

What is the Grounding Problem?

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[forthcoming in *Philosophical Studies*]

June 11, 2010

The centerpieces of our discussion are a lump of clay and a statue, Lumpl and Goliath, respectively.¹ According to the standard story, which we will assume is correct, Lumpl and Goliath are created and destroyed at the same times, and are to be found in exactly the same locations throughout the period when both exist. In a word, our centerpieces are *coincident*. How many centerpieces does our discussion have? Philosophers don't agree: *monists* claim that Lumpl and Goliath are identical; *pluralists* deny that they are.² Pluralists argue for the distinctness of Lumpl and Goliath by noting that Lumpl has properties that Goliath lacks: it seems evident that Lumpl could survive being squashed into a ball, and that Goliath could not. For the sake of brevity, I will adopt the barbarism “squivable” to stand for this property: a thing is squivable iff it can survive being squashed into a ball. The pluralist argues that Lumpl and Goliath are distinct because Lumpl is squivable and Goliath is not. Monists argue for their position on similarly compelling intuitive grounds: if Lumpl and Goliath are sitting in the center of our table, it seems evident that there is only one thing there.

Our aim is not, however, to settle the dispute between monism and pluralism. Our focus instead will be on a particular objection which monists urge against pluralists. Here is a rough statement of the objection:

Lumpl and Goliath are made of all the same quarks and leptons.
They share all of their spatiotemporal properties and relations. They

¹This case, originally described in (Gibbard, 1975), is a standard in the literature on material constitution.

²For example, (Baker, 1997), (Fine, 2003), (Johnston, 1992), and (Wiggins, 1980) are pluralists, while (Olson, 2001) and (Wasserman, 2002) are monists.

are subject to all of the same physical pushes and pulls; any kick or wiggle administered to Lump1 is also administered to Goliath and vice versa. Suppose that pluralism is correct, and so Lump1 and Goliath have different modal properties. There seems to be nothing that could explain their having different modal properties. It is natural to ask, for instance, what it is in virtue of which Lump1 is squivable, and Goliath not. The pluralist can give no satisfactory answer.

The objection is supposed to favor monism over pluralism because the demand for explaining the modal differences between Lump1 and Goliath goes away if one accepts, with the monist, that there are no modal differences to explain.³ The objection is called the Grounding Problem:⁴ the pluralist is alleged to be unable to explain, and so ground, the differences she claims between Lump1 and Goliath.

This paper explores the question of whether there really is any such problem. For the purposes of this paper, specifying a Grounding Problem involves specifying a legitimate explanatory task that there's good reason to think the pluralist can't meet. Thus two conditions must be met by a specification of an explanatory task in order for it to pose a Grounding Problem: the task must be both *legitimate* and *problematic* for the pluralist.

It turns out to be more difficult than one might have hoped or feared to meet both conditions simultaneously. Commentators have suggested many different specifications, but all of them that present clearly legitimate explanatory tasks seem also to leave the pluralist a way to provide the necessary explanation. Matters are not quite so simple for specifications whose legitimacy is questionable. But the pluralist has some overlooked resources even in these cases. The arguments for these claims occupy the first three sections.

Even if no extant attempt to specify a Grounding Problem succeeds, we might still worry that there is a Grounding Problem lurking out there somewhere, awaiting specification. §4 provides a reason to think that the pluralist

³Denying that there are modal differences to explain lands the monist with an explanatory task of his own: explain away the apparent modal differences between Lump1 and Goliath. Assessing monist explanations (*e.g.* those propounded in (Wasserman, 2002), (Gibbard, 1975) and (Lewis, 1986)) is beyond the scope of this discussion.

⁴This label is introduced by (Bennett, 2004). The problem itself has been presented by many authors and in many forms. See esp. (Olson, 2001), (Sider, 2008), and (Zimmerman, 1995).

is able to meet any Grounding Problems that may arise. The pluralist distinguishes between Lump1 and Goliath; just about everyone distinguishes between a material object and the region of space (or spacetime) it occupies. §4 outlines some tight analogies between the the pluralist's view and the common-sense idea that a material object is distinct from the spatial (or spatiotemporal) region it occupies. I argue that the pluralist can exploit this analogy to provide a reason for optimism about the prospects of meeting any Grounding Problem that may arise. Thus, there is reason to suspect that there is no legitimate explanatory task which the pluralist ultimately cannot meet. I conclude in §5 by drawing some morals from our discussion for some recent pluralist attempts to address the Grounding Problem.

Before diving in, I'll briefly sketch some details of the pluralist position. The pluralist holds that Lump1 and Goliath are distinct, though they stand in an intimate relation: Lump1 *constitutes* Goliath.⁵ The relation is asymmetric and irreflexive, so Goliath does not constitute Lump1 and Lump1 does not constitute itself. Though Lump1 and Goliath differ with respect to their squivability and constitution relations, they also share many properties, including their spatiotemporal properties, which quarks and leptons make them up at a given time, their mass,⁶ which kicks and wiggles they received, *etc.* Not every pluralist would agree with every particular of this sketch, and there is room for large differences over how to fill in the details. We nevertheless have a rough and ready characterization of a recognizably pluralist view against which to test specifications of the Grounding Problem.⁷

1 Supervenience

Some commentators have charged that pluralists must deny the supervenience of modal facts on non-modal facts. This is supposed to indicate a Grounding Problem since it is plausibly assumed that explanation requires supervenience of

⁵(Baker, 1997), (Johnston, 1992).

⁶There are problems explaining, *e.g.*, why the doubling of mass-instantiations in the region jointly occupied by Lump1 and Goliath does not result in a doubling of the mass to be found in that region; see (Zimmerman, 1995, pp. 87-8) for an explanation of a problem of this sort. But these problems are distinct from the Grounding Problem, and so will not be discussed here.

⁷This characterization is neutral on the question of whether Lump1 and Goliath have all the same parts. This is because prominent pluralists claim that Goliath has parts that Lump1 does not (Baker, 2000, p. 181), (Fine, 1999), (Koslicki, 2008).

some sort. If the charge is correct, the pluralist cannot give a satisfactory explanation, *e.g.*, of Lumpl's squivability. But the charge is not correct. The pluralist can secure the supervenience of such modal facts as Lumpl's squivability on the non-modal facts.⁸ Supervenience claims are available to the pluralist in part because there are several different particular supervenience relations; and many of those supervenience relations can easily be affirmed by the pluralist to hold between modal and non-modal facts. So, for instance, the pluralist can easily claim that the modal weakly globally supervenes on the non-modal: any possible world that is indiscernible from this world with respect to such non-modal facts as which quarks and leptons are where will have a lump of clay that is squivable, and a coincident statue that is not.⁹

Supervenience is cheap because there are very weak kinds on the market. Global supervenience is much weaker, for instance, than strong supervenience. And often monists object that the kinds of supervenience that are consistent with pluralism are not strong enough: explaining Lumpl's squivability requires stronger stuff than mere global supervenience.¹⁰ But supervenience is also cheap for another reason: on standard conceptions of supervenience, a supervenience claim by itself does not impose any further interesting explanatory requirement on the relation between the subvening and supervening facts. In particular, contingent *A*-facts (or properties) may supervene on contingent *B*-facts (or properties) and not vice versa, without the *A*-facts obtaining in virtue of, or being explained by, the *B*-facts.

Consider facts about the size and shape of a certain table. For instance, there is the fact that it is more than 1 centimeter high, it is not spherical, *etc.* Call facts of this kind the *table-facts*. Now just pick a contingent fact *P* from outside this realm. For instance, let *P* be the fact that there is at least one person in the same room as the table. Consider the kind of fact obtained by conjoining *P* with all of the table-facts in turn.¹¹ You get such facts as

⁸The fact that supervenience *per se* presents no problem is noted by several commentators, including (Bennett, 2004), (Olson, 2001), and (Zimmerman, 1995).

⁹The pluralist can also affirm less familiar supervenience relations, including what (Zimmerman, 1995, p. 88) and (Rea, 1997) call *coincident-friendly supervenience*: for any worlds w_1 and w_2 and objects x and y , if the parts of x compose something in w_1 that has exactly the same non-modal properties as something that the parts of y compose in w_2 , then the parts of y compose something that has in w_2 exactly the same modal properties as something that the parts of x compose in w_1 .

¹⁰This objection is forcefully pressed by (Olson, 2001), who presses the same worry regarding coincident-friendly supervenience, broached in n. 9

¹¹I write here of conjoining facts; a somewhat more careful characterization of the con-

that P and the table is more than one centimeter high, P and the table is not spherical, *etc.* Call facts of this kind the *conjunctive facts*. The table-facts supervene on the conjunctive facts, in the sense that situations cannot differ with respect to the table-facts without also differing with respect to the conjunctive facts. The converse does not hold. Since P is contingent, situations can differ with respect to the conjunctive facts without differing with respect to the table-facts. Consider, for instance, the situation now and the situation yesterday at noon, when no one was in the same room as the table. Assuming that the table's size and shape has remained the same, the table-facts are the same in both situations, while the conjunctive facts differ. It follows that the table-facts supervene on the conjunctive facts, and not vice versa. The table-facts do not, however, obtain in virtue of the conjunctive facts. If there is any explanatory relation here, it's partial, and it's going the other way. Because the determination of the table-facts by the conjunctive facts is purely a matter of logic, this example can be adapted to fit any supervenience relation discussed in the literature, including strong local supervenience.¹²

Supervenience is so cheap that it is very easy to come by. It should be no surprise, then, that the pluralist need not content herself with weak forms of supervenience. She can with perfect consistency claim that such modal properties as squivability strongly supervene on non-modal properties. Pluralism is compatible, that is, with the claim that, whenever x and y are individuals of possible worlds w_x and w_y respectively, and the non-modal properties that x has in w_x are the same as the non-modal properties that y has in w_y , then the modal properties that x has in w_x are the same as the modal properties that y has in w_y . This might seem surprising: Lump and Goliath, it seems, share non-modal properties in the actual world, but the pluralist claims that Lump is squivable and Goliath not.

conjunctive facts is that they are those facts which can be reported in any given situation by conjoining a contingent sentence P with a sentence reporting a table-fact if P is true; and conjoining $\neg P$ with a sentence reporting a table-fact if P is not true.

¹²(Bennett, 2004, p. 344) notes that some forms of supervenience need not indicate any explanatory relation at all. The argument we are discussing shows that her conclusion is too cautious. No form of supervenience in the literature need indicate that the supervening properties are to be explained even in part in terms of the subvening properties. Does this mean that no form of supervenience has any further interesting upshot? I don't know. One could, of course, specify a relation that evaded the argument, and call it "supervenience." Most simply, one could simply add an explanatory requirement, that the supervening properties obtain in virtue of the subvening properties. Even if the result is still a supervenience relation, the argument from a failure of this sort of supervenience to an explanatory failure would be obviously circular.

This initial impression is wrong, for two reasons. First, a pluralist may plausibly appeal to certain non-modal properties to discern Lumpl from Goliath. Goliath, for example, is badly made, though Lumpl is flawless. Goliath is Romanesque; not so Lumpl.¹³ So the pluralist can deny, with some plausibility, that Lumpl and Goliath have the same non-modal properties in the actual world.

Second, even if the pluralist does not appeal to such non-modal differences, there are further non-modal differences to which she is committed. Pluralism claims that Goliath and Lumpl differ in what I will call their *identity properties*: Goliath, unlike Lumpl, is identical to Goliath; and Goliath, unlike Lumpl, is not identical to Lumpl. Given these non-modal differences between Lumpl and Goliath, no counter-example to the alleged strong supervenience of the modal on the non-modal is available. This is important: the pluralist can with perfect consistency maintain that any possible individuals which differ modally also differ non-modally. Since identity properties are part of the non-modal supervenience base, the pluralist is obliged to assert that Lumpl and Goliath differ non-modally.¹⁴ One might complain that the identity differences the pluralist is obliged to accept are not explanatorily relevant. We will consider this question in §3 below. The important point for present purposes is that this complaint abandons the charge that the pluralist must reject the supervenience of the modal on the non-modal.

It is important to note that defending pluralism by appeal to such identity facts does not beg the question against monism. *Arguing* for pluralism by appealing to identity facts would beg the question. But identity facts are fair game when assessing which claims the pluralist's theory can explain. If the charge is that her theory cannot fulfill some explanatory task, then it is legitimate for her

¹³(Fine, 2003, p. 206). Monists have rather a lot to say against the pluralist's argument for her position, including both the version which appeals to alleged modal differences, (Lewis, 1986, §4.5) and the version which appeals to the sort of non-modal differences under discussion here (King, 2006). Since our aim is not to settle the pluralism-monism debate, I don't want to dwell on the relative strengths of the pluralist's arguments here. The present point is that if we assume that the pluralist's claims about which things have which properties are correct, then she can secure the strong supervenience of modal properties on non-modal properties.

¹⁴If identity properties turn out, contrary to appearances, to be modal properties, then the claim that modal properties strongly supervene on non-modal properties is implausible, quite independently of the pluralism-monism dispute. This is a corollary of the argument from the possibility of qualitative twins in §3 below. The idea in effect is that it is possible that there be distinct individuals which are indistinguishable except in terms of identity facts regarding the spatiotemporal regions they occupy or the microphysical particles they comprise. Thanks to Mark Moyer and David Christensen for discussion on this point.

to appeal to claims that centrally characterize that theory to provide the requisite explanations. The claims concerning identity differences between Lumpl and Goliath centrally characterize pluralism; it is legitimate for the pluralist to appeal to these claims to rebut an alleged Grounding Problem.

There are, of course, some supervenience claims that the pluralist must deny: most simply, she must deny the weak supervenience (and hence the strong supervenience) of the properties that Goliath and Lumpl do not share on the properties that they do share. For instance, she must deny that, for any world w , any two individuals in w which are indiscernible with respect to microphysical constituents are indiscernible with respect to squivability.¹⁵ But every view according to which there are distinct things that share some properties must deny some such supervenience claim. In the absence of some independent motivation for such supervenience claims, their denial by itself is not a source of difficulty for the pluralist view.

Because of the cheapness of even very strong forms of supervenience, the pluralist has no problem accommodating plausible supervenience claims. But by this very token, accommodating even very strong supervenience claims does not meet the challenge posed by the Grounding Problem. The Grounding Problem is an explanatory problem: the pluralist is alleged to be unable to explain the differences between Lumpl and Goliath.¹⁶ Since supervenience does not automatically track explanatory relations, establishing the consistency of pluralism with supervenience does not resolve the underlying difficulty. Securing the consistency of pluralism with plausible supervenience claims is at best a necessary condition for avoiding the Grounding Problem.

¹⁵The argument of this section shows that supervenience by itself does not suffice for any interesting explanatory relation. But the converse claim, that explanatory relations require supervenience, is very plausible. The pluralist must deny that the properties Lumpl and Goliath do not share supervene on the properties they do. We would have a Grounding Problem, then, if it were legitimate to demand that we explain the disparate features of Lumpl and Goliath in terms of their shared features. The arguments of §3 below are designed to show that this explanatory demand is illegitimate. If those arguments succeed, then the denial of such supervenience claims does not indicate a Grounding Problem. For critical discussion of pluralism on the grounds that it denies such supervenience claims, see (Olson, 2001) and (Rea, 1997). Both Olson and Rea concentrate their criticisms on a different alleged case of coincidence, between human thinkers and their constituters.

¹⁶See (Bennett, 2004), (Olson, 2001), (Rea, 1997), (Wasserman, 2002), (Zimmerman, 1995) for a sample of characterizations of the Grounding Problem that emphasize explanation.

2 Explaining Modal Differences

Let's set aside supervenience and focus instead on the task of explaining the differences between Lumpl and Goliath. In order to see how pluralism fares, we need to know what, exactly, requires explanation. Our rough statement of the Grounding Problem suggests two sorts of candidates for the explanandum. First, there is the fact that Lumpl and Goliath have different modal properties. This suggests the following explanatory task presents a Grounding Problem:

ET1 Explain the fact that Lumpl and Goliath are modally discernible in terms of their other properties

Second, there are the further facts that illustrate this difference, *e.g.*, that Lumpl is squivable and Goliath is not. Call the first sort of candidate the *mere modal difference* between Lumpl and Goliath. Call the second sort of candidate the *substantive modal differences* between Lumpl and Goliath. Explaining the substantive modal differences between them involves separately explaining their respective modal features: specifying, for instance, those features of Lumpl in virtue of which it is squivable, and those features of Goliath in virtue of which it is not. Thus, if we are to explain the substantive modal differences between Lumpl and Goliath, our explanatory task is:

ET2 Explain Lumpl and Goliath's disparate modal features in other terms.

We have, then, two different explanatory tasks on the table.

The first explanatory task, (ET1), requires explaining the mere modal difference between Lumpl and Goliath. This task is pretty easy for the pluralist. In virtue of what do Lumpl and Goliath have different modal properties? Pluralism requires that the mere modal difference between Lumpl and Goliath is partly explained by the fact that they are distinct. Any numerically distinct individuals will differ modally. One way to see this is to apply the necessity of identity: in virtue of having the property *being identical to Goliath*, Goliath has a modal property which Lumpl lacks, namely *being necessarily identical to Goliath*. But even skeptics about the necessity of identity¹⁷ should admit that differences in identity properties explain why Lumpl and Goliath have different modal properties. For even a skeptic about the necessity of identity should

¹⁷Gibbard himself, who came up with the Lumpl-Goliath example, uses it to push such skepticism (Gibbard, 1975).

admit that Goliath, but not Lumpl, has the modal property *being necessarily actually identical to Goliath* if it has the non-modal property *being Goliath*. The mere modal difference between Lumpl and Goliath may also be explained by other differences between them.¹⁸ But this particular explanation of their mere modal difference is obligatory for a pluralist.

At this point, the monist might legitimately complain that we have been taking it too easy on pluralism. The existence of a mere modal difference between Lumpl and Goliath is secured if one has any old modal property that the other lacks. If the pluralist gets to take her pick of discerning modal property to explain, then she can easily explain the mere modal difference in terms of differences in identity properties. But the monist intends to set the bar higher. The pluralist is not entitled to pick some particular modal difference and explain that. She must explain all of the particular modal differences that there actually are. Some of these, like the difference with respect to *being necessarily actually identical to Goliath*, will be easy for her. But other differences, like Lumpl's squivability and Goliath's unsquivability, require explanation too. (ET2), not (ET1), is what gives rise to the Grounding Problem. The substantive modal differences between Lumpl and Goliath present the pluralist a more difficult challenge.

There is a standard pluralist explanation of what it is in virtue of which Lumpl is squivable and Goliath is not.¹⁹ Goliath is unsquivable, the explanation goes, in virtue of being a statue, and not a lump of clay. Lumpl is squivable in virtue of being a lump of clay, and not a statue.²⁰ More generally, these apparently non-modal differences between Lumpl and Goliath are supposed to explain a wide variety of modal differences between them. The general strategy is to explain the modal differences between coincident objects by reference to sortal differences between them. Call this invocation of sortal differences to explain further differences the *sortal strategy*.²¹

¹⁸Any explanation of the substantive modal differences between Lumpl and Goliath will also explain their mere modal difference. Thus, the sortal strategy discussed below provides an example of another, complementary explanation of the mere modal difference.

¹⁹See, *e.g.*, discussion at (Wiggins, 1980), (Bennett, 2004), and (Moyer, unpublished).

²⁰Some pluralists (*e.g.* (Baker, 1997)) accept that there is a sense in which Lumpl is a statue. But its being a statue in this sense depends on it constituting something which is a statue. Thus, Lumpl's statuehood is derivative. Obviously, it is Goliath's non-derivative statuehood that is doing the explanatory work in the text.

²¹Technically, we should distinguish the sortal strategy from a stronger view, which we might call the *pure sortal strategy*, which adds to the application of the sortal strategy the claim that the disparate sortal features of Lumpl and Goliath are primitive. The arguments

By now the sortal strategy is old hat. I want, however, to dwell on one difficulty that is sometimes overlooked: the explanation of substantive modal differences in terms of sortals is incomplete. Consider Goliath’s unsquivability. The proposed explanation for this feature is that Goliath is a statue. This explanation is obviously incomplete. It is easy to imagine an artist creating a sculpture in some Space Age material which “remembers” its shape. You can squash this statue, *Gumby*, into a ball, and a swift kick will restore it. In fact, we may imagine that periodic squashing is just what the sculptor had in mind. Thus, something can be a statue and still be squivable. Giving a full explanation of Goliath’s unsquivability will therefore require more resources than its mere statuehood.²²

Monists do not dwell on the sketchiness of the proffered explanation, however, perhaps because they assume that the apparent gaps in the explanation can be filled. Goliath’s statuehood won’t by itself ground its unsquivability. But its being a statue produced in the circumstances at hand will do the trick. Goliath is made of ordinary clay, not any Space Age material. Goliath’s sculptor did not foresee or intend squivability for it. Certainly more needs to be said. But it is generally assumed that some such further features of the case, added to the sortal difference, will complete the explanation in question.²³

A more standard monist objection to the sortal strategy is to argue that the sortal differences themselves require explanation. I will call this kind of response *respecification*. The original challenge was to explain the substantive modal differences between Lump1 and Goliath. The sortal strategy proposes to meet this challenge. But, the monist objects, the sortal strategy is not an adequate solution to the Grounding Problem, because the sortal differences stand in similar need of explanation. Thus, the course of the dialectic has revealed that the specification of the Grounding Problem by (ET2) is at best

in the main text apply to both views.

²²The example of Gumby might suggest that Goliath could survive squashing. Suppose it is possible that the laws that actually regulate the Space Age material also govern clay. Suppose too that it is possible to make Goliath in such a case. Then Goliath itself might survive squashing, just as Gumby does. But if we put the issue instead in terms of the natural or nomological impossibility of Goliath’s surviving squashing, there would still be a modal difference between Lump1 and Goliath, and our discussion would be otherwise unaffected. Thanks to David Christensen for suggesting the need for this clarification.

²³One might even insist that *statue* is just shorthand for the *real* sort at the heart of the explanation, which is much more difficult to state because it incorporates the relevant features of the circumstances. One might claim, for instance, that the sort at hand is *statue made of clay*.

incomplete. A better specification, also requiring the explanation of Lumpl and Goliath's disparate sortal features, is needed.

It is important to emphasize that respecification is sometimes the right move. Suppose someone challenges me to explain why a certain draught puts people to sleep. I explain that it puts people to sleep because it has a dormitive virtue. It seems legitimate to complain that no great advance has been made: the dormitive virtue itself requires explanation.

Why think the monist's respecification of the Grounding Problem is legitimate? It seems to me that some motivation for this respecification is provided by the plausible thought that Goliath is a statue partly in virtue, *e.g.*, of the arrangement of its material parts, the cultural milieu in which it was produced, *etc.* This can't, of course, be the whole explanation of Goliath's statuehood for a pluralist, since Lumpl has precisely these features and is not a statue.²⁴ Thus, we ordinarily presume that Goliath's statuehood is explicable in other terms.

It is not obvious that this motivation for the respecification at hand succeeds. A sortal strategist might urge that we are here confusing modally necessary conditions for Goliath's statuehood with the features in virtue of which it is a statue. It is plausible to hold that Goliath could not have been a statue unless its parts were arranged more or less as they actually are by the efforts of an artist or artists.²⁵ But, the sortal strategist might argue, these necessary conditions do not explain that in virtue of which Goliath is a statue, since Goliath's statuehood is explanatorily basic.²⁶

The debate over the legitimacy of the proposed respecification is murky. Let's just assume that it is legitimate. The formulation of the Grounding Problem by means of (ET2) is at best incomplete. The problem, according to the respecification, is not (or not just) to explain the substantive modal differences

²⁴This remark does not imply that, pluralism aside, it is plausible to claim that the proffered features provide a complete explanation of Goliath's statuehood. I only mean to emphasize that the features in question won't distinguish Lumpl from Goliath, and so won't explain sortal differences between them.

²⁵Some commentators motivate the respecification in question by in effect assuming that the supervenience of statuehood on certain other features implies that statuehood is explained in terms of those features. Since the sortal strategy denies that Goliath's being a statue has an explanation, accepting this assumption lands the sortal strategist with the implausible view that it is possible that there be something made just as Goliath was, but no statue is thereby produced. See, for instance, an argument suggested at (Zimmerman, 1995, p. 87). The argument of §1 shows that the assumption should not be accepted, so this motivation fails.

²⁶This argument is available only to a pure sortal strategist, in the terminology of n. 21.

between Lumpl and Goliath. The problem is to explain both the sortal differences and the substantive modal differences by reference to some further difference between them. Thus, explaining Lumpl and Goliath's disparate modal features in terms of their disparate sortal features does not adequately discharge the explanatory burden.²⁷ A more complete specification of the explanatory task that gives rise to a Grounding Problem is:

ET3 Explain Lumpl and Goliath's disparate modal and sortal features in other terms.

Since Lumpl's relevant sortal feature is *being a lump of clay* and Goliath's is *being a statue*, "other terms" rules out use of modal features, statuehood, or lumphood in the explanation.

Our discussion of the sortal strategy and respecification shows that the Grounding Problem is not adequately characterized as a problem the pluralist has explaining just the modal differences, substantive or not, between Lumpl and Goliath. There is no reason to think that a pluralist has any trouble explaining the disparate modal features of Lumpl and Goliath, so long as she is allowed to appeal to the various non-modal differences she claims to find. We have in view a number of observations which point towards this conclusion: (i) as we've just seen, the invocation of apparently non-modal sortal features to explain modal features is taken by the monist not to have answered the underlying explanatory challenge; (ii) pluralists may appeal to such non-modal differences as *being Romanesque* to discern Lumpl and Goliath; and, (iii) pluralists are committed to there being non-modal differences between Lumpl and Goliath, with regard to identity properties.

These observations help the pluralist in one way, and hinder her in another. They help because they demonstrate that the pluralist's view is that Lumpl and Goliath are non-modally discernible; thus, she has various non-modal differences available to explain the modal differences she alleges. They hinder because she may now be required to provide more explanations: it may be legitimate to respecify the Grounding Problem to require explanations of these non-modal differences, in addition to the explanations of modal differences the pluralist

²⁷(Bennett, 2004) appreciates this point, and coins the phrase "sortalish differences" to cover both kinds of differences. She uses this terminology to characterize the Grounding Problem as the problem of explaining the sortalish differences between Lumpl and Goliath.

was already asked to supply.²⁸ One thing, however, is clear: the Grounding Problem simply doesn't turn on the demand to explain modal facts in non-modal terms. Perhaps respecification is legitimate, so that the Grounding Problem turns on (ET3), but that is a further matter.

3 Identity Differences

Suppose that the monist respecifies the Grounding Problem to require the pluralist to meet (ET3), explaining at one swoop both substantive modal differences and sortal differences between Lumpl and Goliath. At this point, many commentators argue that the pluralist cannot fulfill (ET3); her best recourse is thus to argue that respecification is illegitimate in this case.²⁹ According to this pluralist line, some among Goliath and Lumpl's modal and sortal properties must be primitive if pluralism is to prevail. This is a matter of significant controversy. It is not clear whether (ET3) is legitimate. I will not, however, try to adjudicate the dispute, since the pluralist has resources to meet the challenge, even on the assumption that (ET3) poses a legitimate explanatory task. The pluralist has an alternative to insisting on the illegitimacy of (ET3).

3.1 Identity-Based Explanations

To illustrate the kind of response I have in mind, assume that respecification is legitimate. The pluralist must explain why Goliath is a statue but Lumpl is not. The pluralist still has the identity differences between Lumpl and Goliath at her disposal.³⁰

In virtue of what is Goliath a statue? If any explanation is possible for the pluralist, it will surely involve certain circumstances under which Goliath was brought into existence, and in which it exists over the course of its career. Indeed, our respecification of the Grounding Problem is motivated by the in-

²⁸See, *e.g.*, the discussion of the Grounding Problem in (Olson, 2001), where it is called "the Indiscernibility Problem." Most of the explanatory tasks considered by Olson involve non-modal explananda.

²⁹See, for instance, (Wiggins, 1980), (Bennett, 2004), and (Moyer, unpublished); each provides reasons to believe that no explanation of the relevant properties is required.

³⁰There are also the constitution differences between them. I set those aside because of the complications attending the characterization the constitution relation. But whatever the pluralist can do with identity differences, she can do with identity differences plus constitution differences, so long as constitution is characterized non-modally. I will be suggesting that the identity differences suffice on their own to give the pluralist the resources to meet (ET3).

tuitively plausible observation that it is partly in virtue of such circumstances that Goliath is a statue. These circumstances may include the arrangement of the matter that makes up Goliath, the manner in which it was created, and the intentions with which it was made.³¹ They undoubtedly involve much more. Let's use 'C' to abbreviate a statement of the circumstances in question. C cannot be the whole explanation of Goliath's statuehood according to the pluralist, since Lumpl, a non-statue, was also brought into existence and had its career under exactly the same circumstances.

Here's where the identity differences between Lumpl and Goliath can be used. It is plausible for the pluralist to suggest that Goliath is a statue (rather than a lump of clay) in virtue of both C and its identity properties. Most of the explanatory work is done by C: C will explain why Goliath is either a statue or a lump of clay rather than, say, a window. But it won't explain why Goliath is a statue, since the putative explanation would presumably also apply to Lumpl. But the only extra ingredient needed to explain why Goliath is a statue is its identity properties. So part of what makes Goliath a statue is the arrangement of its parts; but another part of what makes Goliath a statue is its being the individual that it is. Similar comments apply to explaining Lumpl's sort. The reason in turn why Goliath's sort differs from Lumpl's is that Goliath's identity properties differ from Lumpl's. Once the pluralist has an explanation of the disparate sortal features of Lumpl and Goliath, she can give the explanations of their substantive modal differences made available by the sortal strategy.³² Ultimately, according to the view we are exploring, both the sortal and modal differences between Lumpl and Goliath are grounded in their identity differences. Call such an explanation *identity-based*.

A familiar Aristotelian position³³ has it that the identity of an individual is explained (at least in part) by its sort. Goliath, for instance, is the individual that it is partly in virtue of being a statue. The less familiar, identity-based, position claims the converse explanatory relation: Goliath is a statue partly in

³¹Here, I assume that the artist had no intentions at or before the time of creation regarding Goliath, in virtue of which Goliath is a statue. It is not obvious that this assumption is true. If it turns out to be false, then we could recapitulate the monism-pluralism dispute with a case involving something humbler than a statue. Consider, for instance, a ball bearing stamped out by a machine. A pluralist would distinguish the ball bearing from the lump of alloy constituting it. We may further suppose that no one ever thought about this particular ball bearing, so no one has any intentions regarding it.

³²Thus, this response to respecification provides an example of an application of the sortal strategy that is not a pure sortal strategy in the sense of n. 21.

³³(Wiggins, 1980), (Fine, 1999).

virtue of being the individual that it is. Identity explains sort, not the other way around. Goliath and Lumpl have the sorts they do in virtue of their respective identity properties. Thus, even if it is legitimate to respecify the Grounding Problem to require the pluralist to meet (ET3), the pluralist can avail herself of this identity-based explanation of sortal differences.

3.2 Three Virtues

The identity-based explanation of Goliath's statuehood and unsquivability has three considerable virtues. First, it can easily accommodate the motivation for respecification. Recall that requiring the pluralist to meet (ET3) is motivated by the idea that Goliath is a statue partly in virtue of certain features it shares with Lumpl, including, *e.g.*, the arrangement of its material parts. On the identity-based strategy, this idea is correct. But the resulting explanation is incomplete on the pluralist's view, for it won't differentiate Goliath from the non-statue Lumpl. According to the identity-based explanation, the missing ingredient is Goliath's identity properties. Taking Lumpl and Goliath's sortal properties as primitive, on the other hand, obviously rules out the explicability of those properties in other terms.

The second virtue of the identity-based explanation is that it is projectible, since it plausibly provides a modally sufficient condition for statuehood. Given pluralism, it is very plausible to maintain that, as a matter of necessity, anything identical to Goliath and created under circumstances C is an unsquivable statue.³⁴ As a matter of necessity, nothing so created that is either squivable or a non-statue is the very same individual as Goliath. Similarly, as a matter of necessity, anything identical to Lumpl and created under C is a squivable lump of clay. So the proposed explanations plausibly provide modally sufficient conditions for Lumpl and Goliath's disparate modal and sortal features.

The third significant virtue of identity-based explanations is that they are proof against further respecification of the Grounding Problem. Suppose we respecify, replacing (ET3) with

ET4 Explain Lumpl and Goliath's disparate modal, sortal, and identity features in other terms.

³⁴Notice that this claim does not imply that Goliath is necessarily a statue. Many find the latter claim quite plausible. But even those who doubt it (see *e.g.* (Olson, 2001, p. 347) for some related doubts) should accede to the claim in the main text, at least in the absence of any scepticism about the meaningfulness or truth of *de re* modal claims generally.

This explanatory demand, I will argue, is illegitimate. Notice first that (ET4) admits of two different interpretations, depending on what’s required for an explanation in “other terms”. On the one hand, explaining Goliath’s identity properties in “other terms” might require explaining them in purely qualitative terms.³⁵ Alternatively, we might more liberally allow an explanation of Goliath and Lumpl’s disparate identity properties in terms of the identity properties of other things, like the identity properties of quarks and leptons or spacetime regions. Thus, there are two different explanatory challenges that might be posed:

ET4.1 Explain Lumpl and Goliath’s disparate modal, sortal, and identity features in other, qualitative terms.

ET4.2 Explain Lumpl and Goliath’s disparate modal, sortal, and identity features in other terms, whether qualitative or not.

So we really have two different respecifications, one more demanding than the other.

Explanatory task (ET4.1), the stronger demand to explain the identity facts at hand in purely qualitative terms, is illegitimate. One cannot generally explain the identity facts of a thing in terms of a qualitative specification of the arrangement of its quarks and leptons, its spatiotemporal relations to other things, the physical pushes and pulls to which it is subjected, and so on. It is plausible to think that distinct things could share qualitatively specified quark and lepton arrangements and the rest. Consider, for instance, Lewis’s (1986, p. 157) example of a world of eternal recurrence, where the qualitatively specified history of each epoch is exactly the same as the preceding epoch. The first postmaster general of one epoch has all the same qualitatively specified quark and lepton arrangements, *etc.*, as the first postmaster general of the next epoch, even though they are distinct. This fact is quite independent of the debate between monists and pluralists. Even if Lumpl is Goliath, Lumpl (*i.e.* Goliath) could have distinct duplicates. So no proposed explanation of identity properties in terms of the properties shared by Lumpl and Goliath provides modally sufficient conditions for identity properties. Explaining identity facts in terms

³⁵In accord with general usage, I mean by “qualitative terms” a specification of the facts in question which makes no mention of any particular individual, and so no particular quark, lepton, spacetime region, physical push or pull, *etc.*. Such a specification does not involve the identity properties of any particular thing.

of the qualitatively specifiable properties that Lumpl and Goliath share cannot be done even by the monist, and so cannot legitimately be demanded of the pluralist.³⁶

But suppose the respecification of the explanatory task is the more modest (ET4.2), allowing the use of some identity facts in the explanation, just not the identity properties of Lumpl or Goliath. This respecification allows appeal to facts about the identities of the quarks and leptons that Lumpl and Goliath share, for instance, or the particular location in space and time that they occupy.

The argument against the legitimacy of the stronger explanatory demand (ET4.1) does not apply as readily to the more modest (ET4.2). Uncontroversial examples of distinct things that share qualitative properties and relations always involve their having numerically distinct parts, or inhabiting different times and places, and the like.³⁷ In our example the first postmaster general of one epoch is not spatiotemporally coincident with the first postmaster general of the next epoch. So if we let identity properties of the microphysical particles and spacetime regions in as part of the pluralist's explanatory resources, it is not as obvious that the explanatory task we set is illegitimate.

At this point, the pluralist might argue for the illegitimacy of the modest respecification (ET4.2) by claiming that the addition of identity facts regarding spacetime regions, quarks, and leptons still won't suffice to explain the identity properties of macroscopic things. She might argue, for instance, for a radical haecceitist position, according to which there are no interesting modally sufficient conditions for being a particular individual: someone could have had exactly your life and career, been descended from the same people, been made of the same quarks and leptons as you were, and yet have been distinct from you.³⁸ If she could make her case, then no one could explain identity facts

³⁶A monist might appeal to the Principle of the Identity of Indiscernibles (see (Black, 1952) for discussion) to argue that the alleged examples of qualitatively indiscernible but distinct individuals are impossible. If so, then explanatory task (ET4.1) may present a Grounding Problem. But proponents of the Grounding Problem certainly don't argue for the Identity of Indiscernibles in their presentation of the problem, and the possibility of cases of distinct qualitative duplicates are powerfully plausible. Nevertheless, a full consideration of the merits of arguments for the Identity of Indiscernibles is beyond the scope of this paper. Readers who endorse it may take the arguments of this section as revealing a new application for arguments for the Identity of Indiscernibles: such an argument removes an impediment to posing a Grounding Problem.

³⁷In accord with general usage, I use "qualitative property (relation)" for any property (relation) which has a qualitative specification, *i.e.*, a specification that requires no mention of any particular individual.

³⁸Guy Rohrbaugh and I broached such a view, under the label "the bare identities view"

in the manner required by the modest respecification. The demand to explain identity facts in other terms would be illegitimate, quite independently of any antecedent commitment to monism or pluralism.

But she does not need to make a case for this sort of radical haecceitism. She can simply insist that, if it is legitimate to take some identity facts as basic, then there is no reason not to take the identity facts she claims for Goliath and Lumpl as basic. What's good enough for quarks and leptons is good enough for statues and lumps. At the very least, the monist who proposes the modest respecification (ET4.2) faces a challenge: he needs to say why we may take identity facts regarding microphysical entities or spacetime regions as primitive, but may not extend the same courtesy to things that are made up of microphysical entities or occupy spacetime regions. The difficulty of the monist's position here can perhaps be better appreciated by noting the unattractiveness of the analogous position with respect to statuehood. According to the analogous position, Goliath's statuehood cannot be taken as explanatorily fundamental, though some other instances of statuehood – Gumby's perhaps – may. This is an unattractive position.³⁹ Without a principled reason to exclude the identity properties of Lumpl and Goliath, the modest respecification of the Grounding Problem is illegitimate.⁴⁰

It is useful, perhaps, to recall that the pluralist begs no questions against the monist in taking the identity properties of Lumpl and Goliath as primitive. Insofar as the Grounding Problem involves an explanatory challenge for the pluralist's theory, she's entitled to deploy the full ontological resources of that theory to meet the challenge. It is legitimate for anyone, pluralist or not, to take

in (Rohrbaugh and deRosset, 2004) and (Rohrbaugh and deRosset, 2006).

³⁹There may be special cases in which the identity facts involving a certain thing are explicable in other terms. Perhaps the most compelling case is the claim that the identity facts regarding sets obtain in virtue of their membership relations. But these special cases provide no reason to demand the explicability in general of identity facts, nor do they provide any reason to demand the explicability of identity facts involving statues or lumps of clay, while taking identity facts involving spacetime regions and microphysical entities as explanatorily basic.

⁴⁰Some commentators have suggested that relying on an identity-based explanation of the disparate sortal and modal features of Lumpl and Goliath is tantamount to insisting that those features are primitive. The course of our discussion shows that the suggestion is incorrect. I have argued that identity-based explanations are immune to respecification; whatever one thinks of the merits of this argument, it is quite different from arguments that are advanced in favor of primitive sortal and modal properties (see (Wiggins, 1980), (Bennett, 2004), and (Moyer, unpublished)). Also, I have argued that identity-based explanations provide the pluralist a way of accommodating the intuition that *statuehood* is not primitive. Obviously, a view on which *statuehood* is primitive cannot accommodate this intuition; it must explain it away. Thanks to Jonathan Garthoff.

some identity claims as primitive, inexplicable in other terms. It seems, then, legitimate for the pluralist to take the identity claims peculiar to her position as primitive.⁴¹

3.3 Objections

Perhaps, despite these advantages, identity-based explanations have problems which merit their rejection.⁴² For instance, one might worry that identity-based explanations don't generalize in the way that we would ordinarily expect. A good explanation of why Goliath is a statue should also provide fodder for explaining why other things under relevantly similar circumstances are statues. But an explanation which appeals to an identity property like *being identical to Goliath* won't apply to anything else. We have, then, a proposal to explain Goliath's statuehood which can't, even in principle, serve to explain the sortal features of any other statue, even if the statue in question is in exactly similar circumstances *C*. In this sense, the explanation is *sui generis*. But, the objection goes, this is intolerable. So Goliath's identity properties simply aren't fit to explain its statuehood.

It's true, I think, that we ordinarily expect the explanation of a certain feature of a given individual to generalize; an explanation is adequate only if it is possible in principle to generalize it to explain the possession of the same features under similar circumstances by a different individual. For instance, if Lumpl and Goliath were created in a world of eternal recurrence, we should expect the explanation of Goliath's statuehood to generalize to cover the relevant statues of other epochs. Fortunately, there is a way to generalize the identity-based explanation to apply to other things.

To illustrate the kind of generalization in the offing, let's leave for the moment the question of how to explain Goliath's statuehood. Consider instead the question, in virtue of what does the pair set {Socrates, Plato} have the identity

⁴¹One might argue that the monist's demand for the explicability of the pluralist's identity claims is based on simplicity considerations: the pluralist must take certain identity claims as primitive; since the monist does not think that those claims are true, he takes fewer identity claims as primitive. Set aside for the moment how to make clear the idea that there are "fewer" primitive identity facts in the monist's theory. This simplicity argument is tantamount to favoring monism because it has a sparser ontology than pluralism. I take such simplicity-based arguments to be distinct from the Grounding Problem, and so beyond the scope of our discussion.

⁴²The following discussion of the problems faced by identity-based explanations owes a great deal to conversation and correspondence with Kit Fine.

properties it does? In virtue of what, for instance, does it have the property *being identical to {Socrates, Plato}*? A plausible answer says that this set has the identity properties it does because it has the membership properties it does. In particular, the set has its identity properties in virtue of having Socrates, Plato, and nothing else as its members. One might complain that this explanation won't generalize in the way we ordinarily expect, since the *explanandum* is not a feature of any other thing. But there is a very natural generalization available; we just have to generalize over the property being explained: every set has the identity properties it does because it has the membership properties it does. This seems to be the most natural generalization of the explanatory strategy proposed for the identity properties of {Socrates, Plato}, and this general explanatory claim seems quite plausible.

But now something similar is in the offing when identity properties show up in the *explanans*. We just have to generalize over the property doing the explaining. A rough statement of the generalization of our identity-based explanation of Goliath's statuehood would be: every statue has the sortal properties it does partly partly in virtue of its identity properties. So identity-based explanations generalize after all, just as explanations for the identity properties of sets do.

This response also illustrates a general strategy for assessing the soundness in principle of identity-based explanations. In assessing a particular charge against identity-based explanations, see whether an analogous charge applies to independently plausible explanations of identity properties. The individuation of sets by their membership properties provides a plausible test case. Adapt whatever response fits in the case of the individuation of sets to the case of the identity-based explanation. Rinse and repeat.

Another charge against identity-based explanations is that it is implausible to think that Goliath has such qualitative properties as statuehood and squibility in virtue of non-qualitative properties like *being Goliath*. The charge relies on the idea that qualitative properties are explicable only in terms of other qualitative properties.

The case of explanations of the features of sets provides a useful test case for this charge as well. The pair set {Socrates, Plato} has the qualitative property *having exactly two members*. But it is very plausible to hold that it has this property in virtue of having exactly Socrates and Plato as members. Thus, we have a plausible explanation of a qualitative feature in non-qualitative terms. The

general injunction against explanations of qualitative features in non-qualitative terms seems to fail in many cases. A proponent of the identity-based explanation argues that explaining Goliath's statuehood and squivability provides another counter-example.

I have been arguing that there is no reason to think that an identity-based explanation of Goliath and Lumpl's disparate modal and sortal properties is inadequate. Suppose, however, that I am completely wrong on this score: ultimately, no identity-based explanation is adequate. Our discussion of identity-based explanations still has an important upshot. It is not legitimate to demand that we explain all of the alleged differences between Lumpl and Goliath in terms of the sorts of properties they share. For instance, it is not legitimate to require the pluralist to explain all of the properties of Lumpl, including Lumpl's identity properties, in terms of its microphysical properties.⁴³ Thus, the claim that all of the differences between Lumpl and Goliath must obtain in virtue of microphysics should not convince us. This certainly does not show that the pluralist is out of the woods; it only shows that no Grounding Problem is specified by demanding generically that we explain all of Lumpl and Goliath's disparate features in terms of the microphysical features they share.

Let's take stock of the state of our discussion. We have two proposals for explaining some of the differences between Lumpl and Goliath in terms of other such differences. The sortal strategy recommends that the substantive modal differences between Lumpl and Goliath be explained in terms of their sortal differences together with surrounding circumstances. There is no reason to think it can't meet (ET2). If no explanatory demand stronger than (ET2) is legitimate, then the pluralist can use the sortal strategy to meet every legitimate explanatory task. Suppose it is legitimate to respecify the Grounding Problem by adding the disparate sortal features of Lumpl and Goliath to those facts requiring explanation. We would thereby replace (ET2) with (ET3) in our specification of a Grounding Problem. We have a sketch of an explanation which takes the identity differences between them as basic. There seems to be no reason to conclude that an identity-based explanation cannot meet the explanatory challenge posed by (ET3). Thus, if no explanatory demand stronger than (ET3) is legitimate, then the pluralist can use identity-based explanations to

⁴³This challenge is suggested by the discussion in (Olson, 2001). Olson also urges that the pluralist must explain Lumpl's sort in terms of its microphysical properties and relations (Olson, 2001, p. 345).

meet every legitimate explanatory task. But no explanatory demand stronger than (ET3) is legitimate. In particular, respecifying the Grounding Problem again to demand a further explanation of Lumpl and Goliath's identity differences is not legitimate. In any case, it is illegitimate to demand an explanation of all of the differences between Lumpl and Goliath in terms of the properties they share. Thus, we have not yet found a legitimate explanatory task that we have some reason to think the pluralist cannot meet. So far, no satisfactory specification of a Grounding Problem has turned up.

4 Another Case of Coincidence

I want to close by suggesting a reason for thinking that no satisfactory specification of the Grounding Problem will ultimately merit the rejection of pluralism; we have some reason to think that the pluralist can meet any legitimate explanatory demand she faces. The argument involves an analogy with another metaphysical dispute, also involving spatiotemporal coincidence. Consider half of Max Black's (Black, 1952, p. 156) famous thought experiment: a perfectly homogeneous material sphere S , which always has and always will occupy a certain region of space R . *Cartesians* claim that S and R are numerically identical;⁴⁴ *Lockeans* claim that S and R are numerically distinct.⁴⁵

There are tight analogies between the Lockean position and the pluralist position. The pluralist position is that the entities in question are distinct, but are nevertheless intimately related by *constitution*: Lumpl constitutes Goliath, but not vice versa. The Lockean position replaces constitution with another relation. Lockeanism holds that the sphere S and the region R are distinct, but nevertheless intimately related by *occupation*: S occupies R and not vice versa. Both pluralists and Lockeans might appeal to modal properties to discern the relevant entities: pluralists to the fact that Lumpl is squivable and Goliath not, and Lockeans to the fact that S is necessarily spatiotemporally coincident with a material object and R not. But both positions might instead appeal to non-modal differences. We have already mentioned pluralist appeals to such apparently non-modal facts as that Goliath is Romanesque and Lumpl not. The

⁴⁴Cartesianism is inspired by Descartes's doctrine that the essence of body is extension; see the *Principles*, I, 53, (Descartes, 1985, pp. 210–1). I leave the question of what Descartes's actual position was or would have been to more qualified commentators.

⁴⁵Lockeanism is so-called because of Locke's rejection of Descartes's claim that the essence of body is extension in bk. II, ch. 4 of the *Essay*, entitled "Of Solidity" (Locke, 1975).

Lockean might similarly argue that S has mass, while R does not. Both Lockean and pluralists should admit that the entities in question also share lots of properties. Both positions maintain that distinct entities share spatiotemporal properties and relations. Lumpl and Goliath share a little more than S and R , however, including quarks and leptons, physical pushes and wiggles, and mass.

It seems to me that the Lockean position is evidently the correct position.⁴⁶ In the spirit of the Grounding Problem, we might wonder what grounds the myriad modal and non-modal differences between sphere S and region R . In virtue of what, for instance, might R have existed without being coincident with (and so occupied by) any material object? And in virtue of what must S have been coincident with some material object? I can imagine two different plausible answers to this question, similar to the two sorts of answers I have given the pluralist to the coordinate questions.⁴⁷ First, the Lockean might adopt a sortal strategy. The fundamental difference is a difference of sort: the sphere is a material object, in virtue of which it is necessarily coincident with a material object; the region, by contrast, is a region of space, by virtue of which it might have been empty of material objects. Perhaps it is legitimate at this point for a Cartesian opponent to press the point by respecifying the original explanatory task to demand that we also explain the sortal differences. If the Cartesian's respecification is legitimate, the Lockean might then adopt an identity-based explanation, arguing that R is a region of space in virtue of being the very individual that it is; and similarly for S 's materiality. Or perhaps some entirely different response is warranted.

However the dialectic goes, it does not seem that there is any legitimate explanatory demand that we have reason to think the Lockean cannot meet, and so no analogue of the Grounding Problem for the Lockean. Thus, we are presented with a challenge for any attempt to specify the Grounding Problem: any explanatory demand that merits the rejection of pluralism must be such that the analogous demand does not merit the rejection of Lockeanism. If the sortal strategy or the identity-based explanation does all the necessary explanatory

⁴⁶Though Lockeanism is the consensus view, there are significant dissenters. For instance, (Quine, 1981, p. 17), (Lewis, 1986, p. 76n.), and (Sider, 2001, p. 110) suggest in passing some reasons to prefer the Cartesian view. A sustained defense is offered in (Schaffer, 2009), where it is called *supersubstantialism*. Thanks to Jonathan Schaffer for pointing me towards contemporary defenses of Cartesianism.

⁴⁷A third response to the question is to reject the presupposition that the relevant properties have an explanation in terms of some further features of S and R , respectively.

work for the Lockean, we need some reason for thinking that it cannot do all the necessary explanatory work for the pluralist. If some further, hitherto unknown explanation does all the necessary explanatory work for the Lockean, then we need some reason for thinking that no analogous explanation will do all the necessary work for the pluralist.

I suspect that some will reject the analogy between pluralism and Lockeanism, on the grounds that we have missed a crucial element of the original puzzle regarding the relation between Lump1 and Goliath. The reason why pluralism gives rise to a Grounding Problem is that Lump1 and Goliath are coincident *material objects*. Though there is not generally any need to explain differences between coincident individuals, there is when they are material objects. The problem arises, in other words, not just because Lump1 and Goliath are spatiotemporally coincident, but because they are spatiotemporally coincident *material objects*. The case of the sphere *S* and region *R* is different. There is no need to explain the differences between *S* and *R* because they are not both material objects. There's no special problem about there being differences between spatially coincident individuals unless they are both material objects.⁴⁸

This avenue of resistance to the analogy, however, essentially concedes the point. Indeed, it seemingly involves an application of the sortal strategy to the case of *S* and *R*. It isn't quite the sortal strategy. The crucial claim is that a certain difference of sort indicates that all legitimate explanatory demands can be met in some way or other. The relevant sort in question is *material object*.⁴⁹ No particular explanatory strategy is required, and thus the sort *material object* need play no particular explanatory role. Still, this way of resisting the analogy succeeds only if any legitimate demand to explain the sortal

⁴⁸And maybe there is no special problem about differences among spatially coincident material objects, unless they share material parts. In this connection, see Sider's case of two objects made out of stuffs that interpenetrate without reacting (Sider, 2001, p. 141). The objects are spatiotemporally coincident, but we needn't think that claiming they are distinct or differ modally or sortally raises any analogue of the Grounding Problem. The differences between them may be explained in part by the different kinds of matter that compose them. Some commentators (Moyer, unpublished) take the Grounding Problem to arise when coincident objects share all of their parts. Others (Olson, 2001) take it to arise when they share all of their microphysical parts.

⁴⁹If any of the qualifications of n. 48 are adopted, then the relevant sort will have to be narrower. For instance, if we accept Sider's case of interpenetrable kinds of matter at face value, our sort might be *being a material object made entirely of atoms*, on the assumption that matter made entirely of atoms is not interpenetrable in a way that allows for exact spatiotemporal coincidence.

and modal differences between distinct but coincident individuals can be met if one of them is a material object and the other is not. The analogous claim in the case of Lump1 and Goliath takes the relevant sort to be, say, *statue*: any legitimate demand to explain the sortal and modal differences between numerically distinct but coincident individuals can be met if one of them is a statue and the other is not. This response is warranted on both the sortal strategy and the identity-based explanation.⁵⁰ Unless we have some reason to think that this kind of response fails for the sort *statue* but succeeds for the sort *material object*, we've got no reason to think that there is any problem meeting a legitimate explanatory demand in one case but not the other.

Another way of resisting the analogy is suggested by the focus of much of the literature on the fact that Lump1 and Goliath share material parts.⁵¹ Let's say that a *complete decomposition into material parts* of a thing x is a set of proper material parts of x none of whose members overlap, and such that every material part of x overlaps with at least one member.⁵² For instance, the set of atoms contained by Lump1 is a complete decomposition of it into material parts. It is plausible to hold that a Grounding Problem arises only when the the objects in question share a complete decomposition into material parts. For brevity, we may say that a pair of objects are *materially coincident* when they share a complete decomposition into material parts. By hypothesis, Lump1 and Goliath are made of the same quarks and leptons, and so the same atoms. They are materially coincident. But the same cannot be said for the sphere S and the region R on the Lockean view. R has no material parts, and so has no complete decomposition into material parts. The problem arises, in other words, not because Lump1 and Goliath are spatiotemporally coincident, but because they are *materially* coincident. That's why, according to this response, there is a Grounding Problem for the pluralist, but none for the Lockean.

As before, I think this way of resisting the analogy essentially concedes the point. Once again, the response is tantamount to leveraging a difference of sort

⁵⁰The response may be warranted for slightly different reasons however. On an identity-based explanation, the argument for this response is that the sortal differences imply that Lump1 and Goliath differ in their identity properties, and all legitimate explanatory demands are met by appeal to identity differences. If we insist instead that the sortal features are fundamental, then the argument is obvious: all legitimate demands for explanation are met by appeal to sortal differences; and all demands to explain the basic sorts are illegitimate.

⁵¹Thanks to Dean Zimmerman for suggesting this response.

⁵²This explanation of "complete decomposition" closely follows the definition given at (Zimmerman, 1995, p. 62).

to ground a difference in the legitimacy of explanatory demands. This is perhaps easiest to see if we focus on the pair of individuals in question in each case. The pair $\langle \text{Lumpl}, \text{Goliath} \rangle$ belongs to the sort *materially coincident pair*. The pair $\langle S, R \rangle$ does not. According to the response, all legitimate explanatory demands can be met in the second case but not in the first because of this difference in sort.⁵³ But now there is an obviously analogous claim available to the pluralist: no Grounding Problem arises for pairs of the sort *lump-statue pair*. Since $\langle \text{Lumpl}, \text{Goliath} \rangle$ are a lump-statue pair, this claim would get pluralism off the hook. As before, this response is warranted on both the sortal strategy and the identity-based explanation. Unless we have some reason to think that this kind of response fails for lump-statue pairs but succeeds for materially coincident pairs, we've got no reason to think that there is any problem meeting a legitimate explanatory demand in one case but not the other.

Indeed, the discussion makes clear that appeal to different sorts of pairs is going to be essential to driving a wedge between Lockeanism and pluralism. Any disanalogy between the two cases will involve claiming that a certain difference in sort between $\langle S, R \rangle$ and $\langle \text{Lumpl}, \text{Goliath} \rangle$ explains why no explanatory difficulty analogous to a Grounding Problem arises for the Lockean. Anyone who proposes a Grounding Problem thus faces a challenge: show why the Lockean's sortal difference gets her off the hook, while the pluralist's sortal difference does not.

But there is another reason to think that the appeal to material coincidence doesn't drive the right wedge between the Lockean position and the pluralist position. The monism-pluralism dispute can be put using a case in which the constituter and the constituttee are not materially coincident. Some years ago, researchers used a scanning tunnelling microscope to arrange 35 individual xenon atoms in a dot-matrix pattern so that they spelled "IBM" (see (Eigler and Schweitzer, 1990) for a description and images). It is pretty easy to imagine someone doing something similar with mereologically simple point particles;⁵⁴ to get a case suitably similar to the Lumpl-Goliath case, let's assume that the

⁵³If the appeal to pair sortals is considered too artificial, we could always put the point in terms of collective attributions of sort to pluralities of individuals, as in, "Gossie and Gertie are best friends," or " A and B are disjoint sets." The relevant collective attribution would be, "Lumpl and Goliath are materially coincident objects."

⁵⁴If we can imagine "extended simples" – individuals which have spatial extent but no proper parts, see (Markosian, 1998) – then we might also imagine the arrangement of such into the relevant pattern. Wasserman (2004, p. 696–7) suggests that, on the assumption that there could be extended simples, the dispute over pluralism could be set in a case in which a Goliath-sized statue is constituted by a single extended simple; in fact this is a consequence of the view defended in (Markosian, 1998).

researchers arranged for those mereological atoms to materialize in place, and for the entire sculpture to be annihilated some time later. Now consider a part of the resulting sculpture: the lower right-hand tip of the “M”. Call this part of the sculpture *Tip*. *Tip* coincides, we assume, with a certain mereological atom (call it *Adam*) for the entirety of its existence. They share a great deal in common, including mass, spatiotemporal relations, and physical pushes and pulls. It is nevertheless easy to imagine a pluralist arguing that *Tip* and *Adam* are distinct, on the grounds that they have different modal features: *Tip* is necessarily part of the sculpture,⁵⁵ so could not survive *Adam*’s jumping out of the sculpture and whizzing off into space; but *Adam* could. *Tip* and *Adam* do not materially coincide, since, by hypothesis, *Adam* has no proper material parts.⁵⁶ Thus, insisting that a Grounding Problem arises only in cases of material coincidence classifies the *Tip-Adam* and *S-R* cases together; no Grounding Problem arises for the pluralist’s view that *Tip* and *Adam* differ modally and sortally.⁵⁷

Further, if there’s no Grounding Problem in the case of *Tip* and *Adam*, it is plausible to think that there will be no Grounding Problem in the case of the entirety of the “IBM” sculpture and the grouping of atoms with which it coincides. If one is a pluralist, it is plausible to think that the sculpture has parts which, like *Tip*, are specified in terms of their formal or representational properties. These parts have, *e.g.*, modal features that distinguish between the sculpture and the group of atoms. *Tip*, for instance, is necessarily part of the sculpture but not necessarily part of the group of atoms. We have available, then, an explanation of the modal and sortal features of the entire sculpture in terms of the modal and sortal features of certain of its parts. The pluralist can plausibly claim, *e.g.*, that the “IBM” sculpture is a sculpture partly in virtue of having parts which are necessarily part of a sculpture identical to it. This is a feature that the group of atoms lacks. Even if, for instance, *Tip* is a part of that group of atoms, it isn’t *necessarily* a part of that group, since *Tip* can

⁵⁵As is customary in discussing necessary features of individuals, I am suppressing the qualifier “if it exists”, which may be required in my sketch of the pluralist’s argument in this case. But the discussion in the main text is unaffected by this wrinkle.

⁵⁶It might be held that a Grounding Problem arises because *Tip* and *Adam* share parts after all: *Tip* is an improper part of itself, but a proper part of *Adam*. This response requires a version of pluralism on which the constituter is a part of the constituttee; see, *e.g.*, (Fine, 2008) and (Koslicki, 2008). But, on this view, *Tip* has a complete decomposition into material parts, *viz.* {*Adam*}, but *Adam* has none. So, *Adam* and *Tip* still do not materially coincide, and we should expect no Grounding Problem. Thanks to an anonymous referee for suggesting this response.

⁵⁷Thanks to E.J. Lowe for helpful discussion of this case.

survive the annihilation and subsequent replacement of one of the atoms on the “T”, but the group cannot.

If no Grounding Problem arises for the pluralist with respect to the disparate modal and sortal features of Tip and Adam, then none should arise for the disparate modal and sortal features at any higher level. But the monist-pluralist disputes in these cases seem just like the disputes in the case of Lumpl and Goliath. Indeed, for all we have said so far, the case of Lumpl and Goliath is exactly analogous: nothing in our description of the original centerpiece case ruled out an elaboration on which Goliath has a part that is specified in terms of its formal or representational features and coincident with a mereologically simple particle. The proposal to differentiate Lockeanism and pluralism by appeal to material coincidence won’t do the trick.

Perhaps, however, this result just indicates that our specification of the notion of material coincidence doesn’t capture the idea in its full generality. For, a monist might argue, Tip and Adam contain the same matter, even if they share no proper material parts. If the contention that Tip and Adam contain the same matter is accepted, then they can be said to materially coincide in that sense. This response involves distinguishing Tip – a point particle – from the matter it contains; Tip’s matter is contained by both Tip and Adam, but Tip itself is contained by neither. There are views which distinguish material individuals from the portions of stuff that make them up (see, *e.g.*, (Markosian, 1998)); to my mind, these views lack plausibility when the material individual in question is a point-particle. But even if we accept such a view, this response is tantamount to accepting a form of pluralism. For a standard articulation of pluralism holds that some material individuals are distinct from their matter.⁵⁸ Moreover, if it is claimed that distinguishing Tip from its matter is justified because Tip is an *particle*, while its matter is just a *portion of matter*, then the monist is once again relying on the idea that a difference of sort indicates that all legitimate explanatory demands can be met.

The analogy between Lockeanism and pluralism provides some reason, then, to suspect that there is no legitimate explanatory demand that the pluralist will ultimately be unable to meet. We have some reason to suspect that, if there turns out to be a Grounding Problem, the pluralist can solve it.

⁵⁸For instance, (Fine, 2003) is entitled, “The Non-Identity of a Material Thing and Its Matter;” see also the discussion at p. 206.

5 What is the Grounding Problem?

We have gone looking for a specification of a Grounding Problem: a legitimate explanatory demand which we have some reason to think the pluralist cannot meet. We have not found one. In fact, the analogy between Lockeanism and pluralism provides some reason to suspect that there is no such explanatory task that cannot ultimately be met by the pluralist. It is not exactly clear, then, what the Grounding Problem is. Some philosophers exploring defenses of pluralism are pushed by the Grounding Problem to make extraordinary metaphysical claims. Bennett (2004, pp. 354-5), for instance, suggests that the pluralist accept that there is an object coincident with Lump1 and Goliath for every possible combination of modal properties. There is an individual, for instance, which is squivable on Sundays and unsquivable otherwise. This, Bennett holds, makes the claim that Goliath's modal features are primitive less "mysterious and obfuscatory" (Bennett, 2004, p. 355); Bennett argues that the fact that all the possible modal profiles are instantiated where Goliath is obviates the need to explain what it is in virtue of which any one of the individuals there has its modal features. According to Bennett's suggestion, there are approximately a bazillion things spatiotemporally coincident with Lump1. Moyer (unpublished) suggests that, for each sort instantiated in the region, there is an object which is essentially of that sort, so exactly as many distinct objects as sorts. If sorts are fairly easy to come by, so that, for instance, *undamaged statue* is a sort, and *statue covered with pigeons* is another sort, then there will, again, be approximately a bazillion things on the scene. Unlike Bennett's pluralist, Moyer's pluralist takes Goliath's statuehood, rather than its unsquivability, to be primitive.⁵⁹ Like Bennett, Moyer argues that the plenitude of objects satisfying different sorts makes the assertion of primitivity palatable. Fine (2008) and Koslicki (2008) argue that the myriad differences between Goliath and Lump1 are explained by the fact that, though they have all the same material parts, they have different non-material parts. Sider (2008) suggests that the pluralist deny that individual things like Goliath really do have such modal properties as squivability. Sider's pluralist avoids the Grounding Problem by denying that there are any substantive modal differences to explain.⁶⁰

⁵⁹More accurately, Moyer's pluralist takes Goliath's *essential* statuehood to be primitive, and explains its unsquivability on that basis.

⁶⁰Sider's pluralist maintains that there are modal differences between Lump1 and Goliath even though there are no non-relational modal properties that one of them has and the other

But, if the argument of this paper is correct, the Grounding Problem provides no reason for a pluralist to sign on to these controversial metaphysical claims. There is no legitimate explanatory task which the pluralist cannot ultimately meet, even if she rejects all the metaphysical claims offered by Bennett, Koslicki, Moyer, Fine, and Sider. It is much easier to be a pluralist than these champions of pluralism indicate.

None of the preceding reflections provide anything like a thorough defense of pluralism. Nor do any of them provide a solution to the Grounding Problem. I hope to have provided reasons for thinking that there is really no problem to solve.⁶¹

References

- Lynne Rudder Baker. Why constitution is not identity. *Journal of Philosophy*, 94(12):599–621, 1997.
- Lynne Rudder Baker. *Persons and Bodies: A Constitution View*. Cambridge University Press, Cambridge, 2000.
- Karen Bennett. Material coincidence and the grounding problem. *Philosophical Studies*, 118(3):339–71, 2004.
- Max Black. The identity of indiscernibles. *Mind*, 61(242):153–64, April 1952.
- René Descartes. *Principles of Philosophy*. In John Cottingham, Robert Stoothoff, and Dugald Murdoch, editors, *The Philosophical Writings of Descartes*, pages 179–291. Cambridge, 1985. Translated by John Cottingham.
- D.M. Eigler and E.K. Schweitzer. Positioning single atoms with a scanning tunnelling microscope. *Nature*, 344(6266):524–6, April 1990.
- Kit Fine. Things and their parts. *Midwest Studies in Philosophy*, 23(1):61–74, 1999.

does not. This requires (and gets) quite a bit of explanation from Sider.

⁶¹Versions of this paper were read at McGill University and at the “Because” conference at the Eidos Centre for Metaphysics at the University of Geneva, Switzerland. Thanks to Bill Butchard, David Christensen, Kit Fine, Jonathan Garthoff, E.J. Lowe, Mark Moyer, Derk Pereboom, Zoltán Szabó, Dean Zimmerman, and an anonymous referee for comments on various drafts.

- Kit Fine. The non-identity of a material thing and its matter. *Mind*, 112(446): 195–234, 2003.
- Kit Fine. Coincidence and form. *Proceedings of the Aristotelian Society Supplement*, LXXXII:101–18, 2008.
- Allan Gibbard. Contingent identity. *Journal of Philosophical Logic*, 4:187–221, 1975.
- Mark Johnston. Constitution is not identity. *Mind*, 101(401):89–105, 1992.
- Jeffrey C. King. Semantics for monists. *Mind*, 115(460):1024–58, October 2006.
- Kathrin Koslicki. *The Structure of Objects*. Oxford University Press, Oxford, 2008.
- David Lewis. *On the Plurality of Worlds*. Blackwell, Oxford, 1986.
- John Locke. *An Essay Concerning Human Understanding*. Clarendon Press, Oxford, 1975.
- Ned Markosian. Simples. *Australasian Journal of Philosophy*, 76:213–28, 1998.
- Mark Moyer. Defending coincidence: An explanation of a sort. unpublished.
- Eric T. Olson. Material coincidence and the indiscernibility problem. *Philosophical Quarterly*, 51(204):337–55, July 2001.
- W. V. O. Quine. Things and their place in theories. In *Theories and Things*, pages 1–23. Harvard University Press, 1981.
- Michael Rea. Supervenience and co-location. *American Philosophical Quarterly*, 34(3):367–75, July 1997.
- Guy Rohrbaugh and Louis deRosset. A new route to the necessity of origin. *Mind*, 113:705–25, October 2004.
- Guy Rohrbaugh and Louis deRosset. Prevention, independence, and origin. *Mind*, 115:375–86, April 2006.
- Jonathan Schaffer. Spacetime: The One Substance. *Philosophical Studies*, 145 (1):131–48, 2009.

Theodore Sider. *Four Dimensionalism: An Ontology of Persistence and Time*. Clarendon Press, Oxford, 2001.

Theodore Sider. Yet another paper on the supervenience argument against coincident entities. *Philosophy and Phenomenological Research*, 77(3):613–24, November 2008.

Ryan Wasserman. The standard objection to the standard account. *Philosophical Studies*, 111(3):197–216, December 2002.

Ryan Wasserman. The constitution question. *Noûs*, 38(4):692–710, December 2004.

David Wiggins. *Sameness and Substance*. Harvard University Press, 1980.

Dean Zimmerman. Theories of masses and problems of constitution. *Philosophical Review*, 104(1):53–110, January 1995.