

Grounding Wholes in Their Parts

By fastening together pieces of wood with some screws in a particular way, a table comes to be. But surely the fact that it comes to be at that moment is no brute fact about our world. For it can be explained by citing facts about these material constituents and how they are bound together at that moment. The existence of the table is not a brute fact because there are some other material objects upon which that table *ontologically depends*. It exists *in virtue of* them.

This paper concerns what this claim could mean. My conclusion is negative: that existing attempts to state what it is for a material object to exist in virtue of some other material objects are all implausible. After describing the concept of ontological dependence in slightly more detail (§1), I consider the accounts on offer and find them all wanting. In particular, I address those that analyze ontological dependence between material objects in terms of modal dependence (§2), truthmaking (§3), having properties that are less fundamental (§4), as well as those that take grounding to be a primitive relation (§5).

I Preliminaries

There are countless, roughly synonymous idioms for expressing that something is the case in virtue of something else being the case. The ‘in virtue of’ claims of interest to metaphysicians are (or at least involve) claims of *non-causal explanatory dependence*.¹ Consider (1)-(3):

- (1) The fact that there are more than n elephants obtains in virtue of the fact that there are exactly $n + 7$ elephants.
- (2) Chicago has the property *being 93 miles from South Bend* in virtue of its bearing the relation *is 93 miles from* to South Bend.
- (3) The set {Madonna} exists in virtue of the existence of Madonna.

I take priority to primarily be a relation between *facts*. For example, (2) accounts for a fact about Chicago in terms of a fact about it and South Bend. (3) is, in contrast to (1) and (2), a claim of *ontological* priority. It primarily purports to explain a certain type of fact: namely, the fact that some object exists.²

¹For a small sample, see Correia [2005], Fine [2001], and Schaffer [forthcoming a].

²The ‘primarily’ is important here. First, the proposition $\langle \{Madonna\} \text{ exists} \rangle$, the property *being {Madonna}*, and so forth may all exist in virtue of Madonna, too. I do not mean to preclude

I reserve the term ‘grounding’ for that relation of ontological dependence, whatever it is, that holds between (facts about) material objects. Recall the bookshelf. Intuitively at least, a good explanation for why it exists (at some time τ) will mention facts about the material properties of the wood and the screws (at some level of decomposition at τ) and how they are causally and spatiotemporally interrelated (at τ).³ The question of this paper, then, is this: *in virtue of what* are these facts about the wood and screws—rather than, say, the fact that my left hand is now clenched into a fist—apt to explain why my bookshelf exists? An *account* of grounding attempts to answer this question by stating the conditions they must satisfy in order to explain why my bookshelf exists.

2 Modal dependence

Recall (3). Here is an intuitive thought: {Madonna} exists in virtue Madonna because {Madonna} *cannot exist* unless Madonna exists. For {Madonna} to exist in virtue of Madonna is for {Madonna} to *modally depend* upon Madonna in this specific way. Similarly, one might think, for Madonna herself to be grounded by the material objects that compose her is nothing more than for her to be modally dependent upon them in some way.

Modal dependence accounts of grounding all say that a grounded object is one that could not exist had one or more other objects failed to satisfy a certain condition. But they can differ along two dimensions. First, the requirement can either be *rigid*, specifying *particular individuals* that must satisfy it; or it can be *generic*, specifying what *type* of object must satisfy it. Second, these accounts can also differ over what they take the *source* of this requirement to be. *Existentialists* say that a grounded thing cannot *exist* unless the requirement is met, while *essentialists* say that part of *what that thing essentially is* is the fact that this requirement has been met. I discuss these in turn.

this. Nor, second, do I mean to say that *nothing* exists in virtue of the facts expressed by (1) and (2).

³Three notes. First, to be clear: I do not deny that things from *other* ontological categories are ontologically prior to material objects. My bookshelf may also exist in virtue of the fact that some tropes are bundled in a certain way, but that is irrelevant to the what is under discussion in this paper. Second, grounding is always grounding relative to a time and way of decomposing the relevant object into proper parts. (x is *composed* of the y s at time τ iff each of the y s is a part of x at time τ , and every part of x at time τ shares a part with one of the y s at time τ .) I will suppress these qualifications for the most part. Third, I will talk as if material objects only have spatial (and no temporal or spatiotemporal) parts for sake of ease.

2.1 Rigid existential dependence

The problems with taking ontological priority to be *rigid existential* dependence are legion.⁴ And taking ontological priority between material objects in particular to be rigid existential dependence fares even worse. It entails that the parts of a material object can never be annihilated without annihilating that material object.

As an illustration, consider the simplest such account (with lowercase Roman variables ranging over all and only contingently existing material objects here and throughout):

- (4) x is grounded by the ys iff (i) x and the ys exist; and (ii) necessarily, x exists only if the ys exist.

Suppose that my bookshelf can survive the slow annihilation and replacement of the particular pieces of wood and screws that currently compose it. So, that bookshelf can exist even if some of its parts ceased to exist. But (4) rules that out. For if the bookcase could have different proper parts later, then (4) entails that it cannot be grounded by the proper parts it has now.⁵ And presumably, that bookshelf can survive the slow annihilation and replacement of not only its constituent wood and screws; it can also survive the slow annihilation and replacement of all its parts at *any* level of decomposition (into chemical molecules, or into elementary particles, or whatever). So, (4) entails not only that the bookshelf is not grounded by its constituent wood and screws, but also that it is entirely *ungrounded*. I take this to be a *reductio* of (4).⁶

2.2 Generic existential dependence

Thus most existentialists would say that the existence of my bookshelf only requires the existence of material objects *similar* in some respect to its current proper parts—not *the particular parts* themselves. This seems initially plausible: intuitively, no world in which there are no screws driven into wood is a world in which my bookshelf exists. But this account faces the following dilemma: it either has the same implausible modal consequences as its rigid counterpart, or it counts the wrong objects as grounds.

Let me explain. Generic existentialists all schematically analyze grounding as follows:

⁴See Correia [2005; 2008], Fine [1995], Lowe [2005], and Schneider [2006].

⁵Unless otherwise noted, I talk as if priority pluralism is true (see p. 5). But it makes no difference to my arguments whether some alternative thesis about the direction of grounding is true. They can be reformulated.

⁶As should anyone else who is not a mereological essentialist—most contemporary metaphysicians, I take it. See Markosian [2005] for a similar argument.

- (5) x is grounded by the ys iff (i) x and the ys exist; and (ii*) the ys have some relation F , such that necessarily, x exists only if there are some zs that stand in F .

And corresponding to different material objects are different relations that must be instantiated if that object exists. Let *being arranged like my bookshelf* be the relation that must be instantiated by my bookshelf's parts if it exists. Yet I forgot to mention: as it turns out, my roommate owns a bookshelf that is qualitatively identical to mine. (Or close enough. Consider a world in which it *is*.) Now, *being arranged like my bookshelf* is either jointly instantiated by his bookshelf's parts, too, or it is not.

Suppose it is. Then my bookshelf is grounded by the parts of *his* bookshelf according to (5). Clause (i) is satisfied, since both my bookshelf and the parts of his bookshelf exist. Clause (ii*) is also satisfied: by definition, *being arranged like my bookshelf* must be jointly instantiated by my bookshelf's parts if it exists; and by assumption, *being arranged like my bookshelf* is jointly instantiated by his bookshelf's parts, too. So (5) entails that my bookshelf is grounded by his bookshelf's parts. But they are no more apt to explain why my bookshelf exists than the fact that my left hand is now clenched into a fist.

So suppose instead that *being arranged like my bookshelf* is not jointly instantiated by his bookshelf's parts. Then (5) collapses back into the rigid existential account. For if *being arranged like my bookshelf* differs between our two bookshelves, and they are qualitative duplicates, then *being arranged like my bookshelf* is not a qualitative property. But that can be so only if *being arranged like my bookshelf* is instantiated in virtue of relations between, and only between, the particular individuals that are proper parts of my bookshelf.⁷ But then we are right back where the rigid existential account of grounding left us. Dilemma complete.

A tempting response is to grasp the first horn of the dilemma and then simply add a third clause to (5): that the ys must also *compose* x if they are to ground x . We should resist this temptation for at least the following three reasons.

First, what (5) purports to be is an account of the *nature* of grounding. As such it ought to stay neutral towards the substantive debate over *what grounds what*. *Priority pluralists* say that composite material objects exist and have properties in virtue of the existence and properties of their respective parts. *Priority monists* say that material objects exist and have properties in virtue of the exist-

⁷Not relations that its proper parts bear to *my bookshelf*, for then (5) would entail that my bookshelf is grounded, in part, by itself. Nor can these be relations they bear to particular individuals *other than* its proper parts—that entails that my bookshelf is partially grounded by non-overlapping objects, which is not much better than where the first horn of the dilemma ends up. But a property is non-qualitative only if, roughly, it can only be instantiated in virtue of relations to one or more particular individuals. So that leaves the particular individuals that are proper parts of my bookshelf.

ence and properties of the world as a whole: that is, the unique, maximal fusion of all of them. Neither view is a conceptual truth.⁸ Modifying (5) in the proposed way, however, renders priority pluralism true by definition. But accounts of grounding ought to be *theory-neutral*.

Second, and relatedly, *even if* priority pluralism were true, presumably its proponents will want to support their view with argument. Arguments for priority pluralism—if they are to be convincing—had better appeal to a relation of grounding that even its opponents would accept. For priority pluralists, modifying (5) in this way would render the account *dialectically worthless*.

Third, suppose you are a priority pluralist who does not care whether modifying (5) in this way renders the account dialectically worthless. Still you should care that modifying (5) in this way renders the account *entirely uninformative*. Even if my bookshelf exists in virtue of facts about what composes it, *why is it* that facts about what composes it are apt to explain why it exists? Why is my bookshelf not grounded, for example, by *just its bottom half*? If one wants to say that it is simply a brute fact that my bookshelf is grounded all the objects that compose it, then one is a *primitivist* about grounding (see §5), and so should not be in the business of analyzing grounding in terms of modal dependence anyway.

2.3 Essential dependence

I have argued against analyzing grounding in terms of modal existential dependence (whether rigid or generic). The remaining possibility is to instead analyze grounding in terms of modal essential dependence. But I can be brief. If part of the essence of some thing is that some other things (of some type) exist, then that thing cannot exist unless those things (or other things of that type) exist. Essential dependence entails existential dependence.⁹ But since I have just shown that existential dependence is not involved in grounding material objects, then neither is essential dependence. So neither should we analyze grounding in terms of essential dependence.

3 Truthmaking

Another strategy is to analyze grounding in terms of priority relations between (facts about) types of entity *other* than material objects. The first example of such an account I consider is in terms of the *truthmaking* relation between facts and propositions. On this account, my bookshelf is grounded by its constituent

⁸Defenses of priority monism can be found in Cameron [forthcoming], Esfeld [1999], Schaffer [forthcoming a; b; c], Sider [2008], and Trogdon [forthcoming].

⁹For discussion, see Correia [2005, §2.6], Fine [1995, p. 279–80], and Lowe [2005].

wood and screws because the claim that it exists is made true by facts about their arrangement. More precisely:

- (6) x is grounded by the ys iff (i) x and the ys exist; and (ii) there is a relation F such that the fact that the ys stand in F is a truthmaker for the proposition $\langle x \text{ exists} \rangle$.¹⁰

I take for granted the orthodoxy among truthmaker theorists that a fact makes $\langle p \rangle$ true only if it is impossible for that fact to obtain and $\langle p \rangle$ be false.¹¹ (6) analyzes grounding in terms of other priority relations because necessitating $\langle p \rangle$'s truth does not yet suffice for that fact to be a truthmaker for $\langle p \rangle$. Intuitively, $\langle p \rangle$ must also be true *in virtue of* that fact's obtaining.¹²

Truthmaker accounts of grounding seem promising, but face three problems that seem to me devastating. Consider Bob Dylan. Surely this is true: if there are *any* truthmakers for the proposition $\langle \text{Bob Dylan exists} \rangle$, then at least one of them is *the fact that Bob Dylan exists*.¹³ For Bob Dylan to exist, $\langle \text{Bob Dylan exists} \rangle$ must be true; and if $\langle \text{Bob Dylan exists} \rangle$ is true, then it is true in virtue of the fact that Bob Dylan exists. So then, by clause (ii) of (6), Bob Dylan is grounded by himself. But grounding is *irreflexive*: intuitively, no material object exists in virtue of itself. (6) incorrectly classifies Bob Dylan as one of his grounds, and so fails to provide a sufficient condition for grounding.

Another problem remains even if we were to restrict (6) so that any truthmaker for $\langle \text{Bob Dylan exists} \rangle$ that has Bob Dylan as a constituent is excluded. I take for granted that no material objects are *Bob Dylan's* parts unless they jointly instantiate the property *composing a human body*. But *composing a human body* is what Sider [2001] calls a *maximal* property: roughly, objects intrinsically arranged in the same way as Bob Dylan's parts cannot compose a human body if their fusion is a significantly large proper part of a human body. And surely there could have been objects intrinsically arranged in the same way as Bob Dylan's parts that significantly overlap a human body. Hence, it is possible for Bob Dylan's parts to be intrinsically arranged as they actually are even though $\langle \text{Bob Dylan exists} \rangle$ is false. Hence, the fact that his organs are intrinsically arranged in a certain way is *not* a truthmaker for $\langle \text{Bob Dylan exists} \rangle$.

The defender of (6) cannot say that there is no truthmaker for $\langle \text{Bob Dylan exists} \rangle$. If there were not, then (6) would entail that Bob Dylan is ungrounded.

¹⁰This account is inspired by Ross Cameron [2008; forthcoming].

¹¹For dissent, see Parsons [1999]. For my purposes I need assume truthmaker necessitarianism only with respect to *atomic* propositions, which is Cameron's official view [2005].

¹²For recent discussion, see Liggins [2008] Rodriguez-Pereyra [2005], and Schaffer [2008]. Merricks [2007] is an exception: he analyzes truthmaking in terms of necessitation and *aboutness*. Neither of my arguments would be affected if truthmaking was understood in this manner instead.

¹³Some prefer to say that Bob Dylan *himself* is the truthmaker for $\langle \text{Bob Dylan exists} \rangle$. Nothing turns on this.

And that seems implausible. The defender of (6) also cannot say that the truthmaker for this proposition is fact that Bob Dylan exists, for reasons noted above. She *could* say the fact that Bob Dylan's parts and *the material objects surrounding him* are arranged in a certain way, however. No other candidate truthmaker seems available. But then (6) entails that Bob Dylan is grounded by his parts *and the material objects surrounding him*. They are all constituents of the only putative truthmaker for $\langle \text{Bob Dylan exists} \rangle$. And similarly for the many other composite material objects that have maximal properties in all worlds in which they exist: she must say that houses, cats, mountains, and so forth are all grounded, in part, by the material objects surrounding them, too. I trust that most would find this implication of (6) implausible. If you do, then you ought to let go of (6).

Perhaps there is still some other way to restrict (6) so only truthmakers of the desired type are included. The third and final problem is that whether or not there *is* such a way ultimately does not matter. Facts about what grounds a material object are *not even truthmakers* for claims about their existence, so (6) ought to be rejected anyway. To illustrate: suppose that Bob Dylan's organs have a fusion when arranged in a certain way. First, it may be a *contingent* fact that his organs have a fusion when arranged in that way.¹⁴ If so, then it would also be a contingent fact that there is a fusion grounded by those organs when arranged in that way. And if so, then it is possible for the fact that his organs are arranged in that way to obtain even though $\langle \text{Bob Dylan exists} \rangle$ is false. Thus, if it is contingent fact that Bob Dylan's organs have a fusion when arranged in a certain way, then this fact is not a truth maker for $\langle \text{Bob Dylan exists} \rangle$.

Second, even if Bob Dylan's organs must have a fusion when arranged in a certain way, it does not follow that this fusion must be *Bob Dylan*. For suppose we slowly replaced Bob Dylan's organs with new organs, arranged the original organs in that way, and then annihilated Bob Dylan. Then we would have constructed a scenario in which Bob Dylan's organs were arranged in that way and yet $\langle \text{Bob Dylan exists} \rangle$ is *false*. So the fact that his organs are arranged in that way is not a truth maker for $\langle \text{Bob Dylan exists} \rangle$. But (6) requires this in order for Bob Dylan to exist in virtue of his organs being arranged in that way. So (6) is false.

4 Having less fundamental properties

So far I have rejected dependence and truthmaking accounts of grounding. In this section I will consider accounts of grounding that focus on relations of priority between the *properties instantiated* by material objects.

¹⁴Defenders of the contingency of composition include Cameron [2007] and Parsons [manuscript].

First some preliminaries. What it is for a property (or relation) to be *fundamental* remains a matter of controversy. But surely this is not: if F is a fundamental property, then F cannot be instantiated in virtue of some distinct property G . Say that the F s are *more fundamental properties* than G only if G can be instantiated in virtue of the instantiation of the F s but not *vice versa*. According to the first account I consider, for a bookshelf to exist in virtue of its parts is, roughly, for it to have all its intrinsic qualitative properties in virtue of the more fundamental properties had by those parts. More precisely:

- (7) x is grounded by the y s at time t iff all the intrinsic qualitative properties had by x are instantiated in virtue of the more fundamental properties among the y s.

The second weakens (7) from a claim about *priority* to a claim about the *asymmetric supervenience* of the properties of a material object upon the properties among its grounds.¹⁵ As follows:

- (8) x is grounded by the y s iff all the intrinsic qualitative properties had by x asymmetrically supervene upon the more fundamental properties among the y s.

But I reject (7) and (8) because neither account is theory-neutral (see §2.2). Or so I argue in the remainder of this section.

First, (7) can be true only if priority monism is false. It is nearly a truism that if a property of Bob Dylan—say, *having two hands*—is an intrinsic qualitative property, then it is had by Bob Dylan only in virtue of properties among his proper parts. But if priority monism were true, then Bob Dylan would have two hands in virtue of the the properties of the world as a whole. So if priority monism were true, *having two hands* would not be an intrinsic property of Bob Dylan. And similarly for any other qualitative property of Bob Dylan. But presumably, he has at least some intrinsic qualitative properties. So if priority monism were true, Bob Dylan would have none of his intrinsic qualitative properties in virtue of the properties of the world. But then (7) entails that Bob Dylan is not grounded by the world after all, and is therefore incompatible with priority monism.¹⁶

(8), on the other hand, can be true only if priority pluralism is false. This is so because the relation of asymmetric supervenience is *monotonic*: if a family of properties, the F s, supervene upon *at least some* of another family of properties,

¹⁵This account is inspired by Bricker [2006].

¹⁶Sider [2007] introduced a similar argument as an objection to priority monism. In response, Schaffer [manuscript] and Trogdon [forthcoming a] propose accounts of intrinsicity that abandon the truism that a property F is intrinsic property of x only if F is had by x in virtue of the properties among x and its parts. I show that these accounts do not succeed in [citation suppressed for blind review].

the *G*s, then the *F*s supervene upon *all* of the *G*s.¹⁷ Thus, if the property *having two hands* asymmetrically supervenes upon the more fundamental properties of Bob Dylan's parts, then *having two hands* asymmetrically supervenes upon the more fundamental properties of the parts of Bob Dylan *and Madonna*. And similarly for any other qualitative intrinsic property of Bob Dylan. So, (8) entails that Bob Dylan is grounded by his and Madonna's parts. But priority pluralism entails that Bob Dylan is grounded *only* by his parts. So (8) is incompatible with priority pluralism.

5 Grounding as a fundamental relation

Thus we reach what is currently the most fashionable account of grounding: to say that grounding is a fundamental relation among material objects.¹⁸ I am tempted to complain that grounding would be a very mysterious fundamental relation to be forced to swallow. But there is a deeper problem with this view. In outline: one cannot simply declare that grounding is a fundamental relation—it must behave like one. And in particular, it ought to be 'freely recombinable' with any other fundamental property or relation (in a sense to be discussed momentarily).¹⁹ But grounding is not. So grounding is not fundamental after all.

For our purposes, to say that *F* and *G* are *freely recombinable* properties is, roughly, to say that for any pattern of distribution of *F* and *G*, there is a possible world with a domain of objects that jointly instantiate just that pattern. One way to motivate the claim that fundamental properties are all freely recombinable with one another is that to say otherwise would be to accept unacceptably brute facts. If *having unit negative charge* and *having 17 kilograms mass* are instantiated by the same objects in all possible worlds (let us suppose), that fact would cry out for an explanation. And presumably, that explanation would be in terms of which properties these are instantiated *in virtue of*. Perhaps they necessarily co-vary because *having unit negative charge* is always instantiated in virtue of *having 17 kilograms mass*, or *vice versa*. Or, perhaps, both properties necessarily co-vary because they are instantiated in virtue of other, more fundamental properties. In any case no such explanation would be available if both of them were *themselves* fundamental properties. Fundamental properties are never instantiated in virtue of anything.

Suppose you agree that fundamental properties are all freely recombinable

¹⁷See, for example, Leuenberger [forthcoming, p. 4].

¹⁸Correia [2005] and Schaffer [forthcoming a; b] among others express skepticism about analyzing the grounding relation.

¹⁹Thus Schaffer, when in another context he complains that "Armstrong's [account of truth-making] further offends against the intuitions that the fundamental entities ought to be amenable to free recombination" [forthcoming d]; see also his [2005].

with another. In order to argue that *being grounded by* fails to satisfy this condition, I employ two widespread assumptions. The first is that *being composed of*, or some other such mereological relation, is a fundamental relation.²⁰ The second is that whether monism or pluralism about ungrounded objects is true, the correct view must be true *in all possible worlds*.²¹ From this claim—call it the *metaphysical generality* of ungrounded objects—it follows that the pattern of distribution of grounding relations over material objects *globally supervenes* upon the pattern of distribution of parthood relations over them.

More precisely: let $D(w)$ be the domain of material objects that exist in a world w . Say that f is an isomorphism that *preserves* some relation R between worlds w_1 and w_2 just in case (i) f is one-to-one between $D(w_1)$ and $D(w_2)$; and (ii) for any x_1, \dots, x_n in $D(w_1)$, R is jointly instantiated by x_1, \dots, x_n in w_1 iff R is jointly instantiated by $f(x_1), \dots, f(x_n)$ in w_2 . What metaphysical generality entails, then, is this:

- (9) For any worlds w_1 and w_2 , any isomorphism that preserves the relation *is composed of* between w_1 and w_2 is an isomorphism that preserves the relation *being grounded by*.

Suppose (9) were false. Let world w_1 in which x_1 is composed of *and* grounded by the remaining x_2, \dots, x_n that exist in $D(w_1)$; and yet another world w_2 in which $f(x_1)$ is composed of, but *not* grounded by, $f(x_2), \dots, f(x_n)$. For this to be the case at w_2 , either $f(x_1)$ is not grounded *at all*, or $f(x_2), \dots, f(x_n)$ are instead grounded by $f(x_1)$. If either were the case, then priority pluralism would be false at w_2 .²² But priority pluralism is true at w_1 , contrary to the metaphysical generality of ungrounded objects. So the metaphysical generality of ungrounded objects entails (9).

Even those who reject the metaphysical generality of ungrounded objects should be inclined to endorse (9). But whether or not you reject the stronger claim, the argument is straightforward. Either by itself entails that *being grounded by* and *is composed of* are not freely recombinable. But we are assuming that *is composed of* is a fundamental relation, which entails that *being grounded by* is not. So primitivism about grounding is false.

²⁰Most would say *being a proper part of* or *overlaps with* are more fundamental mereological relations. But even if this so, though more difficult to state, the argument to follow would go through just the same.

²¹Bohn [manuscript], Schaffer [forthcoming b], Trogdon [2009].

²²Another possibility is that $f(x_1)$ is grounded by *some but not all* of $f(x_2), \dots, f(x_n)$, which does not obviously conflict with priority pluralism. This does not affect the main argument. If grounding and composition were freely recombinable, then *all* of these scenarios could obtain, and so the conflict with metaphysical generality is immediate.

6 Conclusion

I conclude that existing accounts of grounding in contemporary metaphysics all fail. Although one might take this to show that composite material objects do *not* exist in virtue of their parts, or even to show that they do not exist *at all*, I prefer to take this as an opportunity to rethink the nature of ontological priority between material objects. That large task must be left for a different time.

References

- [1] Bohn, E. [manuscript]. Against a notion of ontological dependence.
- [2] Bricker, P. [2006]. The relation between general and particular: entailment vs. supervenience. In D. Zimmerman (ed.), *Oxford Studies in Metaphysics*, Vol. 2. Oxford: Oxford University Press.
- [3] Cameron, R. [2007]. The contingency of composition. *Philosophical Studies* 136(1): 99-121
- [4] Cameron, R. [2008]. Truthmakers and ontological commitment. *Philosophical Studies* 140(1): 1-18.
- [5] Cameron, Ross [forthcoming]. From Humean truthmaker theory to priority monism. *Noûs*.
- [6] Chalmers, D, D. Manley, and R. Wasserman (eds.), *Metametaphysics: New Essays on the Foundations of Ontology*. Oxford: Oxford University Press.
- [7] Correia, F. [2005]. *Existential Dependence and Cognate Notions*. Philosophia Verlag.
- [8] Esfeld, M. [1999]. Physicalism and ontological holism. *Metaphilosophy* 30(4): 319-37.
- [9] Fine, K. [1995]. Ontological dependence. *Proceedings of the Aristotelian Society* 95: 269-90.
- [10] Fine, K. [2001]. The question of realism. *The Philosophers' Imprint* 1(1). On-line at <www.philosophersimprint.org/001001/>.
- [11] Leuenberger, S. [forthcoming]. What is global supervenience? *Synthese*.
- [12] Liggins, D. [2008]. Truthmakers and the groundedness of truth. *Proceedings of the Aristotelian Society* 108: 177-96.

- [13] Lowe, E.J. [2005]. Ontological dependence. *The Stanford Encyclopedia of Philosophy*. Online at <<http://www.science.uva.nl/seop/entries/dependence-ontological/>>.
- [14] Markosian, N. [2005]. Against ontological fundamentalism. *Facta Philosophica* 7: 69-84.
- [15] Merricks, T. [2007] *Truth and Ontology*. Oxford: Oxford University Press.
- [16] Parsons, J. [1999]. There is no 'truthmaker' argument against nominalism. *Australasian Journal of Philosophy* 77(3): 325-34.
- [17] Parsons, J. [manuscript]. Conceptual conservatism and contingent composition
- [18] Rodriguez-Pereya, G. [2005]. Why truthmakers. In H. Beebe and J. Dodd (eds.), *Truthmakers: The Contemporary Debate*. Oxford: Oxford University Press.
- [19] Schaffer, J. [2005]. Quiddistic knowledge. *Philosophical Studies* 123(1): 1-32.
- [20] Schaffer, J. [2008]. Truthmaker commitments. *Philosophical Studies* 141(1): 7-19.
- [21] Schaffer, J. [2009]. On what grounds what. In Chalmers et al. [2009].
- [22] Schaffer, J. [forthcoming a]. Monism: The priority of the whole. *Philosophical Review*.
- [23] Schaffer, J. [forthcoming b]. The internal relatedness of all things. *Mind*.
- [24] Sider, T. [2001]. Maximality and intrinsic properties. *Philosophy and Phenomenological Research* 63(2): 357-63.
- [25] Sider, T. [2007]. Against monism. *Analysis* 67: 1-7.
- [26] Simons, Peter [1987]. *Parts: A Study in Ontology*.
- [27] Sosa, E. [1993]. The varieties of causation. In E. Sosa and M. Tooley (eds.), *Causation*. Oxford: Oxford University Press.
- [28] Trogdon, Kelly [2009]. Monism and intrinsicity. *Australasian Journal of Philosophy*.