

# *A new cosmological argument from grounding*

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## 1. Introduction

In this paper, I will present a new cosmological argument for the existence of an ultimate ground of all things. More precisely, I will present an argument for the thesis that there exists a unique  $x$  which satisfies the following two conditions:

- (1) Everything other than  $x$  is ultimately grounded in  $x$ .
- (2)  $x$  is grounded in nothing else.

The argument therefore resembles some of the traditional cosmological arguments.<sup>1</sup> But my argument differs substantially from the traditional ones in that no principle of sufficient reason is invoked. Instead, I will base my argument directly on considerations about grounding.

Before turning to the argument, let me make some clarifications about the terminology. Here I take ‘grounding’ to be a certain kind of ontological dependence relation that holds between more fundamental and less fundamental entities.<sup>2</sup> So, when the existence of an entity is dependent upon the existence of some other entity or entities in the sense that the former *exists in virtue of* the latter, we say that the former is grounded in the latter, and we call the latter ‘the ground’ of the former. When the ground contains a plurality of entities, we call each of them a ‘partial ground’, and call all these entities taken together the ‘full ground’.<sup>3</sup>

Moreover, by ‘ $x$  is *ultimately* grounded in  $y$ ’ I mean that either  $x$  is grounded in  $y$ , or  $x$  is grounded in something which is grounded in  $y$ , or  $x$  is grounded in something which is grounded in something which is grounded in  $y$ , etc.<sup>4</sup> If  $x$  is ultimately grounded in something, we say that  $x$  is ultimately

- 1 For more about the connection between the cosmological arguments and the concept of grounding, see Bohn 2018a and Pearce 2017. But notice that although the structure of my argument resembles that of many cosmological arguments in the theistic tradition, strictly speaking its conclusion is fully consistent with naturalism. For my argument here *only* aims at showing the existence of a unique ultimate ground. It takes no position on the question of whether such an ultimate ground is a supernatural being or a naturalistically acceptable entity.
- 2 Here I am assuming an ‘entity-grounding’ account in the sense of Schaffer (2009) and Bennett (2017).
- 3 For more about these terminologies, see Fine 2012. In this paper, however, we only consider cases of full grounding.
- 4 Ultimate grounding collapses to grounding *simpliciter* if we assume that grounding is transitive. However, throughout the paper I remain neutral as to whether grounding is transitive. For more discussions, see Schaffer 2012, Litland 2013 and Makin 2017.

grounded. Furthermore, if  $x$  is not grounded in anything else, we say that  $x$  is *fundamental*. Notice that here we follow the literature in taking grounding to be irreflexive (i.e. assuming that nothing grounds itself),<sup>5</sup> and hence we may simply identify the fundamental with the ungrounded. Thus understood, to say that there is a unique entity satisfying (1) and (2) is to say that there is a unique *fundamental* entity that ultimately grounds everything else.

Now, it is the aim of a cosmological argument to provide a proof for the existence of such a being that satisfies (1) and (2), i.e. an ungrounded ground of everything else (or an ‘unmoved mover of everything’, to use a more traditional phrase). In the next section, I will provide such an argument based on three principles of grounding. I will then consider some possible objections in the final section.

## 2. A new cosmological argument

In this section, I present a new argument for the thesis that there is a unique fundamental entity that ultimately grounds everything else. I show that we can construct such an argument by directly invoking three plausible principles in the recent literature on grounding.

The first principle is the ‘well-foundedness’ of grounding:

(WF) There is no indefinitely descending chain of grounding.<sup>6</sup> Or, equivalently, every non-fundamental entity is ultimately grounded in some fundamental entities.

I take it that (WF) is a plausible principle about grounding, especially when we are talking about entity-grounding as is presupposed here. There have already been many attempts to justify (WF). For example, Schaffer explicitly defends it, thinking that given indefinitely descending ground, ‘[b]eing would be infinitely deferred, never achieved’ (Schaffer 2010: 62). To be sure, not everyone agrees, and there are also objections to (WF) (for more discussion, see Dixon 2016, Litland 2016, Bennett 2017: chapter 5 and Bohn 2018b). However, I am not able to examine them here, as my aim is only to show how (WF) can be used to construct a new version of the cosmological argument.

Notice that (WF) by itself does not directly entail the conclusion that there exists a unique fundamental ground of everything. (WF) says only that every non-fundamental entity is ultimately grounded in some fundamental entities. It does not make the further claim that there is *only one* such fundamental entity. One can therefore accept (WF) but admit a plurality of fundamental

5 But see Jenkins 2011 and Bliss 2014, 2018 for the opposite view.

6 By an ‘indefinitely descending chain of grounding’, I mean a series of entities (or pluralities of entities)  $a_1, a_2, \dots$ , such that  $a_1$  is grounded in  $a_2$ , and  $a_2$  is grounded in  $a_3, \dots$ , and so on without end.

entities (e.g. fundamental particles and/or fundamental properties) without postulating any further thing to ground them. The existences of these fundamental entities will be taken as brute facts without further metaphysical ground. So, to construct our cosmological argument, we still need further principles.

The second principle is a principle of parsimony concerning theory choice, which Schaffer (2015: 644) labels as the ‘Laser’ in contrast to Ockham’s ‘Razor’.

(Laser) Do not multiply *fundamental* entities beyond necessity. More precisely, *other things being equal* a theory postulating fewer fundamental entities is better than a theory postulating more fundamental entities.

The basic idea behind (Laser) is the intuition that non-fundamental (or ‘grounded’) entities are some kind of ‘ontological free lunch’ imposing no extra costs. So when we consider the ontological economy of a theory, only the fundamental entities count. Again, there have been many defences of (Laser) in the literature (e.g. Schaffer 2015 and Bennett 2017: chapter 8), which I cannot go through here. My purpose is only to show how (Laser) can be invoked to construct a new cosmological argument.

Notice again that (Laser) by itself, even supplemented with (WF), is insufficient to establish our conclusion. Indeed, a theory that postulates a single fundamental entity to ground everything else is ontologically more economical than a theory that postulates a plurality of fundamental entities. But this alone does not make the former a better theory than the latter, for there can be other theoretical virtues such as explanatory power or informativeness that outweigh the consideration of parsimony. We have to show that, *other things being equal*, the former kind of theories are indeed better than the latter in virtue of their commitment to fewer fundamental entities. To show this, we still require some further principles.

Here is the required principle. It is a principle about what grounds the grounding facts (by ‘grounding facts’ I mean those facts which are about something’s being grounded in some other things):

(Up) Given that  $x$  is fully grounded in  $y$ , the fact that  $x$  is grounded in  $y$  is grounded in  $y$  and in nothing distinct from  $y$ .

I take it that (Up) is a plausible principle. Bennett (2017) defends a similar view that she labels ‘upwards anti-primitivism’ (for another similar view, see deRosset 2013). The underlying idea is as follows (Bennett 2017: 196). Suppose that  $x$  is fully grounded in  $y$ . So  $y$  is doing the work of generating  $x$ . It seems intuitive to think that, by generating  $x$ ,  $y$  also makes it the case that it generates  $x$  (and also thereby makes it the case that it makes it the case that it generates  $x$ , and so on). All these, including  $x$  and the resulting grounding facts, *unfold upwards* from the same source, that is, the ground

y. On the other hand, if the fact that  $x$  is grounded in  $y$  is grounded in  $z$ , then since  $z$  makes it the case that  $y$  grounds  $x$ ,  $z$  contributes to the grounding of  $x$  and hence also helps to ground  $x$ . But we have assumed that  $y$  is the full ground of  $x$ , so  $z$  cannot be anything distinct from  $y$ . The idea, in brief, is that whatever grounds an entity also thereby grounds the grounding fact, and whatever grounds a grounding fact also thereby grounds the grounded entity involved.

We can now construct our cosmological argument. It invokes (WF), (Laser) and (Up) to show that, whatever our best theory is, it will admit the existence of a unique ungrounded entity that ultimately grounds everything else. The argument runs as follows. Consider any theory  $T$ . Call it a ‘type 1 theory’ if it is a theory where every non-fundamental entity is ultimately grounded and there exists a *unique* fundamental entity.<sup>7</sup> Call it a ‘type 2 theory’ if it is a theory where every non-fundamental entity is ultimately grounded but there exists *more than one* fundamental entity. Otherwise call it a ‘type 3 theory’, i.e. a theory where some non-fundamental entity is not ultimately grounded. Clearly, (WF) is violated in a type 3 theory, and hence assuming (WF)  $T$  cannot be a best theory if  $T$  is a type 3 theory.

So let us suppose that  $T$  is a type 2 theory, with  $a_1, a_2, \dots$  as its fundamental entities. We can then construct a second theory  $T^*$ , which is exactly the same as  $T$  except that it postulates an extra entity  $a_0$  as the only fundamental entity by the stipulation that  $a_1$  is grounded in  $a_0$ , and that  $a_2$  is grounded in  $a_0$  etc. Some may wonder whether we can really extend our theory in this way by stipulating grounding. It seems very implausible, for example, that we can just stipulate that this table is grounded in the moon, or that some ghost is grounded in natural numbers, and then extend our theory accordingly. But why? (Up) provides a good explanation. For, according to (Up), grounding facts themselves are non-fundamental matters, and hence we cannot just stipulate their obtaining or non-obtaining without making a change to their grounds. This explains why in usual cases we cannot arbitrarily stipulate grounding: we cannot simply stipulate that the moon grounds the table, or that the numbers ground the ghost etc. without changing the nature of the moon, the numbers etc. But, in our case here, the grounding facts that we are stipulating (i.e. that  $a_1$  is grounded in  $a_0$ , that  $a_2$  is grounded in  $a_0$  etc.) are supposed to be grounded in  $a_0$ , which is an *extra* entity to be added. So there is no such worry that by stipulating these grounding facts we would have to change the nature of something.

So (Up) guarantees that we can indeed construct such a second theory  $T^*$ , which is exactly like  $T$  except that it postulates an extra entity  $a_0$ , together

7 Notice that this implies that the unique fundamental entity in question (call it ‘ $x$ ’) ultimately grounds everything else. For consider any other entity  $y$ , then  $y$  is non-fundamental (because only  $x$  is fundamental) and hence is ultimately grounded in some fundamental entity, which must be  $x$  (because only  $x$  is fundamental).

with the fact that  $a_0$  grounds  $a_1$ , the fact that  $a_0$  grounds  $a_2$  etc., and also the fact that  $a_0$  grounds the fact that  $a_0$  grounds  $a_1$ , the fact that  $a_0$  grounds the fact that  $a_0$  grounds  $a_2$  and so on. Presumably,  $T^*$  is no worse than  $T$  in any theoretical virtues like explanatory power or informativeness, for  $T^*$  differs from  $T$  only in containing an extra entity  $a_0$  and the extra grounding facts it grounds, which should not affect or diminish any of  $T$ 's theoretical virtues besides economy. But  $T^*$  contains fewer fundamental entities than  $T$ . So, by (Laser),  $T^*$  is a better theory than  $T$ . It follows that  $T$  cannot be a best theory if it is a type 2 theory.

This completes our argument. By (WF) we have shown that no theory can be best if it is a type 3 theory. By (Up) and (Laser) we have shown that no theory can be best if it is a type 2 theory. Consequently, whatever our best theory is, it has to be a type 1 theory, which admits a unique fundamental entity that ultimately grounds everything else. But if our best theory says that  $p$ , we are justified in believing that  $p$ . It follows that we are justified in claiming the existence of a unique ungrounded being that ultimately grounds everything else.

### 3. *Objections and replies*

In this section, I consider two possible objections. The first concerns the alleged *novelty* of my argument. For it might appear that my account is just a version of Schaffer's (2010) *priority monism*, which also admits a single fundamental entity, the whole universe, to ground everything it contains. But, if so, it seems that I do not really provide a *new* argument for the existence of a unique ground beyond what Schaffer has done.

In reply, I would like to point out two crucial differences that can effectively distinguish my account from Schaffer's priority monism. First, Schaffer's monism involves the controversial claim that the whole is metaphysically prior to its parts rather than the other way round, whereas my argument here involves no such claim. Although Schaffer (2010) has provided good motivations for this priority thesis (including considerations from common sense, quantum entanglement, heterogeneity and atomless gunk), many may remain unconvinced and still want to embrace the opposite intuition that it should be the parts which ground the whole. My argument is entirely neutral on this issue: it makes no assumption about the priority between the parts and the whole.

Second, and more importantly, the universe in Schaffer's priority monism can provide a ground *only* for things that stand to it in a part-whole relation. But not everything stands in a part-whole relation, as arguably there *are* things to which mereological notions are inapplicable. Consider abstract entities, such as numbers, sets, universals etc. In what sense does the number 5 have a part, or form part of a material object? Arguably, these entities do not exist in space and time, nor do they have causal powers, as

material objects typically do. They are not amongst the ingredients that compose the universe. But if these entities do not stand to the universe in a part-whole relation, Schaffer's priority monism will say nothing about how they are to be grounded. Schaffer's monism requires only that everything that is a part of the universe should be grounded in the universe, which leaves it completely open whether anything that is *not* part of the universe should be grounded or ungrounded. So we cannot really say that Schaffer's monism also posits a unique fundamental entity that ultimately grounds *absolutely everything else*, but only that it posits something to ground everything that stands to the universe in a part-whole relation. This therefore distinguishes my account from Schaffer's priority monism.

The second objection is a worry about the principle (Up). As I explained earlier, my argument really needs this principle, for (WF) and (Laser) are insufficient to show that type 1 theories are indeed better than type 2 theories, as 'other things' might not be equal. However, some may think that the appeal to (Up) is problematic. Recall that (Up) is the following principle about what grounds the grounding facts:

(Up) Given that  $x$  is grounded in  $y$ , the fact that  $x$  is grounded in  $y$  is grounded in  $y$  and in nothing distinct from  $y$ .

But certainly there are alternative claims about what grounds the grounding facts. For example, one may adopt:

(Primitivism) Given that  $x$  is grounded in  $y$ , the fact that  $x$  is grounded in  $y$  is fundamental, and is not grounded in anything.

Or alternatively one may hold a 'downward' version of the anti-primitivism, taking the grounding facts to unfold 'downwards' from the *grounded* entities (rather than unfold 'upwards' from the grounds):

(Down) Given that  $x$  is grounded in  $y$ , the fact that  $x$  is grounded in  $y$  is grounded in  $x$  and in nothing distinct from  $x$ .

Of course, there is also room for a mixed view, where some grounding facts are taken to be grounded in the grounds, some in the grounded entities, and some in nothing at all. Now, the problem is that my argument will break down if either (Primitivism) or (Down) is adopted instead of (Up) (see below for more details). If so, one may perhaps resist my argument by rejecting (Up) and adopting either (Primitivism) or (Down) instead.

However, I think this is hardly surprising. One can of course resist any argument by rejecting any of the premisses on which it rests. But the problem is whether such a rejection is justified independently. We have already given reasons supporting (Up), so what we are yet to see is whether there are any equally or more convincing reasons for adopting (Primitivism) or (Down) instead of (Up).

Let us consider (Primitivism) first. Why should one want to take grounding facts to be primitive? Presumably this view is motivated by a certain kind of picture in which reality is endowed with a set of fundamental grounding facts to make things hierarchically structured. In this picture, things are hierarchically structured by these grounding relations, but there is no further ground for their being so structured. Such a hierarchical structure is itself a fundamental feature of the world, and the grounding facts that constitute the structure are themselves amongst the fundamental ingredients of reality.

So what would the upholders of (Primitivism) say about my argument? Presumably they can quite agree with my claim that for any type 2 theory  $T$  which posits  $a_1, a_2, \dots$  as its fundamental entities, we can always construct a second theory  $T^*$  which posits an extra entity  $a_0$  to ground  $a_1, a_2, \dots$ . If grounding facts are all primitive, they should be completely independent from anything else (see Bennett 2017: 190 for a similar thought), and hence there seems to be no problem in having such a second theory  $T^*$  that posits more grounding facts. But on this ‘primitivist’ picture, it is no longer the case that this second theory  $T^*$  is in any sense *more economical* than the first theory  $T$ , for instead of having  $a_1, a_2, \dots$  as its fundamental entities,  $T^*$  has as its *fundamental facts* the fact that  $a_1$  is grounded in  $a_0$ , the fact that  $a_2$  is grounded in  $a_0$  etc. The number of fundamental entities is no longer reduced by positing an ultimate ground, for the extra grounding facts also count as fundamental entities according to (Primitivism). In this way, one may resist my argument by adopting such a primitivist picture.

Now consider the other alternative principle (Down). This has been explicitly advocated by Fine (2012) and Dasgupta (2014) using considerations about essence. Briefly, the idea is that if  $x$  is grounded in  $y$ , then it should be part of the nature of  $x$  that it be so grounded in  $y$ . Take, for example, the singleton set whose sole member is Socrates. Intuitively the singleton is grounded in Socrates. But in virtue of what does this grounding relation hold? It seems that its being so grounded is written in the essence of the singleton, for it is part of the definition of singleton Socrates that it should contain Socrates as the sole member. This then generalizes to all cases: everything that is grounded in something is so grounded in virtue of its own nature. On this ‘essentialist’ picture, everything in the world is endowed with an essence to indicate how it is to be grounded.

I think the upholders of this view also have a response to my argument. Presumably, they will agree with my claim that for any type 2 theory  $T$  which posits  $a_1, a_2, \dots$  as its fundamental entities, *if we can construct a second theory  $T^*$*  which posits an extra entity  $a_0$  to ground  $a_1, a_2, \dots$ , then  $T^*$  would be a better theory than  $T$  by positing fewer fundamental entities. But they will deny that we can really construct such a second theory  $T^*$ . For they will deny that we can really posit such an extra entity to ground  $a_1, a_2, \dots$  without changing the nature of anything. Given that these entities  $a_1, a_2, \dots$  are fundamental entities according to our theory  $T$ , the essentialist picture in

question will require that it be part of their very nature that they are ungrounded. So any such putative theory  $T^*$  where they are claimed to be grounded in something will presumably *not* be a theory about *the very same entities*. This means that we cannot really construct such a second theory  $T^*$ . In this way, one may resist my argument by adopting such an essentialist picture.

So one can resist my argument either by adopting (Primitivism) or by adopting (Down) as an alternative principle about what grounds the grounding facts. Does this show that my argument fails? I do not think so. I think it shows only that my argument really requires (Up). But (Up) is independently plausible. Of course one may find it more agreeable to adopt either (Primitivism) or (Down) instead of (Up). But this is far from an independent justification for the rejection of (Up). So I conclude that this second objection does not successfully refute the cosmological argument I offer in this paper.<sup>8</sup>

### *Funding*

This work was supported by the Ministry of Science and Technology, Taiwan [grant number 106-2410-H-002-198-MY2].

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<sup>8</sup> Thanks to audiences at the 2018 Joint Session in Oxford and the 2018 TPA Annual Conference in Taipei, and to Lok-Chi Chan, Hsuan-Chih Lin, Tien-Chun Lo and two anonymous referees for helpful discussions and comments.



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## **Abstract**

This paper presents a new cosmological argument based on considerations about grounding. I argue that, by assuming three plausible principles about grounding, we can construct a cosmological argument for the existence of a unique ungrounded being that ultimately grounds everything else. At the end of the paper I consider two possible objections, and offer my replies to them.

*Keywords:* cosmological argument, grounding, fundamentality