Truthmakers and ontological commitment: or how to deal with complex objects and mathematical ontology without getting into trouble

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Abstract What are the ontological commitments of a sentence? In this paper I offer an answer from the perspective of the truthmaker theorist that contrasts with the familiar Quinean criterion. I detail some of the benefits of thinking of things this way: they include making the composition debate tractable without appealing to a neo-Carnapian metaontology, making sense of neo-Fregeanism, and dispensing with some otherwise recalcitrant necessary connections.

Keywords Ontological Commitment · Fundamentality · Metaontology · Composition · Neo-Fregeanism

1 Metaontology

Metaontology is the new black. We can no longer get away with simply worrying about what there is, now we have to worry about what ontological questions are all about in the first place.

Metaontology arrived on the recent philosophical scene as a response to the debate over van Inwagen's Special Composition Question (SCQ): What are the necessary and sufficient conditions for a collection of objects to compose some thing? SCQ divided philosophers: some, the universalists, held that the conditions for composition are vacuous—any collection of objects compose something; others, the nihilists, held that the conditions are never met—no collection of objects compose anything; and then there are various forms of restricted composition—the claim that there are conditions C such that a collection of objects composes a thing iff they are in C, and which some collections meet and some don't.

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But the biggest divide is not that between the various camps who disagreed on the answer to SCQ, it is between those who answered the question (or at least thought it was a good question to ask) and those who rejected it. Taking their cue from Carnap, some philosophers, most prominently Eli Hirsch (2002)—no enemy of metaphysical inquiry, incidentally—held that the rival answers to SCQ were all, in their own way, correct. The universalist speaks truly when she says all collections compose; the nihilist speaks truly when he says no collection does; and van Inwagen (1990) speaks truly when he says composition only occurs when there is a life. The various camps, according to Hirsch's *neo-Carnapianism*, aren't really offering rival answers to SCQ: they're simply talking past each other by using the term 'exists' in different ways.[1]

It's important to be clear how radical neo-Carnapianism is. The claim is not that the various camps are using 'exists' differently in the same way as I am using it differently from you when you look at the fridge and say 'there is no beer' (because we drank the last bottle) and when I say 'there is beer' (because I have more out in the garage). That is a simple matter of our restricting our shared universal quantifier according to different criteria. That is not what is going on in the debate over the answer to SCQ, because each party is aiming to make a claim about what there is *unrestrictedly*; if it could be shown that the nihilist's sense of 'exists' is a restricted quantifier defined on the universalist's 'exists' that would not be to show that the nihilist and the universalist are talking past each other: it would be to show that the universalist was right after all. The claim of the neo-Carnapian is far more radical: each party is using an unrestricted quantifier, and each party speaks truly. In a language with the universalist's unrestricted quantifier it is true to say that, unrestrictedly, every collection of objects composes something, but in a language with the nihilist's unrestricted quantifier it is true to say that, unrestrictedly, no collection of objects composes something. And that's all you can say: it makes no sense to ask about who's right. Try it—you will say 'but who's right about what exists?' Well, that just depends on what you mean by 'exists'!

The metaontology debate has now migrated from discussions of composition. The latest craze is to use it to make sense of the neo-Fregean position in the philosophy of maths.[2] Immediately below, we will see how the neo-Carnapian offers the neo-Fregean a solution to a seemingly devastating objection that faces them. I think that neo-Carnapianism is not needed, in both the neo-Fregean case and

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[1] This isn't *quite* accurate. There is a genuine disagreement between the rival parties, according to Hirsch. But the disagreement isn't over how the mind-independent world is, it's simply over the meaning of the quantifiers in English. But while Hirsch thinks that there is a genuine question as to which of the many candidate quantifier meanings is had by the English expression 'there is', he must also hold that there could be rival theorists who speak different languages but whose languages differ only in the meanings of the quantifiers: these theorists can have many disagreements that will be genuine disagreements, but when it comes to SCQ, they will simply be talking past one another.

[2] See Eklund (2006), Sider (2007a), and Hawley (2007). I should point out for the record that not all these authors defend neo-Carnapianism, or even offer it as the neo-Fregean's best hope. Sider does indeed think that the neo-Fregean should be a neo-Carnapian, but Eklund and Hawley think that the best meta-ontological position for the neo-Fregean to adopt is Maximalism: the view that any object which could exist does exist. I won't be discussing Maximalism in this paper. For a presentation of the neo-Fregean program see Hale and Wright (2001).

the case of SCQ. In this paper I put forward a meta-ontological position that I find far more attractive.[3] But before I do that, let us look at why neo-Carnapianism is meant to help the neo-Fregean.

2 Neo-Carnapian neo-Fregeanism

It's always suspicious when a philosopher claims to get something from nothing. We are rightly suspicious when Anselm claims to have proved the existence of God simply from reflection on the concept of God. It is understandable if neo-Fregeanism evokes in you the same suspicion. The neo-Fregean appears to stipulate numbers into existence. He lays down his abstraction principle (the ineptly named 'Hume's principle')—the number of Fs equals the number of Gs iff there is a one-one correspondence between the Fs and the Gs—reflects on the fact that there are one-one correspondences and, hey presto!, we've discovered the existence of numbers.

Something fishy appears to be going on. What am I doing when I stipulate the truth of Hume's principle? Am I merely making a decision to use language a certain way? Am I saying that the string of words 'the number of Fs equals the number of Gs' is assertable in an appropriate context: contexts where there is a one-one correspondence between Fs and Gs? If that's what I'm doing then there is no problem in making the stipulation; but there is, apparently, a problem as soon as I treat the string of words 'the number of Fs equals the number of Gs' as having the logical form it appears to have. I can stipulate that 'Cameron is the King of France' is assertable when there is a cup of tea on my desk, but if I then, noticing that there *is* in fact a cup of tea on my desk, go on to claim that France has a King, or that Parisians are legally obliged to pay me taxes, then I am going beyond my rights. If the neo-Fregeans are to claim that there are numbers then 'the number of Fs equals the number of Gs' must be what it appears to be: a sentence that is *about* certain entities. But if it is, then why am I simply able to *stipulate* that it is true just in case there is a one-one correspondence between the Fs and the Gs? Isn't the most I could stipulate that *if* there are numbers then 'the number of Fs equals the number of Gs' is true iff there is a one-one correspondence between the Fs and the Gs?

The neo-Fregean needs an answer. The neo-Carnapian offers her one. Think of Hume's principle as making a stipulation that is in part about how to use the quantifier. In laying down Hume's principle the neo-Fregean says 'I am going to use a certain kind of quantifier—the quantifier in my language will be such that 'there are numbers' expresses a truth whenever there are one-one correspondences'. So it's not that we have a quantifier in the language, then make a stipulation, and then find that our old familiar quantifier has numbers in its domain; rather, we stipulate that (among other things) we will be using a quantifier that has numbers in its domain.

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[3] I have been very much inspired in the view to be offered by John Heil (2003, chap. 16). See also Barnes and Cameron (2008).

3 SCQ without neo-Carnapianism

I share the sense of frustration with the debate over SCQ, and I would also like to make sense of neo-Fregeanism, but I won't accept neo-Carnapianism unless I have to. I'm going to argue that you don't have to: the benefits of neo-Carnapianism can be obtained much more cheaply.

Let us return to SCQ. The sense of frustration with the debate arises, for me at least, because we have these apparently competing answers and no obvious way of finding out who's right. How on earth are we meant to tell which collections of objects compose something? The world would, apparently, look just the same if every collection composed something or if none did. No experiment is going to rule in favour of the universalist over the nihilist, because the empirical consequences of having a table are (on the face of it at least) exactly the same as those of having simples arranged table-wise, and so the debate descends to intuition swapping.

That's obviously an exaggeration of the state of play of the debate; but perhaps not a *gross* exaggeration. Now the neo-Carnapian, balking at the thought that there are some compositional facts about the world that we just can't know about, attempts to deflate the debate by claiming that the rival parties are just talking past each other. Well, I am frustrated with the intuition swapping too, but I don't think the blame lies with the assumption that there is a single sense to be given to the unrestricted quantifier; rather, I think the blame lies with Quinean assumptions about ontological commitment.

What are the ontological commitments of a theory? For Quine, it is those things that must be said to lie within the domain of the quantifiers if the sentences of the theory are to be true.[4] I am a truthmaker theorist: I hold that the ontological commitments of a theory are just those things that must exist to *make true* the sentences of that theory.[5]

The main question for present purposes is this: what makes existence claims true? Armstrong (2003) says that the truthmaker for ⟨x exists⟩ is always x.[6] In that case, if a theory T includes the sentence 'a exists', the Quinean criterion and the truthmaker criterion will agree that a is an ontological commitment of T. But I reject Armstrong's claim: I think one of the benefits of truthmaker theory is to allow that ⟨x exists⟩ might be made true by something other than x, and hence that 'a exists' might be true according to some theory without a being an ontological commitment of that theory.

Reliance (albeit perhaps implicit reliance) on the Quinean criterion has, I contend, been detrimental to the debate over the answer to SCQ. The debate has proceeded to a large extent over whether or not we need to take as truths sentences concerning the existence of complex objects: if such sentences must be regarded as

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[4] See, inter alia, Quine (1953).

[5] For discussions of truthmaker theory see, *inter alia*, Armstrong (2004), Beebee and Dodd (2005), and Bigelow (1988).

[6] More precisely, Armstrong says that x is always *a* truthmaker for ⟨x exists⟩. He could grant what I say below: that ⟨the sum of a, b and c exists⟩ is made true by a, b and c, but he would add that it is also made true by the sum. What I want to deny is that we're always committed to admitting x as *a* truthmaker for ⟨x exists⟩.

true then there is a commitment to complex objects, if not then we can make do with nihilism. So, for example, we have van Inwagen (1990) claiming that objects compose something only if they compose a living being, and that sentences such as 'there are tables' are literally false, but assertable if there are atoms arranged table-wise; and then we have Uzquiano (2004) attempting to cause problems for van Inwagen on the grounds that the relevant reduction to plural quantification can't be carried out. Likewise, Rosen and Dorr (2002), in exploring the prospects for mereological nihilism, are concerned to show that there is some subsidiary norm, short of truth, that sentences concerning complex objects can be said to have.

That strikes me as a wrong-turn: serious ontological questions are being decided by linguistic facts; whether we are committed to complex objects is being decided by whether or not sentences concerning them can be paraphrased away into plural quantification over simples. What's wrong, in my opinion, is the Quinean idea that we have to resist the literal truth of 'there are tables' if we want to avoid ontological commitment to tables. This idea blocks what, intuitively, is a very attractive option: that the nihilist is right about the ontology but that the universalist is right about what sentences are true. Once we allow that the truthmaker for ⟨x exists⟩ can be something other than x this becomes an option on the table: 'there is a sum of A, B and C' might be true—but perhaps we don't need a complex object to *make* it true: perhaps A, B and C themselves are enough to make this sentence true.

The thought is that the objects themselves are enough to make it true that there is a sum of those objects. If ⟨a exists⟩ might be made true by some thing(s) other than a then ⟨the sum of a, b and c exists⟩ might be made true by some thing(s) other than the sum of a, b and c: it might simply be made true by a, b and c. Since the ontological commitments of a theory are what's needed to make the sentences of that theory true, it follows that a theory can contain the sentence 'the sum of a, b and c exists' without being ontologically committed to such a sum—it might only be committed to a, b and c. So the universalist might be right about what sentences are true—for any collection of objects it might be true to say that there is a sum of those objects; but the nihilist might be right about what there is—the only things we are committed to in order to make the universalist's sentences true are simples.[7]

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[7] *Objection* (due to Jonathan Schaffer): a, b, c and d make true 'the sum of a, b and c exists' just as much as a, b and c on their own do, yet we don't want to say that 'the sum of a, b and c exists' is ontologically committing to a, b, c and d, because we don't want it to be ontologically committing to d. The natural thought is to appeal to the notion of *minimal* truthmakers, and claim that the ontological commitments of a sentence are the minimal truthmakers of that sentence. But we have no guarantee that we will always be able to find a minimal truthmaker for a sentence; indeed, sometimes it looks impossible. Consider 'there are denumerably many things'. In a world in which that is true, there will be infinitely many collections of things that make it true, and no smallest collection of things that makes it true, so there will be no minimal truthmaker.

Reply: I do indeed want to appeal to the notion of a minimal truthmaker to explain why d is not an ontological commitment of 'the sum of a, b and c exists'. I accept that 'there are denumerably many things' has no minimal truthmaker and I hold therefore that there is no things that are its ontological commitments. I don't see this as a bad result. Consider what the Quinean says about the simple theory consisting of just the logical consequences of the following set of sentences: {'a exists', 'b exists or c exists'}. The ontological commitments of this theory, for the Quinean, are just *a* together with the pure sets and the impure sets constructible from *a*. 'b exists or c exists' has no ontological commitments, because there are no things that have to exist for it to be true. The moral is that we can't just take all the

What follows will rely on this claim that it is perfectly consistent to accept a theory that says that there are Xs but deny that one is ontologically committed to Xs, so let me pause and deal with a potential objection.

Objection: You claim the nihilist may be right about the ontology but the universalist right about what sentences are true, but this will lead quickly to contradiction or absurdity. The nihilist claims that there are only simples, so if she is right about the ontology then there are only simples. The universalist claims that 'The Taj Mahal exists' is true, so if she is right about what is true then 'The Taj Mahal exists' is true. By disquotation, then, the Taj Mahal exists. But that means the Taj Mahal must be a simple, since only simples exist. So either you must accept that the Taj Mahal is simple or you must deny the legitimacy of disquotation, both of which are absurd, or you must both accept and deny that the Taj Mahal exists, which is a contradiction.

Reply: I accept the legitimacy of disquotation and I don't think the Taj Mahal is simple. But I never said the Taj Mahal doesn't exist: I said I am not ontologically committed to it. Remember that I hold the following two claims: (i) the ontological commitments of a theory are what we need as truthmakers for the claims of that theory, and (ii) existence claims need not be made true by what is being said to exist. Given those two claims it is obviously no contradiction to claim that the Taj Mahal exists and yet deny that I am ontologically committed to the Taj Mahal. As with any claim, what I commit myself to when I claim that the Taj Mahal exists is just what must exist to make that claim true: on the view under discussion that is not the Taj Mahal, it is the simples that compose it.

Fine (2001) makes a distinction between what there is and what there *really* is, and the distinction will serve us for our current purposes.[8] (I make no claim to be using it the same way Fine uses it.) Let us say that a really (or, equivalently, fundamentally) exists iff we are ontologically committed to a, and that a exists, but doesn't really exist (or, equivalently, that a exists derivatively), iff ⟨a exists⟩ is true but is made true by something other than a. The claim, then, is that complex objects exist but don't really exist: what *really* exists are simply the simples. Complex objects don't really exist—the nihilist was right about how the world is. But the nihilist, traditionally, thought this meant that sentences concerning complex objects couldn't be literally true: at best they were assertable if they satisfied some subsidiary norm. She was wrong: all it takes for those sentences to be true—*literally* true—is for there to be the simples. For 'complex objects *really* exist' to be true we would indeed need complex objects as truthmakers; but that's not what the

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Footnote 7 continued

ontological commitments of our theory and claim that this is our ontology. In the above example, to arrive at a satisfactory ontology we have to supplement the ontological commitments of the theory either by admitting the existence of *b* (and the impure sets constructible from *b*), or by admitting the existence of *c* (and the impure sets constructible from *c*), or by doing both. 'There are denumerably many things' doesn't have any ontological commitments, on my view, because it has no minimal truthmaker; nevertheless, if it is true any satisfactory ontology will have to include denumerably many things.

[8] I offer a different way of making sense of the claim that 'a exists' is true but that there is no element of our ontology that is a in Cameron (forthcoming).

universalist was claiming—she was just claiming that there are complex objects, and all that requires is that there really are simples.

The distinction between what exists and what really exists may sound rebarbative to analytic ears. But don't think of the distinction as distinguishing between two different kinds of thing: real entities and shadowy Meinongian semi-existents. Do not think of the distinction as dividing the entities in the world into the privileged real existents and the impoverished unreal existents. *All there is* in the world are the real existents: once you've said what there really is, you have answered the ontological question. The distinction between mere existence and real existence is just a way of talking. The rules of the language are that 'a really (or fundamentally) exists' is true iff a is an element of our ontology (read: iff a does some truthmaking); that 'a exists' is true iff ⟨a exists⟩ is made true by some thing(s); and that 'a merely (or derivatively) exists' is true iff ⟨a exists⟩ is made true but isn't made true by a. Stripped of any worrying metaphysical overtones, the distinction between real and mere existence (or, equivalently, fundamental and derivative existence) should not cause us unease.

Universalists were fond of defending their view by claiming that complex objects were nothing 'over and above' the simples composing them: that they were an "ontological free lunch" and "no addition of being".[9] They were less fond of telling us what this meant.[10] But once we accept that existence claims can be true without being made true by what is said to exist we have to hand a satisfying explanation. Complex objects are no addition of being because acceptance of their existence does not bring an ontological commitment to them. They are an ontological free lunch— nothing 'over and above' the simples that compose them—because the ontology needed to ensure the existence of complex objects is just an ontology of simples. It is true to say that complex objects exist; but that statement does not commit us to any new entities, because what *really* exists—what grounds the truth of statements concerning the existence of complex objects—are just the simples.

4 Benefits: necessary connections and the ontological free lunch

One advantage of accepting what I've said above is that it lets us tell a nice story about some otherwise recalcitrant necessary connections. As we saw above, there is debate over the answer to SCQ; but there is widespread acceptance of the claim that whatever the answer is, it is no mere contingent truth. Theorists disagree on when composition occurs, but they mostly agree that the facts concerning when composition occurs are metaphysically necessary. I contend that the above story regarding the truthmakers for claims concerning composite objects is the only story that justifies the widely held assumption that there is necessity here. If mereological sums really are extra elements of our ontology, over and above the simples that

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[9] See, *inter alia*, Armstrong (1997, p. 12).

[10] There are exceptions of course. Some of them told us that what it meant was that complex objects are identical to their parts. But if many-one identity is the price to pay, then it really does seem that there's no such thing as a free lunch. For a defence of composition as identity see in particular Baxter (1988a, b). The view is also discussed, but not quite endorsed, by Lewis (1991, p. 81) and Sider (2007b).

ultimately compose them, then it's far from clear why there couldn't be two possible worlds alike in the spatio-temporal arrangement of simples but differing in compositional facts.[11] Combinatorial reasoning about possibilities seems to entail that we should be able to take the sums away and leave the simples as they are. But if the fact that the sums exist is *made true* by those simples then the necessary connection is explained. It's not really a necessary connection between distinct elements of our ontology at all—because the mereological sums aren't really elements of our ontology. What explains the necessity of the fact that whenever you've got a, b and c you've also got the sum of a, b and c is just the doctrine of truthmaker necessitarianism: the doctrine that the existence of a/the truthmaker(s) necessitates the truth of that which it/they make(s) true. Since a, b and c make it true that there is a sum of a, b and c it follows straightforwardly from truthmaker necessitarianism that in every possible world in which you have a, b and c it is also true that the sum of a, b and c exists. So there is no unpalatable necessary connection.

This only provides some justification for the view being put forward if the necessary connection here would be otherwise unacceptable; but many will think that it is not since the necessary connection between the existence of the simples and the existence of their sum is not a necessary connection between *wholly* distinct existents. The claim here is that necessary connections between things that overlap—that share a part in common—are not objectionable. I think this claim is false, given the truth of the following two theses.

Mereological Essentialism is False: Objects do not in general have their parts essentially. There are many things, x and y, such that y is a proper part of x and x exists in a world in which y is not one of its parts.

Mereological Sufficiency is False: In general, objects are not essentially parts of things that they are parts of. There are many things, x and y, such that y is a roper part of x and y exists in a world in which it is not a part of x.[12]

The second of these theses is overwhelmingly plausible. Entities need not compose the thing they actually compose. Had my atoms been scattered across the universe, it's not that *I* would have been scattered across the universe. The bricks that compose my house might never have been brought together, but they would have remained the very same bricks. The first thesis is more controversial, but it is true nevertheless. I survive the gain and loss of parts; a table survives the loss of one of its atoms; a house survives one of its bricks being replaced by another. Now of course the defenders of mereological essentialism will wheel out some elaborate story about why these propositions seem to be true even though they aren't—such as Chisholm's (1976) theory of *entia successive*—but given the support these propositions have from intuition we should only accept such a story if we are given strong reason to accept mereological essentialism—and I have never seen

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[11] I argue this in detail in Cameron (2007).

[12] While I hold that the simples a, b and c make it true that there is a sum of a, b and c—and hence hold that those simples couldn't exist and there not be such a sum—I am in no way committed to the claim that the thing that is their sum in one world is identical to the thing that is their sum in another. Such questions concerning trans-world identity are simply tangential to the current debate concerning the truthmakers for claims concerning the existence of complex objects.

such a reason. But I don't intend to argue here that the case for mereological essentialism is under-motivated; I'm simply going to assume its falsity.

Given that a thing could have had different parts, and that the parts of a thing might not have been parts of that thing, there is no reason to hold that necessary connections between overlapping objects are in general any better than necessary connections between wholly distinct objects. Take two houses, H1 and H2, that share a wall, W. It would be as remarkable were the existence of one to necessitate the existence of the other as if two wholly distinct houses were such that they necessarily coexisted.

Were mereological essentialism and mereological sufficiency true there would be no puzzle in the existence of H1 necessitating the existence of H2 (or vice-versa), for we could argue as follows. Necessarily if H2 did not exist then W would not exist since, by mereological sufficiency, W is essentially a part of H2. But if W did not exist then H1 would not exist since, by mereological essentialism, H1 essentially has W as a part. By the transitivity of the strict conditional, then, it follows that, necessarily, if H2 did not exist then H1 would not exist. Similar reasoning will yield that, necessarily, if H1 did not exist then H2 would not exist. So H1 and H2, while both contingent existents, necessarily coexist.

So I can understand why, on the assumption of mereological essentialism and sufficiency, necessary connections are only bad if they obtain between *wholly* distinct entities; but given that these theses are both false, I can't see why a necessary connection should look any better when the necessarily connected entities have a part in common. It should be possible for H1 to exist without H2—just destroy all the parts of H2 except for W and you make that situation actual—and a theory of modality that entails a necessary connection between these two things is as bad as one that entails a necessary connection between you and me.

So if the existence of a collection of simples necessitates that there is a sum of those simples this necessary connection is not to be explained by appeal to the fact that the resulting sum is not wholly distinct from the simples. I contend that the necessary connection is unexplainable unless we hold that the proposition that the sum exists is made true simply by those simples, and this provides evidence in favour of that claim.

Another area where there are potentially objectionable necessary connections between distinct contingent existents is with impure sets.[13] There appears to be a necessary co-dependence between an impure set and the individuals in its transitive closure. Now, I've argued elsewhere[14] that there is no problem with one direction of this necessary co-dependence. I defended the following claim: If b is ontologically dependent on a then, necessarily, if b exists then a exists.

My thought was that necessary connections are perfectly explainable if the necessitating entity is ontologically dependent on the necessitated entity. This is as it is in the case of tropes, for example. a's F-ness is ontologically dependent on a.

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[13] What of the pure sets? Pure sets don't cause the same problems with respect to the denial of necessary connections because they are necessary existents (if they exist at all), and the injunction is only against necessary connections between distinct contingent existents. *Of course* if a and b necessarily exist, a can't exist without b existing; that's no problem.

[14] Cameron (2008).

What it is to be a's F-ness, and not some other thing, is, in part at least, to be the F-ness that belongs to a. Hardly surprising, then, that in any world in which you have a's F-ness you also have a: a world which doesn't contain a doesn't meet the preconditions for anything to be a's F-ness. So necessary connections don't seem mysterious when one entity is ontologically dependent on another; on the contrary, it is exactly what one would expect.

That explains, albeit at the cost of admitting this relation of ontological dependence, why a set can't exist without the individuals in its transitive closure existing, because the set will be ontologically dependent on those entities. Necessarily, if the singleton of Socrates exists so does Socrates. No problem there though, since the singleton of Socrates is ontologically dependent on Socrates: what it is to be *that* very set, and not some other set, is that it has Socrates, and not some other thing, as its sole member. However, not only does the existence of Socrates' singleton necessitate the existence of Socrates, the existence of Socrates apparently necessitates the existence of Socrates' singleton, and yet Socrates is not ontologically dependent on his singleton. The moral is that the above claim connecting ontological dependence and necessary connections cannot explain every necessary connection since necessary connections can be symmetric and yet ontological dependence is asymmetric. In my earlier work I bit the bullet and claimed that objects could have different singletons. But there was no need for such a drastic step. Far more palatable is the view that the impure sets are no addition in being over the individuals in their transitive closure: impure sets exist, but they don't really exist.

The thought here, then, is that facts concerning the existence of impure sets are not made true by impure sets but by individuals—the individuals that are in the sets' transitive closure. So ⟨Socrates' singleton exists⟩ is not made true by Socrates' singleton, it is made true by Socrates (as is ⟨the singleton of Socrates' singleton exists⟩, etc). So *of course* the existence of Socrates necessitates the truth of the proposition that Socrates' singleton exists; as before, that just follows from truthmaker necessitarianism. And we also have a nice explanation of the necessary connection the other way—one that doesn't require us to invoke the mysterious relation of ontological dependence; ⟨Socrates' singleton exists⟩ entails ⟨Socrates exists⟩ not because of any mysterious relation of dependency holding between Socrates and his singleton but simply because the only possible truthmaker of ⟨Socrates' singleton exists⟩ is Socrates. And that's not some mysterious modal connection, it's just a consequence of how we use the term 'Socrates' singleton'. We only count ⟨Socrates' singleton exists⟩ as true in worlds where Socrates is there to make it true. Since Socrates makes it true that Socrates exists, we have an explanation of why ⟨Socrates' singleton exists⟩ can't be true without ⟨Socrates exists⟩ being true.

If impure sets and mereological sums are extra elements of our ontology then there are unexplained necessary truths. If we want to say that the existence of some things is (necessarily) sufficient both for the existence of the sum of those things and for the existence of the set of those things then, if this is to be anything other than a brute necessity, we must adopt the view that impure sets and mereological sums are no addition of being: that they are an ontological free lunch. We must accept that

propositions entailing their existence can be literally true without brining an ontological commitment to sets or sums respectively; and the way to do this is to deny that the truthmakers for such claims are sets or sums and accept that ⟨the sum of a, b and c exists⟩ and ⟨the set {a,b,c} exists⟩ are both true solely in virtue of a, b and c, which are therefore the sole ontological commitments of those propositions.

5 Neo-Fregeanism without neo-Carnapianism

The neo-Carnapian wants to stop the nihilist and the universalist from fighting. 'Look', she says 'can't you just accept that you mean something different by 'exists'? You're both right, in your own language.' I want to stop them from fighting too, but I say 'Look, you are correct, Mr Nihilist: all we need to commit ourselves to are the simples, there's no need for an additional commitment to complex objects. But you, Mr Universalist, are also correct: for every collection of objects, it's true to say that they have a sum.' Both of us want to deflate the debate, but in very different ways.

I think my way of deflating the debate is very intuitive, but we've been blinded to it by a dogmatic acceptance of the Quinean criterion of ontological commitment, which has prevented us from accepting the truth of existence claims while rejecting any commitment to what is being said to exist.

If I am right about where the debate over SCQ went wrong then we can also draw some lessons for the philosophy of maths. I rejected the thought that the success of nihilism requires the success of the linguistic program to identify some subsidiary norm had by (some) statements concerning the existence of complex objects. There is no problem for the nihilist, I maintained, to simply accept those sentences as literally true: to think otherwise is to succumb to the Quinean dogma. The debate shouldn't be over whether we can resist the literal truth of such sentences, it should be over whether the literal truth of such sentences requires there to be complex objects to make them true. It doesn't, I contend: all that's required to make them true—hence all their truth commits us to—are the simples. Compare this to Field's (1980) program in the philosophy of maths. Field wants to resist an ontological commitment to numbers. So what does he do? He embarks on a long program to show us how to paraphrase away number talk. Mathematical claims, he says, are literally false, but many are assertable because they meet some subsidiary norm. Again, I think this is a wrong turn: the ontological question (should we accept an ontology of numbers?) shouldn't be decided by facts about our language (is number talk dispensable?). We should simply accept it as a datum that '2 + 2 = 4' is literally true. The question is: what *makes* this true? Do we need an ontology of numbers to make mathematical truths true? Whether or not we are ontologically committed to numbers depends solely on whether we need them as truthmakers; the dispensability or otherwise of number *talk* is neither here nor there.

Let us bring this back to neo-Fregeanism. The neo-Carnapian asks us to view the neo-Fregean as stipulating how she is going to use the quantifier. There's a sense in which I agree. But I don't see the neo-Fregean as stipulating that she is going to use a quantifier with a certain domain (a domain including numbers); rather, I see the

neo-Fregean as stipulating that claims concerning the existence of numbers are to be made true by whatever it is that makes true claims concerning one-one correspondences.

The source of suspicion over neo-Fregeanism, remember, is that we get something from nothing. But on the interpretation under offer such a suspicion is misplaced. Stipulation of Hume's principle is to stipulate that 'the number of Fs equals the number of Gs' is to be made true by whatever makes it true that there is a one-one correspondence between the Fs and the Gs. Now perhaps what makes it true that there is a one-one correspondence between the Fs and the Gs are numbers: but in that case the stipulation of the Hume's principle isn't bringing about any *new* commitment—we were *already* committed to the existence of numbers in claiming such a one-one correspondence. Or perhaps numbers aren't needed to make it true that there is a one-one correspondence between the Fs and the Gs: but in that case the stipulation of Hume's principle isn't bringing about any new commitment either—for in that case 'the number of Fs equals the number of Gs' doesn't bring commitment to numbers either.

The suspicion against neo-Fregeanism is illusory: an illusion caused by the insidious influence of the Quinean criterion of ontological commitment. The left hand side of Hume's principle quantifies over numbers so, by Quinean lights, ontologically commits us to numbers. But the right hand side of Hume's principle does not quantify over numbers, so brings no ontological commitment to numbers. How, then, can we stipulate that the left hand side is true just when the right hand side is? That looks like we are getting a new type of entity—numbers—for free.

The problem dissolves when the Quinean criterion is rejected. The ontological commitments of a sentence aren't what must lie in the domain of our quantifiers if the sentence is to be true: it is what must exist to *make* that sentence true. So just because the left hand side of Hume's principle entails that numbers exist doesn't mean that it is ontologically committing to numbers; and just because the right hand side of Hume's principle doesn't entail that numbers exist does not mean that it is *not* ontologically committing to numbers. Both sides of Hume's principle are ontologically committed to what we must admit into our ontology as their truthmakers. Since the effect of the stipulation is to ensure that they have the same truthmakers there is no conceptual possibility of the stipulation bringing about a *new* ontological commitment. If numbers are needed to make the left hand side true then they are needed to make the right hand side true, and hence aren't a *new* ontological commitment; if numbers aren't needed to make the right hand side true then they aren't needed to make the left hand side true, and hence aren't a *commitment* (and so, *a fortiori*, they are not a new commitment).

The most attractive option, I suppose (on parsimony grounds, if nothing else), is to deny that numbers are required as truthmakers for the statements on either side of Hume's principle. Perhaps all that is needed to make it true that there is one-one correspondence between the Fs and the Gs, and hence all that is required to make it true that the number of Fs equals the number of the Gs, are the Fs together with the Gs together with the totality fact that those are *all* the Fs and the Gs.[15] In that case,

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[15] For a discussion of totality facts see Armstrong (1997, chapter 13).

numbers are an ontological free lunch in the same way complex objects or impure sets are. Numbers exist, but they don't *really* exist; which is just to say that sentences concerning the existence of numbers are literally true, but that we don't need numbers in our ontology to make them true. We shouldn't be in the least bit concerned when the neo-Fregean makes a stipulation and then starts happily talking about numbers. It may look like she has defined a new kind of entity into existence, but appearances are deceiving. The effect of her stipulation was precisely to ensure that she could use such number talk without being committed to the existence of numbers.

In some ways my proposal is very Carnapian in spirit. When we ask 'are there numbers?' we can be asking the 'internal' question as to whether the English sentence 'there are numbers' is true, or the 'external' question as to whether there really are numbers in the world. Asked as an internal question, while it might look like a question about ontology, it is really just a question about how our language works. Are the conventions that govern our usage of the English quantifier and the term 'number' such as to assign (a) truthmaker(s) to the sentence 'there are numbers'? Asked as an external question we are asking whether numbers are amongst the things that there really are. This is an ontological question, and it can't be settled by appeal to linguistic convention; and any attempt to stipulate an affirmative answer should rightly be looked on askance. It can only be settled (if it can be) by doing metaphysics. (Unlike Carnap, I don't claim the external question to be in some sense a bad question.)

6 Further issues concerning composition

Let's return to the case of composition. I suggested that we could accept a nihilist ontology without giving up on the truth of sentences concerning complex objects because collections of simples are taken to make true sentences concerning the sum of those simples. This leads us to a picture of the world whereby the only things that *really* exist are simples, but where we have complex objects as derivative existents. But of course, we can run something like the above story without it being the simples that are taken as fundamental. (And so you shouldn't object to the kind of story I want to tell just because you want to resist a commitment to objects lacking in proper parts.) We could follow Jonathan Schaffer (forthcoming) and claim that there is only one fundamental existent—the world—with the proper parts of the world being taken as derivative. One way of cashing this out is to claim that the world is the only truthmaker, hence the only real existent, and among the propositions it makes true are propositions of the form ⟨There is an X that exactly occupies region R⟩, where R is a proper sub-region of the region the world exactly occupies. And we needn't choose between these two extremes: another option is that we take ordinary 'everyday' objects like you and me, tables and chairs, planets and moons, etc, as the fundamental existents, with derivative entities obtained both by composition and by decomposition. So, for example, you and I *really* exist, and among the propositions we make true are that there is an object that is our sum, and that each of us has parts exactly located at every region of space we overlap.

There's also no reason why all the entities that we admit as real existents need be of the same (mereological) level. We may wish to hold that all the simples really exist and that some complex objects really exist but that some merely exist derivatively. Why might you hold such a claim? Well suppose one were impressed by Merricks' (2001) arguments that tables and chairs wouldn't do any work that simples arranged table-wise and chair-wise don't do by themselves but that conscious beings have powers that simples arranged conscious-being-wise don't jointly have. Merricks takes this as reason to believe that everything is either a simple or a conscious being, because we shouldn't believe in things that don't make any contribution to the world over what we already had; but armed with the above account we can say that the only *real* existents are simples and living beings: there are the other things that the universalist believes in, but the fact that there are such things is true simply in virtue of the simples and the living beings. 'Don't believe in things that don't make any contribution to the world' should be read as 'Don't *commit* yourself to things that don't make any contribution to the world', which means 'Don't commit yourself to things that don't make any *truthmaking* contribution to the world'. It's fine for you to admit that such things exist—just don't think that they *really* exist; it's fine for you to accept that claims about them are true (so there's no need to paraphrase them away and make yourself hostage to linguistic fortune)—just don't take those truths to be ontologically committing to the things they're talking about.

I've been assuming so far that the universalist is right about what sentences making existence claims are true. But you might not be happy with this. Suppose we go for the nihilist option concerning fundamental ontology: that what there really is—what does all the truthmaking work—are the simples. I have shown how that is compatible with the truth of certain sentences concerning the existence of complex objects, but you might think that the project can only be successful if I can also show how the ontology is compatible with the *falsity* of certain sentences concerning the existence of complex objects; you might think that as well as it being a datum that there are people, tables, chairs, etc, it is also a datum that there is no object which is composed of you and me. A theory which cannot capture our intuitions as to the *limits* of composition is, you might think, as unacceptable as a theory which cannot capture our intuitions as to the *extent* of composition.

I wouldn't place too much weight on such a consideration myself, since I am dubious about our ability to tell apart the intuition that there is no X from the intuition that our everyday quantifier is restricted and does not range over X. But I think the general strategy outlined above is available for at least some of those who are attracted to restricted composition.

Suppose, then, that we want to claim that what there really is are just the simples, and that there are, derivatively, people, tables, etc, but that there are not (derivatively or fundamentally) sums of people and tables, etc. If this is our goal we should modify our story. Instead of claiming that propositions of the form ⟨The sum of A, B and C exists⟩ are made true solely by the simples A, B and C, we should claim that they are made true by the simples together with certain (non-mereological) relations that hold between those simples. What relations we appeal to as truthmakers here will depend on when we think we get composition. Suppose,

for the sake of example, that we think objects compose something when and only when they are sufficiently close together. Then the relations we will appeal to are the spatial relations that hold between the simples. What really exists, then, are the simples and the spatial relations that hold between them. ⟨The sum of A, B and C exists⟩ is true when the spatial relations between A, B and C are small enough; and if it is true it is made true simply by A, B C and the spatial relations that hold between them. But if we consider two simples, D and E, separated by light years, the proposition ⟨The sum of D and E exists⟩ will be false because it lacks a truthmaker: for while D and E exist, the spatial relation that holds between them is too large for this proposition to be made true.[16]

Which option we take here—whether we take English sentences proclaiming the existence of gerrymandered objects such as the sum of Hitler's left ear and my right thumb to be true or not—is, I think, a matter of convention. In this respect I am again Carnapian in spirit. Whether universalism is true isn't sensitive to anything about the world; it is sensitive only to whether the existence of the objects themselves is a suitable truthmaker for the claim that the sum of those objects exists, or whether those objects together with the spatio-temporal (or whatever) relations that hold between them are needed—and which of these is the case depends just on how the English quantifier is used. To that extent I agree with Hirsch that deciding between the truth of universalism, nihilism and some form of restricted composition is simply a matter of determining how the English quantifier is used. But I disagree with Hirsch when he claims that there is no ontological question to be asked here. There is: it is which of universalism, nihilism and restricted composition are *really* true. That's not a question about how the English quantifier is used: it's a question about what there really is in our ontology, and it's to be settled by doing metaphysics.

Here's an interesting consequence of my view. If we take the above route and insist that the conventions governing our usage of the English quantifier are such that restricted composition is true then we take a lot of the bite out of one of the most pressing arguments against restricted composition, namely the Lewis-Sider argument from vagueness.[17] If composition is restricted then either there is a sharp cut-off point between the possible cases of composition and non-composition, or there is not. Sharp cut-off points are to be avoided because they would be metaphysically arbitrary, but non-sharp cut-offs are to be avoided because they result in cases of vague existence. Hence, argue Lewis and Sider, we should avoid restricted composition and choose between the extremes of nihilism and universalism.

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[16] Objection: "This only works because you are considering a simple, and indeed simplistic, case. You won't be able to tell this story if we want a more sophisticated account of when composition occurs. Suppose we want to be organicists, for example. You can't tell your story, because whether or not a collection of simples jointly constitute a life doesn't supervene on the relations that hold between those simples."

Reply: Maybe so. But if it *is* so, that just gives the organicist a reason to believe that the complex living objects are real existents. That's exactly the kind of argument for the real existence of complex objects that I am sympathetic to, so I don't see the objection as a problem.

[17] See Lewis (1986, pp. 211–2) and Sider (2001, pp. 121–32).

Suppose we agree that sharp cut offs are implausible, and hold that there are cases where it is indeterminate whether a certain collection of simples and the spatial relations that hold between those simples make it true that there is a sum of those simples. Does this result in an objectionable case of indeterminate existence? I think not. Grant, for the sake of argument, that indeterminate existence is to be avoided; this seems only to mandate that our *fundamental* ontology be precise. It doesn't seem at all worrying if it's indeterminate whether that precise fundamental ontology results in the truth of certain propositions concerning the existence of complex objects. After all, this wouldn't be a case of it being indeterminate whether there is some thing in our ontology. We can suppose that it's determinate that every thing in our ontology is precise and that there's no X such that it is indeterminate whether or not we are ontologically committed to X. All we get is that some sentences are indeterminate between truth and falsity as a result of how our precise fundamental ontology is.

The moral is that if vague existence is bad, it is only bad if it infects fundamental ontology. It doesn't seem worrying if the precise way things fundamentally are results in the indeterminacy of certain *claims* concerning what exists derivatively. That's just a case of indeterminacy in what makes what true—it's not *really* a case of indeterminate existence.

(Incidentally, this might place some constraints on what level of entity we are happy to take as real existents. On the authority of my colleagues who work in the philosophy of quantum mechanics I believe that there is a very strong case to be made for the claim that the smallest entities in the world are ontically indeterminate in various ways. If we are committed to avoiding ontic indeterminacy in the fundamental layer of reality, then, this would give us good reason to deny the view that what is fundamental are these smallest entities.)

If the previous comments concerning indeterminacy are right then the moral generalises to other areas. I am thinking in particular of dialetheism. Many people find objectionable the idea that both a proposition and its negation can be true. I share the suspicion if the proposition concerns how fundamental ontology is; but it doesn't seem objectionable to me if fundamental reality is consistent, but the consistent way fundamental reality is results in an inconsistent derivative reality.

Think of the particular cases of true contradictions dialetheists are fond of. The Liar sentence—L—springs to mind. L is both true and false! But who cares? Sentences are not, we might think, part of fundamental ontology. What's fundamental is, on my view, just the truthmakers. So what would be objectionable is if, say, the truthmaker for L both existed and didn't exist, or existed but had contradictory properties, for then fundamental reality would be inconsistent. But the dialetheist is not committed to anything like this. We could easily tell a story whereby fundamental reality (for me, the truthmakers) is consistent and makes true both L and its negation. This just doesn't seem objectionable to me. Why should I care about some *sentence* being both true and false? Why should I care, even, if some thing both does and doesn't exist—provided the sense in which it exists is mere derivative existence and not real, fundamental, existence? All that seems bad to me is if there is inconsistency at the fundamental level; if our best theory tells us that this consistent fundamental reality accounts for true inconsistencies, so be it.

7 Conclusion

In the last section I raised a lot of options and didn't come down one way or the other on them. That's because I am not so much concerned with giving answers here but rather in proposing a new way of investigating the question. The debate over SCQ should not be pursued, I have suggested, by trying to work out what sentences are true. The debate should be pursued by trying to work out whether there is any truthmaking work to be done by complex objects that cannot be done solely by collections of simples. The debate over whether or not there are sets, or numbers, or other abstracta, shouldn't be pursued by trying to work out whether talk of such things is paraphrasable away into a nominalistic language: it should be pursued by trying to work out whether or not abstracta are needed as truthmakers over and above concreta. In short, we should decide on what there is by doing ontology, not the philosophy of language!

The claim that some propositions of the form ⟨X exists⟩ can be made true by something other than X leads us to the distinction between derivative and fundamental reality: what there is and what there *really* is. If X is needed as the truthmaker for ⟨X exists⟩ then X really exists—it is part of fundamental reality. But if ⟨X exists⟩ is made true not by X but by Y then, while X exists, X does not really exist: it is Y that really exists; it is Y that is part of fundamental ontology, and which is the ontological commitment of ⟨X exists⟩.

I have attempted to use this framework to show how we can secure the truth of certain claims concerning the existence of potentially recalcitrant entities—such as complex objects or sets—without committing ourselves to those entities, and I have attempted to use the framework to make sense of the neo-Fregean program in the philosophy of mathematics. It remains to argue for a particular view concerning what there really is; but that will have to wait for another day.

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