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brings to bear to show that the game he starts with is an NP equally show that the game is not a PD.

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Problems of parthood for proponents of priority

JONATHAN TALLANT

1. Introduction

According to some views of reality, some objects are fundamental and other objects depend for their existence upon these fundamental objects. In this article, I argue that we have reason to reject these views.

2. Mereology and priority

A world w is *gunky* iff every object in w *has* a proper part. A world v is *junky* iff every object in v *is* a proper part. These distinctions are not, at a first pass,

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distinctions concerning fundamentality. Rather, these distinctions are mereological: crudely, they concern what things have parts and what things are parts of others. But although these distinctions are mereological, they are relevant to concerns about fundamentality.

It is a common enough view in metaphysics that at least some objects are *fundamental*. Typically, the entities that are fundamental are taken to be metaphysically basic and to not depend upon anything else for their existence. Further, on such views, non-fundamental objects exist. However, non-fundamental objects are derivative and depend for their existence upon the fundamental objects. Views with this structure take one of two forms: Priority Pluralism and Priority Monism. For the purposes of this article, I'll describe the union of these views as 'Priority Views' – or 'PVs'. In this article I argue against PVs.

More fully, I'll characterize PVs as follows:

(P1) At least some x exists, such that x is fundamental.
(P2) At least some ys exist, such that the ys are derivative.
(P3) If y is derivative, then y is such that it depends for its existence upon (exists *in virtue of*) x (or, the xs).

Let us now turn our attention to the details of Monism and Pluralism.

First, Priority Pluralism. As Schaffer (2010a: 31) has it: 'The pluralist holds that the parts are prior to their whole, and thus tends to consider particles fundamental, with metaphysical explanation snaking upward from the many.' As Kim (1998: 15) puts matters: 'The bottom level is usually thought to consist of elementary particles, or whatever our best physics is going to tell us are the basic bits of matter out of which all material things are composed.'

It is easy enough to see the connection between Priority Pluralism and the mereological distinctions drawn above. If our world is gunky, then it does not seem that we have a 'bottom level', such that metaphysical explanation can 'snake upward from' this level. More starkly: 'nothing is basic at gunky worlds. There would be no ultimate ground. Being would be infinitely deferred, never achieved' (Schaffer 2010a: 62). And, of course, if being is never *achieved*, then, presumably, nothing in fact exists. But since things do exist, so this picture must be wrong. This argument gives us a reason to deny Pluralism.

Junk threatens Monism.[1] If the one fundament is itself a proper part of some entity (that is itself a proper part of some entity that etc.), then there would appear to be no 'top level' from which fundamentality (/metaphysical explanation) will 'snake downwards'. Thus, if we thought that the world was junky and not gunky, then this would seem to give us reason to deny Monism.

1 Schaffer (2010a: 64) denies that Junk is possible. Bohn (2009) argues against this – convincingly, I think.

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There are two assumptions that are important to what follows that it will be useful to bring out. First, given a PV, *some* level must be fundamental. Call this SLF. As noted just a moment ago, if there is no level at which fundamental objects reside, then, it seems, there is nowhere for 'being' to be grounded.[2] Second, our conclusions about fundamentality ought to be necessarily true, if they are true at all. Call this modal assumption MOD.[3] Given the somewhat abstract nature of the preceding remarks, it may be fruitful to see how they apply to Monism.

If Priority Monism is true, then there exists only one fundamental object (P1). There are derivative objects (P2), and these derivative objects depend for their existence upon (exist in virtue of) the one fundament (SLF). Such a Priority Monism is true of necessity: at least, if it is actually true, then it is necessarily true (MOD). A very similar set of remarks could be made with reference to Pluralism. With those assumptions and the preceding discussion in mind, consider the following two argument sketches.

Gunk Argument (GA)

(1) A gunk world is conceivable.
(2) If x is conceivable, then x is possible.
(3) A gunk world is possible.
(4) Given SLF and MOD, Priority Pluralism is false.[4]

Junk Argument (JA)

(5) A junk world is conceivable.
(6) If x is conceivable, then x is possible.
(7) A junk world is possible.
(8) Given SLF and MOD, Priority Monism is false.

Bringing together (GA) and (JA) gives us our reason to reject PVs. The conceivability of junk ultimately rules out Monism. The conceivability of gunk ultimately rules out Pluralism. Since both gunk and junk are conceivable, we have reason to reject both Monism and Pluralism. Thus, both views of Priority, Monism and Pluralism, are shown to be false. Assuming that these are the only views on the market, we should not endorse a PV.

There are a number of ways to resist the argument developed above, some of which are discussed below. There may be other ways to respond, but the arguments presented here represent what I take to be the most obvious and best.

2 For further discussion and defence, see Cameron 2008, Schaffer 2003, 2010a.

3 Cf. Schaffer (2010a: 56).

4 This argument is, in effect, that deployed by Schaffer (2010a: 61–5), though is similar in structure to that offered by Sider (1993) against Van Inwagen's view that there are no non-living mereologically composite objects.

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3. *Cognitive connection to the modal*

The first argument that will concern us focuses upon premises 2 and 6: the claim that conceivability entails possibility. Notoriously, this connection between conceivability and possibility is hard to forge. Indeed, we may well have grounds for giving up on it altogether. If that's right, then we lose a key premise in the argument against PVs.

Two points by way of response: one metaphysical, one epistemological. The metaphysical point concerns the modal nature of fundamentality. When we truthfully say of some x and some y, that, 'y depends for its existence upon x', we commit ourselves to a number of other truths. For instance:

F1: If y depends for its existence upon x (or the xs), and y exists at some merely possible world, then so does x (or some part thereof).

Example 1 (E1): suppose that the singleton set {s} exists, but depends for its existence upon s. If {s} exists at some merely possible world, then so does s.

F2: If y depends for its existence upon x, then were x^* to exist, rather than x, then y may not exist (though y^* may exist in its place).

Example 2 (E2): assume Priority Monism – the actual fundament is such as to have as a derivative part the author of this paper; had a qualitatively different fundament existed, then a different person may have existed. (Cf. Schaffer 2010b: 321)

Both of the examples are supposedly modal truths. This is the metaphysical point.

The epistemological point is this: if some PV is true, then one of E1 and E2 will likely be true. These seem to be metaphysically substantive claims about the ways in which some objects depend upon others, and seem not to follow just from the meaning of the terms involved.

But in that case, we must have some kind of cognitive guide as to what's possible and what's necessary. Absent such a guide, it is hard to see how we could understand or evaluate the modal claims described in E1 and E2. Grasping (for instance), that the singleton set {s} depends upon s, requires me to understand that if {s} exists *at some other possible world*, then s exists at that world. Some cognitive mechanism must reveal to me *that* this is possible. How else could I begin to consider whether or not cases like E1 and E2 are true? And, as Gendler and Hawthorne (2002: 3) note, it seems to us that, 'our faculty of conception reveals to us what is possible'.[5] Thus, in order to evaluate, grasp and fully understand the modal aspect of PVs, we must have some cognitive faculty that guides us with respect to what is possible.

5 Though it is notoriously hard to spell-out why this is the case and how it gets to be so.

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As it stands, that's too quick. The cognitive faculty that's required need not be conceivability.[6] Instead, we could endorse Bealer's (2002) claim that there are modal *seemings* or *intuitions*, and that if *x seems possible*, or if we intuit that *x* is possible, then we should say that *x* is possible. In this case, the cognitive faculty that allows us to grasp and understand modal claims, and to determine whether or not they are true, is the faculty of modal intuition.

Well, suppose that we endorse such a view. I don't see that we have a response to the argument against PVs. Both gunk and junk *seem* possible. We have not moved on at all. And I think that this concern will generalize. The general problem is this: whatever kind of cognitive faculty we think it is that guides us when we're evaluating modal claims will be such that it generates reason to think that both gunk and junk are possible.[7] And, if we are to argue that some form of PV is true, then we *require* some such cognitive faculty in order to assess and understand the truth of claims like E1 and E2. That being the case, it is hard to see how we might attack premises 2 and 6 in the above.[8]

4. *Are junk and gunk conceivable?*

We might grant, then, that there's a cognitive faculty that is a guide to possibility; let's assume that this is conceivability. We might still look to resist the claim that both of junk and gunk are conceivable. There are a number of ways in which we might look to do this. The first would be to show that one of the two views is internally inconsistent. This line does not strike me as persuasive. For reasons outlined in Bohn (2009), I do not think that there are any internal problems with the junk hypothesis (contra Schaffer 2010a); similarly, there looks to be nothing internally inconsistent about the idea of gunk. If that's right (and I have no intention of rehearsing or repeating the arguments given elsewhere in the literature), then we must do better.

Perhaps, then, the right strategy to pursue is to show that we cannot *genuinely* conceive of one of the two views. Better still, there is precedent here. There are already arguments in the literature designed to show that we cannot *genuinely* conceive of gunk. Perhaps, these arguments can be deployed in support of the thesis that Monism is true.

The argument that concerns me is due to Williams (2006). Williams argues that we can explain away the illusion of the possibility of Gunk. To do so,

6 Though see Chalmers 2002.

7 I concede that this is contentious and that an absence of proof is a lacuna in the current argument. However, I do not see that any other accounts of modal epistemology would generate any other result.

8 One option would be to describe how such a cognitive faculty guides us to possibility *in most cases*, but not this one. I don't see how this can be done in a principled fashion.

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we must first deploy the following principle:

> **Illusions**: If scenario *w* is conceivable, then either it is possible, or there is some genuinely possible world *w'* that is generating the *illusion* that *w* is possible. (Williams 2006: 503)

In order to then explain the *apparent* conceivability of gunk or junk, we must identify some genuinely possible world that is the source of the illusion that gunk or junk is possible. Williams is concerned to demonstrate that we have only the illusion of possibility of gunk.

> There is my body, which has arms and legs as parts, which in turn have, respectively, fingers and toes as parts. Ultimately, we have micro-particles such as quarks: the ultimate, simple parts of the body. Now excise from this description any mereological relations. There is my body, located in a certain place. In sub-regions of this place are arms and legs. In the respective sub-subregions, we find fingers and toes. At the smallest sub-region at which objects are located, we find quarks.
>
> The emergence nihilist takes this as a *complete* description of a possible world, at least insofar as the description of objects goes. This is a world where every object is mereologically simple (no part-whole relations are mentioned in the complete description of this world). It is also a world where *mere* co-location of objects takes place. (Williams 2006: 504)

Thus, the proponent of mereological nihilism can accept that we can conceive of worlds of apparent infinite descent (as *seems* reasonable) but without being committed to the thought that the world in question is one at which there is gunk. By making use of this manoeuver, Williams thinks that we can explain the *illusion* of the possibility of gunk worlds without committing to their possibility.

There is a problem with this strategy in this context. I concede to the pluralist that this explains the illusion of the possibility of gunk. However, we still generate the failure of pluralism. Let us suppose that there is a world of infinite descent, the world that Williams describes. We may now simply recapitulate an earlier theme. If infinite descent is possible, then it does not seem that we have a 'bottom level', such that explanation can 'snake upward from' this level. More starkly: 'nothing is basic at infinite-descent worlds. There would be no ultimate ground. Being would be infinitely deferred, never achieved.' And, of course, if being is never *achieved*, then, presumably, nothing in fact exists. But since things do exist, so this picture must be wrong.

To be clear, the problem with gunk turns out to be independent of considerations of parthood. What originally drove GA was that there was no bottom *level*. We should grant, of course, that the original argument – GA – derives the conclusion that there is no bottom *level* from a consideration of gunk and, thus, from considerations of parthood. But if we explain away the

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illusion of the possibility of gunk, but in doing so continue to deny that there is a bottom level, then we still lack a ground to being; we *still* lack the bottom level from which metaphysical explanation may 'snake upwards'. We have simply reached the conclusion in a different way.

The general lesson to be drawn from this case is that what needs to be explained is the illusion of the possibility of infinite descent or its opposite; what I'll call 'infinite ascent'. Now, of course, it would be hard for me to rule out the *possibility* of any such explanation. But there *is* no such explanation offered in the wider literature. No-one has yet done the work required to explain the illusion of the possibility of either infinite descent or ascent. Absent such an explanation, this suggested route of responding to the arguments against PVs is incomplete. And, if the arguments of my opponent are incomplete, then I have nothing to which to respond.

A second thought here might be that if there is gunk, then there is an *actual* infinity of proper parts that exist. We have some reasons to think that actual infinities, though mathematically describable, cannot be realized on pain of contradiction.

But proponents of the priority views discussed do not make such moves. That is, their considered opinion seems to be that there is nothing problematic about such infinities of ascent or descent. To then all of a sudden find these considerations of infinities persuasive would be slightly odd. In part, I suspect, this is because – as Schaffer (2010: 61) notes – it is a scientifically serious hypothesis that structure of reality is such that it decomposes into infinitely many layers, with objects at each. Further, there are sophisticated ways of cashing out the formal requirements for gunk[9] that *appear* to render it consistent. If gunk is consistent, then we lose our reason to think it impossible. Thus, this does not seem to be a good route for proponents PVs to take.

5. *Other options?*

One assumption, unchallenged so far in this article, is that Monism and Pluralism are exhaustive: that, if pluralism is true, then it is true by virtue of there being a 'top' or 'bottom' level of reality. But, one might think, the arguments presented here suggest that this is false. (GA) appears to imply that there is no bottom level. (JA) appears to imply that there is no top level. So, why not fix upon a *middle* level and ascribe fundamentality to *that* level? Just to give colour to the case, let us stipulate, entirely arbitrarily, that molecules are fundamental. Every x that is *composed out of* molecules will be ontologically dependent on the molecules that compose x; every y that is a part of a molecule is such that y is dependent on the molecule it is a part of.

There are two obvious challenges. First, that, as noted in the set-up to the case, we fixed upon the molecular level *entirely* at random. There is no

9 See, *inter alia*, Russell (2008) for an excellent survey of some options for the gunk theorist.

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principled reason to think that molecules *are* fundamental. The problem will generalize: for any level, *L*, why should we think *that* level is fundamental? Why not the atoms? Why not the electrons?

The second challenge is that there would appear to be problems with some of the levels one might look to. Imagine, for instance, that we were to try to treat molecules as fundamental objects and to say that every other object depends for its existence upon some molecule. There are objects that seem particularly ill-suited to being dependent for their existence upon molecules. For instance, consider the case of a photon emitted by the sun at the point in its journey to the earth where it has travelled exactly half the distance between earth and sun. This photon is not a part of a molecule. Indeed, this photon *appears* to be entirely independent of every molecule. With a nod to Section 3, for any of the molecules that in fact exist, we can conceive of those molecules existing in the absence of the photon. Because we can conceive of such a situation, it seems (metaphysically) possible. And, in light of that, it would seem false to say that the photon depends for its existence upon any of the molecules that in fact exist.[10]

This problem will generalize. Consider what Schaffer (2010a: 38) calls the tiling constraint: 'the basic actual concrete objects collectively cover the cosmos without overlapping. In a slogan: no gaps, no overlaps.' The advantage of fixing upon *either* the whole world *or* the very smallest entities in reality is obvious. Both of these candidates for being a fundamental level *do* cover the whole cosmos without overlapping. It is hard to see that anything at any level in between can manage that trick. There are gaps between the macroscopic into which the microscopic sometimes fall. A bottom level or a top level will generate total coverage; it's hard to see that can be achieved by anything in between.

There is a related challenge that could be levelled against my argument that focuses on properties, though I think that it suffers a similar fate.[11] It's been assumed here that the order of explanatory priority will always be in the same direction whatever level one happens to be on: that is, it will always be top-down or bottom-up; either parts are more fundamental or wholes are. But consider the following: there is a fundamental explanatory level, but that is not at the level of compositional simples. *Properties* of parts of objects at that level (the level of simples) are explained in terms of properties of an entity that they compose; but properties of those entities are also more fundamental than the larger composites of which they are part. One might take organisms to be explanatorily fundamental in this sense. The properties of an organism are such that the properties of the whole – the cosmos, perhaps – depend upon the properties of organisms. But so too the properties of the

10 This, it strikes me, is another nice illustration of the role to be played in the debate surrounding PVs by the cognitive faculty that guides us with regard to modal truths.

11 I'm grateful to an anonymous referee for raising this concern.

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parts of the organism – the properties of electrons, and so on – depend upon the properties of the organism.

I think that this response suffers a similar fate to the last response considered. The claim is that the properties of a part of an organism depend upon the properties of an organism, but that the properties of the whole of which an organism is a part *also* depend upon the properties of an organism. The worry is that there are cases like that of the distant photon discussed above: the properties of that photon appear entirely independent of the properties of any given organism. If the properties of the cosmos depend upon those of the organism and the properties of the photon depend upon the properties of the cosmos, then this would falsely imply that the properties of the photon depend upon the properties of the person. It is hard, then, to see how we can satisfy the tiling constraint while simultaneously treating any given collection of objects or properties at a mid-level as a fundamental property.

6. *Some level is fundamental*

Here is another response that might be made by the proponent of a PV. We have good reason to think that *some* level is fundamental. For instance, it is very natural to say things like 'the parts of integrated wholes depend for their existence upon the wholes themselves' (cf. Schaffer 2010a: 46–50). We should respect these intuitions. If we are to respect these intuitions, then we should say that there are objects that are fundamental and those that are derivative. That being the case, one of (JA) and (GA) is false. Thus, we refute the argument presented here.

> While I'm sympathetic to the argument presented, I think that it rather misses the thrust of the preceding. First, the arguments presented above are not intended as an insuperable objection to PVs. They are a challenge. The specific challenge that has been set is to retain that cognitive connection between (something like) conceivability and possibility (in order to grasp and evaluate the modal claims made by the proponent of PVs) whilst simultaneously rejecting the possibility of at least one of gunk and junk. Both gunk and junk seem possible; both gunk and junk are internally coherent. What the proponent of PV requires, therefore, is some way of soothing this tension. I do not say that it cannot be done; I do say that it has not been done and that it needs to be done if we are to endorse a PV.

7. *Conclusion*

Various mereological states appear possible: the world could be gunky; it could be junky (it might even be hunky, where a world is hunky iff it is

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both junky and gunky). These modal facts about mereology give rise to conceivability arguments against PVs. I think that we have reason to take these arguments seriously. For the time being, then, we should give up on PVs.[12]

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12 Thanks to an anonymous referee and Mark Jago for comments on a previous draft.

Shrieking against gluts: the solution to the 'just true' problem

JC BEALL

1. True and false versus just true (just false)

Glut theorists say that some sentences (e.g. liar paradox) are true and false: both they and their negation are true. A common worry about glut theory, advanced under a variety of names, is the problem of 'just true' or 'consistent truth' or 'just false' or 'really not true' (Beall 2009, Everett 1994, 1996, Olin

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