scientist to say whether there are atoms, or to the man in the room to say whether there are chairs or tables. However, the interest of the realist and anti-realist positions will rest upon our supposing that there are numbers or atoms or the like (since otherwise their positions would be vacuously true). Thus far from being at odds with the anti-realist position, realism - as it is usually understood - will be a common presupposition of the anti-realist and realist positions.

Despite the similarity in their appeal to a thick notion of existence, it is important to distinguish the present view from the earlier thick quantificational view. Under the earlier view, the realist position still took the form of an existential quantification, $\pm xFx$, but with a thick interpretation of the quantifier. It is therefore no better suited than the thin quantificational view

in giving expression to a thorough-going realist position.

Of course, once given a thick interpretation of the existential quantifier, we may define a thick existence predicate **E** in terms of it in the usual way: to exist in the thick sense is for there to be something in the thick sense that it is ($\mathbf{E}x =_{df} \pm y(x = y)$. If it supposed that the resulting existence predicate has essentially the same sense as our reality predicate, we will then be able to express the thorough-going realist position in the form: $\pm x(Fx \pm \mathbb{[}\mathbf{E}x)$. Thus, in contrast to the thin quantificational view, we will not lack the expressive resources required to state a thorough-going realist position (or any of intermediate positions).

However, there is still a significant difference over what our own view and the thick quantificational view might plausibly regard as primitive. Given an unrestricted quantifier $\pm$, we may define an existence predicate E from it in the usual way. It is then clear that it is the quantifier rather than the predicate that should be taken to be primitive; for the predicate can be defined in terms of the quantifier but, given that the quantifier is unrestricted, it will not be possible to define the quantifier in terms of the predicate. Now it is in keeping with our general understanding of the quantificational view that the thick quantifier on such a view should be taken to be unrestricted (or if it is thought that the quantifier must be restricted to some or other category of objects, the restriction will have no special bearing on how the quantifier comes to be thick). Thus the thick quantifier will presumably be primitive for the quantificationalist and the thick predicate will be defined while, for us, it is the predicate that is primitive (or relatively primitive) and the quantifier that is defined.

This difference in viewpoint is significant for our general attitude towards ontology. The thick quantificationalist follows recent tradition in taking the concept of quantification to be central to our understanding of ontology. Further clarification of ontological claims is to be achieved through better understanding the intended interpretation of the quantifier and disquiet over the intelligibility of such claims will derive from misgivings over whether the quantifier is capable of receiving its intended interpretation. We therefore find a recent interest (as typified by the contributions of Chalmers, Hirsch and Sider to the present volume) with quantifier variance , with the possibility that it might be correct to assent to there are F s under one unrestricted understanding of the quantifier there are while incorrect to assent to there are F s under another unrestricted understanding of the quantifier. The possibility of such variance can then be used to defuse ontological debates, should it be supposed that the realist and anti-realist can only be plausibly be taken to have a different understanding of the quantifier in mind, or it can be taken to infuse the debates with meaning, should it be supposed that one particular understanding of the quantifier is ontologically superior to all the others.

I myself remain unmoved by these arguments. It seems to me that what appears from these arguments to be a different unrestricted understanding of the quantifier is either a restricted understanding of the quantifier or an understanding of a pseudo-quantifier, something that behaves like a quantifier without actually being a quantifier, or no understanding at all. But my broader point is that these excursions into the semantics of quantification, whatever their independent interest might be, are largely irrelevant to the understanding of ontology. One must, of course, make use of the quantifier in formulating ontological claims since they are universal in form and must therefore be expressed by saying that *every* object of such or such a sort is or is not real. But this use of the quantifier is relatively straightforward and poses no special problem

for ontology as opposed to any other discipline. The critical and distinctive aspect of ontological claims lies not in the use of the quantifier but in the appeal to a certain concept of what is real; and it is only by focusing on this concept that further clarification is to be achieved or disquiet over the debate is ultimately to be vindicated.

But how, if at all, is further clarification of the concept of what is real to be achieved? A modest first step may be taken by relating the concept of what is real to the concept of reality. Our term for what is real, as we have so far understood it, is a predicate; it has application to objects - numbers, chairs, electrons and the like. But there is a cognate operator on sentences that might be expressed by such phrases as in reality or it is constitutive of reality that (and that might be symbolized by $R[...]$, where ... stands in for a sentence). Thus a realist about numbers might allow that in reality there are infinitely many primes, while the anti-realist would not allow this even though he might be perfectly prepared to concede that there are in fact infinitely many primes. Or again, the normative realist might allow that various things were, in reality, right or wrong while the anti-realist would not allow this even though he was willing to concede that various things were in fact right or wrong.

Given the reality operator, we can now define an object to be real if, for some way the object might be, it is constitutive of reality that it is that way (in symbols, $Rx =_{df} \pm i\ R[i\ x]$).[5] The the numbers 1 and 2 would be real on this account, for example, if it is constitutive of reality that 2 is greater than 1 and this chair would be real if it is constitutive of reality that it is over there; and, in general, the real objects are the objects *of* reality, those that figure in the facts by which reality is constituted. We here have a progression in ideas - from quantifier, as in the original Quinean account, to predicate, to operator; and ontology finds its home, so to speak, in a conception of reality.

This last step, modest as it may be, is able to throw further light on the nature of ontology and on the contrast between our own view and the standard quantificational view. For one thing, it helps explain how ontology is part of metaphysics. For metaphysics - or, at least, the relevant aspect of metaphysics - may be taken to be concerned with how things stand in reality. Thus a complete metaphysics will determine all truths of the form in reality, ... A complete metaphysics will therefore determine a complete ontology, since the objects of the ontology will be those that figure in the sentential complements ... ; and it is plausible that it is only by doing metaphysics, i.e. by determining how things stand in reality, that we will be in a position to determine what the ontology should be.

We also see that certain natural attempts to beef up an ordinary claim into an ontological claim will not in fact be successful. According to one such attempt, an ontological claim is to be obtained from an ordinary claim by prefixing it with the reality operator (one makes the claim from within the ontology box). Thus an ontological commitment to F s will be expressed, not by $\pm xFx$, but by $R[\pm xFx]$.

But the prefixed claim is not even necessary or sufficient for a partial ontological

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[5]. The quantifier for some i in this formulation is best taken to be a genuinely second order quantifier; and it is essential that x should have an actual occurrence in the proposition i x.

commitment to F s (as expressed by (±x(Fx & Rx) or ±x(Fx & ±𝑖 R[𝑖 x])). It is not necessary since affirming the reality of an F is compatible with denying the reality of existential facts (on the grounds that it is only the underlying particular facts which are real); and it is not sufficient since affirming the reality of there being an F would be compatible under a bundle theory which only recognizes the reality of general facts with denying the reality of any particular facts. And similarly, it would seem, for any other prefixed claim.

We have here a further objection to the standard quantificational view in so far as the claims of the realist are thought to be subject to demands - such as strict and literal truth or fundamental truth - that go beyond those that we ordinarily take to be in place. For someone might be willing to affirm, as a strict and literal truth, let us say, that this chair is over there and hence be a realist about chairs and yet wish to deny that there are chairs on the grounds that this existential claim, like any other, is merely a figurative way at gesturing at an instance. Likewise, an anti-realist about chairs might dispute the strict and literal truth of any particular statement about chairs and yet still be unwilling to affirm that there are no chairs on the grounds that this universal claim, like any other, is merely a license ticket that is not in itself capable of being strictly true or false. Thus views about the strict or literal truth of quantificational claims may interfere with the ability of such claims to give expression to the various particular forms of realist and anti-realist position.

One might also attempt to beef up ordinary claims by prefixing all quantified statements (whether embedded or unembedded) with the reality operator. What this amounts to, in effect, is the use of the thick, ontologically loaded quantifier, in place of the thin, ontologically neutral quantifier. One never says some or every but only **some** or **every** . However, what one wishes to say, as a realist about numbers, is that every number in the *thin* sense is real (±x(Nx ±⟦ 𝑖 R[𝑖 x]); and the exclusive use of the thick quantifier (as with ±xNx or ±x(Nx ±⟦±𝑖 R[𝑖 x], for example) is insufficient to state such a claim.

What is significant about ontological claims, as we have construed them, is that they require us to quantify into the scope of the reality operator (±x (... R[... x ...]). One naturally supposes that when we do mathematics or science or the like, we adopt a point of view that is internal to the area of enquiry in question but that when we do ontology or metaphysics we adopt a point of view that is external to any particular area of enquiry.[6] Under the present approach, this distinction is a matter of scope - with the internal point of view corresponding to statements made from outside the scope of the reality operator and with the external point of view corresponding to statements made from within its scope. The element of quantifying in therefore corresponds to a comparison between how things are from the internal and external points of view. In the formulation of realism about numbers, for example, we must consider each of the numbers, as given from the internal point of view, and then ask how things stand with it in regard to the external point of view.

It is often presupposed that, for any given area of enquiry, one should adopt one of these points of view to the exclusion of the other, either engaging in the enquiry itself or judging it

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[6] The distinction goes back to Carnap [1950] of course, though he did not attach any cognitive significance to the external point of view. I believe that there is some interest in developing the logic of the reality operator and the semantics by which it is governed.

from the outside. Thus the two previous suggestions for beefing up ordinary claims can both be seen to arise from adopting an exclusively external point of view - with respect to the claims of ontology, in the one case, or to the use of the quantifier, in the other. But if I am right, the full force of the ontological claims that we need to make can only properly be brought out by straddling both points of view. It is only by standing outside of reality that we able to occupy a standpoint from which the constitution of reality can be adequately described.

However illuminating the previous remarks may be for someone who is already willing to accept a metaphysical conception of reality, they are not likely to do much to allay the concerns of someone who is not. Is there anything else that might be said in its defense?

There have been a number of attempts to clarify the idea of realism in the recent literature; and a critical examination of some of them is to be found in my paper The Question of Realism (Fine [2001]). One that has recently found some favor in connection with ontology is to identify what is real with what is fundamental; and one might likewise identify what is in reality the case with what is fundamentally the case.[7]

But neither is in fact sufficient for the other. For suppose that one thought with Thales that the world was wholly composed of water but that one also thought, with Aristotle, that water was indefinitely divisible. Then water would be real but no quantity of water would be fundamental since it would always be constituted by smaller quantities of water. Or again, if one were a formalist, then numbers and arithmetical facts would be fundamental, since there is nothing more fundamental by which they are constituted, even though one would not take them to be real or to hold in reality. Thus the two notions, though closely connected, should be kept separate for the purposes of ontological enquiry.

I myself do not see any way to define the concept of reality in essentially different terms; the metaphysical circle of ideas to which it belongs is one from which there appears to be no escape. Still, there are some considerations that strongly favor our embracing such a concept all the same. These are discussed at some length in The Question of Realism though let me here briefly mention two central points which emerge from that discussion.

We seem, in the first place, to have a good *intuitive* grasp of the concept. Democritus thought that there was nothing more to the world than atoms in the void. I take this to be an intelligible position, whether correct or not. I also assume that his thinking that there is nothing more to the world than atoms in the void can be taken to be shorthand for there being nothing more to the world than this atom having this trajectory, that atom having that trajectory, ..., or something of this sort. I assume further that this position is not incompatible with his believing in chairs and the like. To be sure, the existence of chairs creates a prima facie difficulty for the view but as long as the existence of chairs can be seen to consist in nothing more than atoms in the void, the difficulty will have been avoided. I assume finally that had he been prepared to admit that there was nothing more to the world than atoms *and* macroscopic objects, then he would not have been prepared to admit that there was nothing more to the world than atoms.

But someone who is willing to go along with me so far will thereby have endorsed a

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[7]See Chalmers [this volume], Dorr [2005], and Schaffer [this volume], §2.3.5, for some views of this sort.

metaphysical conception of reality. For something can then be said to be constitutive of reality if it would be part of the complement ... in any true claim of the form the world consists of nothing more than .... . Thus it will be constitutive of reality that this or that atom has such and such a trajectory but no part of reality that there is a chair over there, even though it is in fact true that there is a chair over there. Of course, it is always open to the sceptic to doubt the coherence of Democritus position. It simply follows from the existence of chairs, he might say, that there *is* more to the world than atoms in the void since there are also chairs. But I hope that I am not alone in thinking that such a philosopher is either guilty of a cross form of metaphysical obtuseness or else is too sophisticated for his own good.

   We seem, in the second place, to have a good *working* grasp of the notion. We know in principle how to settle claims about the constitution of reality even if we have difficulties in settling them in practice. The essential elements of the method have already been mentioned. For in defending the claim that there is nothing more to the world than atoms in the void, Democritus would have to argue that there being chairs consists in nothing more than atoms in the void or to explain in some other way how the existence of chairs is compatible with his world-view. To the extent that he is successful, we will have reason to endorse his world-view and, to the extent that he is not, we will have reason to reject to it.

   This account of our method for settling ontological dispute requires that we have a grasp not only of an absolute conception of reality, of there *being nothing more than* ..., but also of a relative conception, of *there being nothing more to ... than ...*, since it is through our assessment of the relative claims that we attempt to adjudicate the plausibility of the absolute claims. Many philosophers seem to have supposed that our having a good working grasp of such notions depends upon our being able to define them in other terms, so that questions of metaphysics or ontology thereby become questions of semantics or epistemology or total science. I consider this to be a serious methodological error: upon careful reflection we can see that our intuitive grasp of these notions is a sufficient guide in itself to their proper employment; and the attempt to define these notions in other terms has served merely to distort our understanding of the metaphysical questions and of the methods by which they are to be resolved.[8]

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