

The Possibility of Physicalism

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It has been suggested that many philosophical theses—physicalism, normative naturalism, phenomenalism, and so on—should be understood in terms of ground.¹ Against this, Ted Sider (2011) has argued that ground is ill-suited for this purpose. Here I develop Sider’s objection and offer a response. In doing so I develop a view about the role of ground in philosophy, and about the content of these distinctively philosophical theses.

1 Physicalism as a grounding thesis

What is physicalism? Not just physicalism *about the mind*, but physicalism *period*. What kind of a thesis is it? We know what the rough picture is: at some basic level the world is constituted wholly out of physical stuff, and everything else—football matches, string quartets, consciousness, values, numbers—somehow “arises out of” that physical stuff. Or, to use other locutions, everything else is “fixed by” or “determined by” or “is nothing over and above” that physical stuff. Or, as the metaphor goes, all God had to do when making the world was make the physical stuff, and then her job was done.

But how are we to understand this picture? What does this talk of “determining” or “fixing” amount to? One might try understanding the picture as an identity thesis, the thesis that every thing (event, fact) is identical to a physical thing (event, fact). Or as a thesis of analysis, that all truths are logically implied by purely physical truths and analytic definitions of nonphysical terms. Or as a supervenience thesis, that all properties supervene on physical properties. But the recent interest in ground stems largely from the idea that these formulations do not fully capture the picture, and that we should instead understand it in terms of *ground*, i.e. as the thesis that facts about football matches and string quartets are grounded in purely physical facts.

What is ground? As I use the term, it is a purely explanatory notion: to say that some facts ground another is just to say that the former *explain* the latter, in a particular sense of ‘explain’.² To illustrate, imagine that you are sitting at a desk and someone asks why a desk is there. One way to answer the question would be to offer a causal explanation, e.g. that someone carried the desk into the room a few days earlier. But another answer would be to say that there is a desk there because some bits of wood are arranged in a way that is conducive to supporting laptops and cups of coffee and so on. In giving this second explanation one is not concerned with what caused the desk to be there; rather, one is trying to say what it is about the room *in virtue of which* it counts as containing a desk in

¹ For some recent examples, see (Fine, 2001), (Rosen, 2010), and (Schaffer, 2009). The suggestion is not new; indeed these authors take themselves to be reinvigorating a traditional conception of these issues that stems back at least to the ancient Greeks.

² Here I follow Fine’s use of the term in his (2001) and (2012).

the first place. Someone in search of this second explanation recognizes that desks are not basic entities, so that if there is a desk in the room there must be some facts about the room that are *responsible* for that the existence of a desk, i.e. which *make it the case that* the room contains a desk. Following Fine, I refer to this as a *grounding* explanation, or a statement of what *grounds* the fact that there is a desk there. When I say that some facts ground another, I mean that the former *fully* explain latter. One particle's position might be part of an explanation of why a desk is there, but it does not fully explain it.³

So the idea that physicalism should be understood as a grounding thesis is the idea that physicalism is ultimately an *explanatory* thesis.

The same goes for other theses such as normative naturalism, phenomenalism, and so on. The exciting idea behind these theses is that at some basic level the world is constituted by a relatively sparse basis—natural or phenomenal facts—and that this sparse basis “gives rise to” facts about normativity and the external world (respectively). In this sense they are *ampliative* theses to the effect that a relatively sparse basis is sufficient to give rise to these striking phenomena. But again we must ask what “giving rise to” means, and one answer is that it is best understood in terms of ground: that natural facts ground normative ones, and that the external world is grounded in patterns of sense data.

This idea has also been applied to distinctively *ontological* theses. Consider discussions about the nature of abstracta, such as numbers. The debate sometimes focuses on the question of whether there are such things, with platonists affirming that there are (many!) and nominalists insisting that there are none. But Schaffer (2009) argues that this is an uninteresting question: it is clear that there are such things as numbers, he says, because it is a “mathematical truism” that there are prime numbers (p. 357), and this truism implies that there are numbers. The interesting question, says Schaffer, is whether facts about numbers—about their existence and their other properties—are grounded in other facts.⁴ If that is right, one might then argue that considerations that have sometimes been used to motivate nominalism, such as those advanced by Field (1980), are better seen as motivating the view that facts about numbers are grounded in facts about physical structures. But regardless of their motivation, what I want to focus on is just the idea that these ontological theses, along with the other theses discussed earlier, should be understood as theses about what grounds what.

2 The impossibility of physicalism

Is this idea tenable? Thomas Hofweber (2009) has argued that it is not, because the very notion of ground is unintelligible. But let me bracket this concern here.⁵ Instead, I want to develop, and then reply to, the objection that even if ground is an intelligible notion, it is nonetheless ill-suited for formulating these theses.

³ To be clear, the idea is not that the grounding explanation is in competition with the causal explanation, but that they are two distinct modes of explanation. At least, this is what I assume in order to illustrate the notion of ground. Bennett (forthcoming, chapter 3) argues that the two modes of explanation are less easy to separate than this, but for simplicity I bracket this issue here.

⁴ Schaffer himself does not put this in terms of facts, but this subtlety is not important for now.

⁵ Raven (2012) offers one line of response to Hofweber's worries.

The objection is based on Sider's (2011) objection to ground, but I will develop it a little differently here. In rough outline the objection is this. Suppose for *reductio* that the physicalist formulates her view in terms of ground. Then her view is that purely physical facts about (say) particle positions or field values are sufficient to ground all else. So, consider the fact that I am conscious. The physicalist says that this has a purely physical ground, for example in the fact that my brain is in a certain physical state P. Suppose that she is right. Then consider the resulting grounding fact:

(C) The fact that my brain is in physical state P grounds the fact that I am conscious.

(C) is not a purely physical fact, since it is not just about particle positions or field values or the like. So the physicalist just characterized must say that (C) is also grounded in purely physical facts. And the problem (I will argue) is that this is implausible. If it is grounded in anything, it is grounded in facts about *consciousness*: it is because of something about consciousness that my being in state P grounds my being conscious. So if physicalism is formulated in terms of ground, it follows that it (physicalism) is false.

The same goes for other ampliative theses like normative naturalism and phenomenalism. If formulated in terms of ground, they say that the world is constituted at the "bottom level" by a relatively sparse basis of natural or phenomenal facts (respectively), and that this sparse basis grounds all facts about some "higher-level" phenomena, i.e. normativity or the external world. But it turns out that the grounding facts—facts about how those higher-level phenomena are grounded—are not themselves grounded in those lower-level facts. So if these ampliative theses are formulated in terms of ground, it follows that they are false.

Importantly, the reason why the grounding facts are not grounded in the lower-level phenomena has nothing to do with the particulars of each ampliative thesis. It has nothing to do with consciousness or normativity or the external world *per se*. Rather, it has to do with general considerations about how *ground* works. So the problem is that when formulated in terms of ground these ampliative theses *fail at the get-go*, prior to any first-order considerations about consciousness or normativity in particular—an unacceptable result. To be clear, the conclusion of this argument is not that physicalism or these other ampliative theses are false. The conclusion is that the grounding formulation is inadequate.

Let me state the argument explicitly in the case of physicalism, though any ampliative thesis would do. We start with the initial physicalist picture, that everything "arises out of" physical facts:

(1) Physicalism is true only if all nonphysical facts "arise out of" physical facts.

Here a fact is physical iff it concerns *only* physical matters: the conjunction of a physical fact and the fact that I am conscious is not a physical fact. And by "nonphysical fact", I mean a fact that is not physical. The suggestion that we understand this picture in terms of ground then amounts to this:

(2) Y "arises out of" the Xs iff Y is grounded in the Xs.

These two propositions imply that physicalism is true only if all nonphysical facts are grounded in physical facts. But the grounding facts themselves, like (C), are not so grounded. And not because of anything to do with the nature of *consciousness*, but because of the nature of *ground*:

- (3) General considerations about the nature of ground suggest that some nonphysical facts, e.g. (C), are not grounded in physical facts.

If (1), (2), and (3) are true then general considerations about the nature of ground suggest that physicalism is false; our unacceptable result. To be clear, physicalism may be false. It might be that thinking about the nature of consciousness—e.g. in conceivability arguments, knowledge arguments, and so on—reveals that physicalism is false. But this should not be revealed *just* by thinking about ground. That is:

- (4) If physicalism is false, this will be revealed—if at all—by first-order considerations about the nature of consciousness or value or what have you, but not by general considerations about the nature of ground itself.

This contradicts (1), (2), and (3). So the idea that physicalism is understood in terms of ground leads to a contradiction.

The core idea behind this argument is from Sider (2011); my presentation here differs from his in various respects, but I leave a discussion of those details to a footnote.⁶ An exactly analogous argument can be constructed for other ampliative theses—such as naturalism, phenomenalism, etc.—just by replacing (3) and (4) with analogous propositions concerning naturalism, phenomenalism, or what have you. So the issue here does not concern physicalism *per se*, but whether ground is suitable for formulating any of these ampliative theses. Still, I will focus on physicalism for the sake of specificity.

⁶ Sider first develops the argument in chapter 7 with the principle of Completeness, which says that ‘every nonfundamental truth holds in virtue of some fundamental truth’ (p. 115). This can be used instead of (4) to make trouble for the grounding theorist. For if we assume that only physical truths are fundamental, then Completeness implies that (C) must hold in virtue of (i.e. be grounded in) some physical facts, *contra* (3). But Sider’s notion of a fundamental truth is not defined in terms of ground. Rather, he says that ‘a fundamental truth is a truth involving only fundamental terms’ (p. 116). And the notion of a fundamental term is, for Sider, a primitive. So this way of building the problem requires an extra notion that a grounding theorist may refuse to recognize. A virtue of my formulation of the argument is that it gets at the problem without the extra notion.

In chapter 8 (section 2) Sider gives a version of the argument without introducing the extra notion. But his argument there is directed only at the view that grounding facts like (C) are ungrounded. So he does not need a premise like (3), and so he does not need to discuss the question of whether grounding facts like (C) can be given physical grounds. In my formulation of the problem (3) is crucial and I will defend it below. (Also, in that argument, instead of (4) Sider uses the premise that there are no ungrounded facts about cities. In my formulation of the issue we remain neutral on specific grounding claims concerning cities or mental states, and instead focus on the idea that the truth or falsity of them should not depend merely on considerations about the nature of ground.)

3 Scaffolding

One of the propositions must be rejected, but which? The grounding theorist cannot reject (2) or (4), for they express her idea that physicalism can be formulated as a grounding thesis in such a way that it remains an interesting thesis of first-order metaphysics.

That leaves (1) and (3). One might argue that (C) has a physical ground after all, thereby denying (3). But I will argue in sections 5-6 that (3) is true. So to defend the idea that physicalism is a grounding thesis, I will argue in sections 7-9 that we should deny (1). On this view, the initial physicalist picture, properly understood, does not require that *all* non-physical facts “arise out of” physical ones; in particular it does not require that (C) does.

The view strikes many as plausible. For even if it turns out that (C) has no physical ground, it is tempting to suspect that physicalism was never supposed to be concerned with *that* kind of fact.

Nonetheless, this view faces a significant challenge. For it is not enough to *just say* that the physicalist need not give (C) a physical ground and leave it at that. Some principled reason must be given as to *why* (C) is special. After all, a physicalist cannot say that the fact *that I am conscious* has no physical ground, on pain of giving up on her physicalism; so why is (C) different? Here it will not suffice to say that it is a grounding fact, or that it is a fact of metaphysics, for (putting aside the question of what ‘metaphysics’ means) the question remains as to why it follows that the physicalist can legitimately ignore it. Nor will it suffice to say that, according to our intuitive understanding of ‘physicalism’, (C) is not required to have a physical ground. For there are (in logical space) indefinitely many grounding theses, some that require it to have a physical ground and some that do not. We want to know why the latter are important and deserving of the attention they receive.

A natural idea is to say that (C) is not *fundamental*, and then formulate physicalism as the thesis that the fundamental facts are all physical. But how is a grounding theorist to make sense of this notion of fundamentality? The obvious idea is to say that a fact is fundamental iff it is ungrounded.⁷ But then if facts about the connection between mind and body, like (C), are ungrounded, they will turn out to be fundamental after all on this definition. Thus, if a grounding theorist wants to say that the connections are ungrounded but not fundamental, she must mean something else by ‘fundamental’. And so the question is what this other notion of fundamentality could be.

So if we deny (1) and say that physicalism does not require that the mind-body connections have a physical ground, the challenge is to explain why they are special in this way. I will argue that they are special because they are, as I will put it, “not apt for being grounded”. It is not that the question of what grounds them is well taken and the answer is ‘Nothing’; it is rather that the question of what grounds them does not legitimately arise in the first place. Because of this, I will argue that the connections fall outside the proper scope of theses like physicalism. Pictorially, one might think of physicalism as a multi-story building, with physical facts on the first floor, chemical facts on the second floor, and so on. Then my view is that the ungrounded connections between facts on the first floor and those on higher floors are not part of the building

⁷ Schaffer (2009) makes this kind of connection between ground and fundamentality.

itself but are rather the scaffolding around which the building is built. That at least is the picture—later I will develop it into a thesis.

But before that, let us ask whether the grounding theorist would be better off arguing that (C) has a physical ground after all, thereby denying (3).

4 Physical facts

I do not think so, for I think that

- (3) General considerations about the nature of ground suggest that some nonphysical facts, e.g. (C), are not grounded in physical facts.

is true. To be clear about the dialectic, I do not know whether my being conscious has a physical ground. But if it does not then it follows immediately that there is a nonphysical fact without a physical ground. So the argument is that *even if* my being conscious has a physical ground, there is then another nonphysical fact, (C), that does not (for reasons pertaining to the nature of ground). So I will assume that my being conscious has a physical ground for the sake of argument.

As stated, the argument also assumes that there is such an entity as *the fact* (C). Strictly speaking this goes beyond the assumption just mentioned, i.e. that my being conscious has a physical ground. For one might agree that it is *true* that my being conscious has a physical ground but deny that this truth corresponds to a *fact*, and so deny that the fact (C) exists.

But this is not germane to the point, for my reference to facts is not essential to the matter. To see this, let me be explicit about the logical form of ground. My official view, which I assume here, is that a grounding claim is of the form

S because Γ

where S is a sentence, Γ is a list of sentences, and ‘because’ is read in the metaphysical rather than causal sense.⁸ Note that on this regimentation there is no explicit reference to facts: ‘S’ and ‘ Γ ’ are sentence positions, not variables ranging over facts. The argument can then be formulated without reference to facts as follows. We start by assuming that my being conscious is grounded in my physical state. This is to assume that there is a list of sentences Γ expressed in purely physical vocabulary such that

(C_S) I am conscious because Γ

is true (the subscript ‘s’ is for ‘sentence’, to remind us that (C_S) is a sentence and not a fact). And our question is then whether there is a list of sentences Δ , expressed in purely physical vocabulary, such that

(I am conscious because Γ) because Δ

is true. And what I will argue is that the answer is: No. This statement of the argument

⁸ This is how Fine characterizes the logical form in his (2001) and (2012).

makes no reference to facts.

Still, it is convenient for ease of prose to pretend that the logical form of a grounding claim is

the Xs ground Y

where Y is a singular variable and ‘the Xs’ is a plural variable, both ranging over facts.⁹ On this approach we assume for convenience that (C_S) corresponds to a fact, which we call (C), and our question is then whether it has a physical ground. But the assumption that (C) exists is a mere convenience, eliminable from the official formulation of the argument.¹⁰

The argument also assumes that (C) is not a *physical* fact (by which I mean it does not concern *only* physical matters). One might object that while I expressed (C) with some nonphysical vocabulary (e.g. ‘conscious’), (C) is nonetheless identical to a physical fact. But this objection depends on a thesis about the individuation of facts. So, given that my official formulation of the issue makes no reference to facts, the objection is not on point. In our official statement of the issue, the assumption that (C) is not a physical fact amounts to the assumption that (C_S), the *sentence*, contains nonphysical vocabulary. And this is clearly true: it contains ‘conscious’.¹¹

5 Connective explanations

So let us argue, on the basis of general considerations about the nature of ground, that

(C) The fact that my brain is in physical state P grounds the fact that I am conscious.

has no physical ground. The general question facing us is: What grounds the grounding facts? If the Xs ground Y, what (if anything) grounds the fact that the Xs ground Y? This is a difficult question that I cannot hope to settle here. My aim is just to offer *some* reason to think that (C) has no physical ground, in order to motivate interest in my view (developed in sections 7–9) that physicalism does not *require* it to have a physical ground.

So, what might explain a grounding fact like (C)? Perhaps (C) is the result of chaining together a number of intermediary grounding facts: perhaps in the first instance my being conscious is grounded in biological facts, which are then grounded in chemical

⁹ This is how Rosen characterizes the logical form in his (2010).

¹⁰ Since the assumption is eliminable, I will say nothing about what facts are or how they are to be individuated. But I should say that both my official logical form and the one I use for convenience are controversial. Schaffer (2012) has argued that the logical form of a grounding claim is contrastive: ‘the fact that the fact that ϕ rather than ϕ^* grounds the fact that ψ rather than ψ^* ’ (p. 130). And in Dasgupta (2014) I argue that ground is irreducibly plural: the Xs ground the Ys. I have no objection to either of these views, but I put them aside for simplicity.

¹¹ To be sure, it is not at all clear how to define ‘physical vocabulary’—see Ney (2008) for a discussion of this issue. But we do not need a definition to recognize that ‘conscious’ is not physical vocabulary in the intended sense of the term.

facts, which are in turn grounded in the physical facts. If so, one might say that (C) is grounded in those intermediary grounding facts.¹² But this would not constitute a *physical* ground, since in the course of grounding (C) one would talk about biological and chemical matters. And in any case, this approach is not available in cases of immediate grounds. So, are there other ways to ground the grounding facts?

It is important that we see candidate grounds in the flesh rather than consider them in the abstract: we want to hear whether a candidate ground really is a good *explanation* of a grounding fact. But (C) is (at best) controversial, so we should not expect to have a good sense of what might explain it. So let us work with a less controversial example.

Consider a philosophy conference, an event that lasts a few days and involves talks and Q&A sessions. Call the event *e*. The fact that *e* is a conference is, presumably, not brute. Rather, it is a conference in virtue of the fact that it contains people acting in various conference-conducive ways (some are giving papers, others listen and ask questions, etc.). Call this way of acting *W*. Then we have:

(F) The fact that *e* contains people acting in way *W* grounds the fact that *e* is a conference.

Our question is: What (if anything) grounds (F)? Why does the fact that *e* involves people acting in way *W* give rise to its being a *conference*?

The question is particularly vivid in the contrastive form: Why did those people acting in way *W* make the event a conference, *rather than (say) a football match*? For Schaffer (2012), who takes the basic logical form of a grounding claim to be contrastive (see footnote 10), this contrastive question is the one to ask. For us, assuming (as we are) that the basic logical form of a grounding claim is not contrastive, our *official* question can only be the non-contrastive one in the last paragraph. Still, since the contrastive locution helps make the question come alive, I will sometimes engage in loose talk and speak contrastively in what follows.

So: why did the fact that people acted in way *W* make the event a *conference* (rather than a football match)?

A very natural answer has to do with what conferences are in general. A conference is the kind of thing that you get when people act in *W-ish* ways; that is why, when those particular people at your favorite conference acted like that, the result was a conference. This is to ground (F) in a general connection between conferences and ways of acting.

What kind of general connection? There are a number of options. One is an *essential* connection. On this view, it is in the essence or nature of being a conference that an event is a conference if it consists in people acting in way *W*; and this is (at least partly) why the fact that those particular people in *e* acted like that gave rise to a conference (rather than a football match).¹³ Now suppose that the essentialist fact here is groundless. Then the resulting view is what I will call *brute essentialism*: (F) is grounded (at least partly) in an essential connection between actions and conferences, which is itself groundless.

There are many details over which brute essentialists may disagree. One question is whether the full explanation of (F) also appeals to the fact that the particular people

¹² In the terminology of Fine (2012), this is to say that facts about mediate ground are grounded in facts about immediate ground.

¹³ Rosen (2010) and Fine (2012) discuss this kind of view.

involved in e acted in way W . If it does, then the result is that (F) is grounded in the following two facts:

- (F.i) Event e contains people acting in way W .
- (F.ii) It is essential to being a conference that if an event contains people acting in way W then it is a conference.

Another point of dispute is the precise form of the essentialist fact, for one might argue that what (partly) explains (F) is not (F.ii) but

- (F.ii*) It is essential to being a conference that if an event contains people acting in way W then it is a conference *and moreover* its being a conference is grounded in those people acting in way W .

Rosen (2010) develops this view. But here I will not settle these in-house disagreements among brute essentialists.

The idea that (F) is grounded in a general connection between actions and conferences need not be cashed out in terms of essence. One might instead suggest that the general connection is a *necessary* truth, or a *conceptual* truth, or perhaps even a *metaphysical law*. Thus one might replace (F.ii) with one of these:

It is *necessary* that if an event includes people acting in way W then it is a conference.

It is a *conceptual truth* that if an event includes people acting in way W then it is a conference.

It is a *metaphysical law* that if an event includes people acting in way W then it is a conference.

Suppose one then takes one's favored connection to be groundless. Then we can call the resulting views *brute necessitarianism*, *brute conceptualism*, and *brute nomicism*, respectively.

For now the differences between these views do not matter. They are all examples of what we can call *brute connectivism*, the view that (F) is grounded in some general connection between actions and conferences, which is itself ungrounded. The view bears some analogy to the familiar idea that an event of an F causing a G is underwritten by the general causal law that every F causes a G .¹⁴

Now, applied to (C), all brute connectivist views imply that (C) is partly grounded in some ungrounded connection between brain states and *consciousness*; in which case (C) does not have a physical ground, just as (3) states. Thus my reason for thinking that (C)

¹⁴ Though there are differences. Few would say that causal laws *cause* the specific causal event, but the brute connectivist says that the general connection partly *grounds* (F). Still, the similarity is that a general connection underwrites the specific cases of ground and causation. Schaffer (forthcoming) explores the similarities between ground and causation in some detail, and in doing so develops a view of ground that may count as a brute connectivist view.

has no physical ground is that I think brute connectivism is likely true.

And why think that brute connectivism is likely true? The view enjoys a number of virtues; here I list just three. First, as just emphasized, the proposed explanations are natural and satisfying. This is an important virtue: ground (in my mouth at least) is just a mode of explanation, so we should assess a particular grounding claim by asking whether the proposed explanation is any good.¹⁵

Second, brute connectivism has the resources to predict the following core principle governing ground:

Necessitation: If some Xs ground Y, then necessarily if the Xs obtain then Y obtains.

Applied to (F), this says that it is necessary that if those people act in way W then the event is a conference. Brute connectivism predicts this because it says that if (F) obtains, then this is (partly) because it is an essential or conceptual or necessary or metaphysically nomic truth that any event in which people act like that is a conference. And it is independently plausible that essential truths, conceptual truths, and metaphysical laws are necessary. It follows that it is necessary that if those people at your favorite conference act in way W then the event is a conference, as required.¹⁶

Third, brute connectivism has the resources to explain not only particular grounding facts like (F), but also *patterns* in the grounding facts. The idea is this. According to (F), the fact that event *e* contains people acting in way W grounds the fact that *e* is a conference. But now consider another event *e'* in which other people act in the very same way W. If we investigate this other event we will find (I submit) that it is also a conference, and moreover is a conference in virtue of those people acting in way W. And if we investigate yet other events that include people acting in way W we will find that the pattern continues. Why? Why do we never find an event where people act like that but where their actions do not ground a conference? The pattern is striking—what explains it?

I use ‘explains’ broadly here: the answer need not be a grounding explanation. Indeed some grounding explanations are no answer at all. For suppose one thinks that the pattern to be explained is a universal generalization: i.e. that for any event *x*, if *x* contains people acting in way W then *x* is a conference in virtue of those people acting in way W. One might then claim that, like all universal generalizations, this is grounded in its instances. But this is clearly no answer to our question. We want to know why all those instances turned out alike—just repeating the instances is no answer.

So there is an issue of how to properly formulate the question of what explains the pattern. Perhaps the question is what grounds the *necessity* of the universal

¹⁵ Some might take ground to be characterized independently of explanation. For them, assessing grounding claims by assessing explanations may be wrongheaded. But they mean something different by ‘ground’ than I do.

¹⁶ Admittedly, Necessitation is controversial: Fine (2012), Rosen (2010), and Trogon (2013) endorse it; while Leuenberger (2013) and Schaffer (2010) reject it. So the claim here is that *if* you endorse Necessitation then this is a virtue of brute connectivism. If you do *not* endorse Necessitation, then you might still find brute connectivism attractive if you propose that the grounding facts are grounded in general connections that are not themselves necessary.

generalization. Or perhaps it is what explains the universal generalization in some non-grounding sense of ‘explains’. But it would be distracting to settle this here: we understand the question well enough to see that merely repeating the instances is no answer.

The third virtue of brute connectivism is that it has a ready answer. On this view, each instance of the pattern has a common ground in the general connection between acting in way *W* and being a conference. Noting that each instance has a common explanation is one way to explain a pattern. We might explain why New York and Boston and Washington are all covered in snow by saying that a storm swept up the East Coast: the pattern is explained by the common cause. The brute connectivist can similarly explain the pattern by citing a common ground.

Indeed, some brute connectivists have another explanation available too. Suppose one follows Rosen in grounding (F) partly in

(F.ii*) It is essential to being a conference that if an event contains people acting in way *W* then it is a conference *and moreover* its being a conference is grounded in those people acting in way *W*.

This *implies* each instance of the pattern. Pointing this out is an explanation of sorts, regardless of whether (F.ii*) also (partly) grounds each instance.

So brute connectivism has its virtues. But it implies that (C) has no purely physical ground, and thus we have the Siderean worry that if physicalism is formulated as a grounding thesis then it (physicalism) fails at the get-go.

6 Reductionism

Is there an alternative view on which (C) has a physical ground after all? Call any such view a *reductionist* view. A reductionist might follow brute connectivism and say that (C) is grounded in a general connection between brain states and consciousness, but then argue that the general connection has a physical ground. Or she might offer some other physical ground altogether.

It is difficult to evaluate reductionism, for the view has rarely been developed in any detail. The one exception is a particular version of the view that was advanced independently by Bennett (2011) and deRosset (2013). The view they converged on is that if a fact *Y* is grounded in some *Xs*, then the fact that *Y* is grounded in those *Xs* is also grounded in those *Xs*. Call this *simple reductionism*. It is a reductionist view because it implies that (C) has a physical ground: it is the same as what grounds my being conscious in the first place, i.e. my being in physical state *P*. Indeed this is the chief virtue that Bennett and deRosset advertise of the view: they say that it avoids the Siderean problem of formulating theses like physicalism in terms of ground.

But there are two problems with simple reductionism. The first problem is that there is reason to think that it is false, and the second problem is that even if it were true it does not have this virtue that Bennett and deRosset attribute to it. As I will indicate, these problems may also generalize to other reductionist views.

Start with the first problem. To assess the truth of simple reductionism it is important that we not confuse it with the following principle:

Internality: If some Xs ground Y, then necessarily if the Xs obtain then the Xs ground Y.

Suppose that some Xs ground Y. Internality says that these Xs *necessitate* the fact that the Xs ground Y. Simple reductionism goes further and says that the Xs *ground* the fact that the Xs ground Y. I have no objection to Internality, just to this further claim.

Remember, ground is an explanatory notion, so the question is whether the Xs *explain* the fact that the Xs ground Y, and I do not think they do.¹⁷

For one thing, the proposed explanations sound bad. To see this let us consider one in the flesh. Question 1: Why is this event a conference (rather than, say, a football match)? Answer: Because various people are acting in way W. So far, so good. Question 2: Why is it that those people acting in way W make the event count as a conference (rather than a football match)? The simple reductionist says: Because those people are acting in way W. This is not a good explanation. Compare this to brute connectivism. To Question 2, the brute essentialist (for example) answers: Because it lies in the nature of *what a conference is* that you have a conference whenever people act like that. It is clear which is the better explanation.¹⁸

The point here arguably generalizes to *any* reductionist explanation. For a reductionist answer to Question 2 makes no mention of conferences, and that seems wrong: talk about other actions if you like, talk about particle positions or cabbages or kings; none of that (on the face of it) explains why those actions made the event a *conference* rather than a football match. An analogy with causal explanation might help. Suppose that the initial state of the world caused its current state. What explains this causal connection? Why did that initial state cause *this* state, rather than some other? A natural answer is to appeal to the dynamical laws. Never mind whether the specifics of this answer are correct, the point is that the reason why the initial state causally produced the current state (rather than some other state) is clearly not to be found just in the initial state itself. It is rather some general, law-like *connection* between states that explains why one state causally produced another. Similarly, only a general connection between actions *and conferences* can explain why those particular actions produced a conference.¹⁹

¹⁷ Distinguishing between explanation and (mere) necessitation is not splitting hairs. It is a well-known phenomenon: the fact that I exist necessitates the fact that $2+2=4$ but does not explain it. Indeed the *raison d'être* of ground is to mark this distinction.

¹⁸ I am appealing to our capacity to tell good explanations from bad. There is of course a deep question as to how we manage to do this. It is analogous to the Humean question about how we can ever come to know the *causal* structure of the world: in our case the question is how we can ever come to know the *grounding* structure of the world. We have not yet answered the Humean question, but this is no reason to stop investigating causes as best we can. Similarly, we do not yet have an epistemology of ground, but this does not mean that we cannot reasonably assess claims of ground. If you ask what grounds the fact that the event is a conference and I answer that it is because $2+2=4$, you should complain that my proposed explanation is terrible. Somehow—even if we do not yet know how—our grasp of the fact that it is a conference puts us in a position to know that my proposed explanation is bad. My objection to simple reductionism is similar.

¹⁹ Of course the analogy is not perfect, since the idea is not that the law *causes* the causal connection between initial and current states (see footnote 13). Still, the law explains the causal

Returning specifically to simple reductionism, the view also seems false because it implies that facts that should get different explanations get the same explanation. For example, suppose (as is customary) that if P obtains then P grounds PVQ. And suppose (as is also customary) that P grounds $\sim\sim P$. Then simple reductionism implies that what grounds the fact that P grounds PVQ is *exactly* the same as what grounds the fact that P grounds $\sim\sim P$; namely, P. And this is wrong: the grounds are surely different and involve something about disjunction in the first case and negation in the second. It is because of the way *disjunction* works that P is a sufficient explanation of why PVQ, while it is because of how *negation* works that P is a sufficient explanation of why $\sim\sim P$. The point is emphasized by noting that even if P&Q obtains, P does not (on its own) ground P&Q.²⁰ So why is PVQ different? What is it about PVQ in virtue of which it is sufficiently explained by P but P&Q is not? Surely the answer has something to do with disjunction (perhaps its truth-table). Brute connectivism respects these truisms; simple reductionism does not.

My objection then is that brute connectivism offers better explanations than simple reductionism, and reductionism more generally. To be sure, highly theoretical considerations might lead one to think that simple reductionism *must* be correct, on pain of it being impossible to formulate physicalism as a grounding thesis otherwise. Indeed this is the chief reason that Bennett and deRosset give for endorsing the view. But we must not be blinded by theory. The fact is that when we see their explanations in the flesh, we find them wanting.²¹

There is much more to be said about this, but it would be distracting to say everything here. So let me turn to the second problem with simple reductionism. As I just said, Bennett and deRosset think that *if* simple reductionism were correct, there would be no Siderean problem of formulating physicalism in terms of ground. But I think this is a mistake.

The reason is that simple reductionism does not provide any resources with which to explain the patterns in grounding facts discussed in section 5. The pattern, recall, is that whenever we find an event in which people are acting in way W, the event is a conference in virtue of their acting like that. The brute connectivist can explain this by saying that each instance of the pattern has a common ground in some general connection between acting in way W and being a conference. But the simple reductionist cannot say this, for on her view there is no general principle that is a common ground of each instance. Simple reductionism just says, of each particular fact Y and plurality of facts Xs, that if the Xs ground Y then the Xs also ground the fact that the Xs ground Y. But this gives us no indication of why, *whenever* there is a fact to the effect that some people act in way W, it grounds a fact to the effect that there is a conference. For all that the simple reductionist says, the pattern is a brute coincidence, a massive accident.

connection in some sense of ‘explains’, and the point of the analogy is to give insight into how these explanations might work.

²⁰ Remember, I use ‘ground’ to mean full explanation: P&Q is grounded by P and Q together but not by either one alone.

²¹ It may be that Bennett or deRosset mean something different by ‘ground’ than I do. In particular, if ‘ground’ in their mouths is not constitutively tied to explanation then my remarks here do not engage with their view. But then, by the same token, nor would their view engage with the issue I am discussing—specifically, the truth of (3). coming (as it is) from my mouth.

This is unacceptable. There must be *some* explanation of the pattern, even if it is not an explanation that points to a common ground. This is not to say that simple reductionism is false, for one might now try adding to the theory in order to explain the pattern.²² For example the simple reductionist might endorse

(F.ii*) It is essential to being a conference that if an event contains people acting in way W then it is a conference *and moreover* its being a conference is grounded in those people acting in way W.

and say that each instance of the pattern follows from it by logic (even though no instance is *grounded* in it). Fine. But what is the status of (F.ii*)? Is it grounded or not? If not, the simple reductionist now has an ungrounded fact about conferences.

And now the Siderean problem of formulating physicalism in terms of ground re-arises. True, simple reductionism allows that *each particular grounding fact*, like (C), has a purely physical ground. But it is not just particular grounding facts that we must account for: we must also account for *patterns* in the grounding facts. And simple reductionism says nothing about them. To explain the patterns, a simple reductionist might appeal to a general connection between physics *and consciousness*. But until it has been shown how to ground this connection in physical terms, the Siderean worry remains that something about ground (i.e. the patterns) precludes formulating physicalism in its terms. Thus it is unclear whether simple reductionism has the chief virtue that Bennett and deRosset attribute to it.²³

It is hard to say whether this point will generalize to other reductionist views, since they have not been developed in any detail. Here I leave it as a challenge to the would-be reductionist to show that her view can explain the patterns.

7 Autonomy

These considerations are clearly not decisive, but I take them to motivate brute connectivism. Hence,

(3) General considerations about the nature of ground suggest that some nonphysical facts, e.g. (C), are not grounded in physical facts.

So to defend the idea that physicalism is a grounding thesis, one is better off arguing that physicalism does not *require* that (C)—or the general mind-body connections that the brute connectivist appeals to—have physical grounds in the first place. But as I

²² Though this move is not open to deRosset's (2013) "deflationary" view of ground, on which the simple reductionist formula is all there is to say about ground.

²³ To be clear, the claim here is not that (F.ii*) has no physical ground. The claim is that, if it does, this does not follow from simple reductionism. A similar point can be made with regards to other principles governing ground, such as Necessitation and Internality. If the simple reductionist endorses those principles (as I believe she should) then she must somehow explain them (in the broad sense of 'explains'). Merely producing the instances will not do. And it is unclear how the simple reductionist could explain them without appealing to general truths that stretch beyond the physical.

emphasized in section 2, it is not enough to just say that the physicalist need not give these facts a physical ground. We must also say *why* they are special.

To this end, I suggest that we introduce a distinction between substantive and autonomous facts. Roughly, a fact is *substantive* if it is apt for being grounded, and *autonomous* if not. The idea will be that the general mind-body connections are autonomous, and that physicalism does not require autonomous facts to have a physical ground. This will be refined as we go along, but that is the basic idea. I will not argue that this is the best (or only) approach, but I will argue that it is reasonable.

My approach hangs on this distinction between autonomous and substantive facts. What exactly does the distinction amount to? I discuss it in some detail in (Dasgupta, forthcoming); here I outline the main idea.

I said that a substantive fact is apt for being grounded. By this I mean that the question of what grounds it can legitimately be raised and given a sensible answer, an answer that either states its ground or else states that it has none. In contrast, an autonomous fact is not apt for being grounded in the first place, by which I mean that the question of what grounds it does not legitimately arise.

It might help to consider an analogous distinction that arguably arises in the case of causal explanation. To see this, consider an instantaneous physical state—an arrangement of particles, or the state of a field, or whatever. It is natural to think that some such states have a causal explanation. The current physical state of the Empire State Building might be one example: there is, we imagine, some causal story detailing how the physical matter composing the building came to be arranged in its current state. It is also natural to think that some physical states have no causal explanation. If our universe had a beginning, an initial state, then there is arguably no *causal* explanation of how the matter in that state came to be arranged as it was. It just *was* like that, nothing *caused* it to be like that. We recognize this by calling it a causally brute state. Still, in both cases, the physical state is apt for causal explanation, in the sense that the question of what causally explains how matter came to be arranged in those ways can legitimately be raised even if in one case the answer turns out to be “Nothing”.

Contrast this now with facts of pure arithmetic. Like the initial condition of the universe, such facts lack causal explanations; but unlike the initial condition, they are not apt for causal explanation in the first place. We implicitly recognize this distinction in the way we naturally answer causal questions. If asked what caused 2 and 3 to sum to 5, the natural answer is not just “Nothing, there was no cause”, as in the case of the initial condition. Rather, the natural answer is to start talking about the nature of abstract objects like numbers, and the nature of causation, in an attempt to show that the question of causal origin does not properly arise for facts of pure arithmetic in the way that it does for physical states.

Thus we recognize three categories. First, there are facts that are apt for causal explanation and have one, e.g. facts about the current physical state of the Empire State Building. Second, there are facts that are apt for causal explanation but lack one, e.g. facts about the initial physical state of the universe. And third, there are facts that are not apt for causal explanation in the first place, e.g. facts of pure arithmetic. My suggestion is that we can distinguish three analogous categories when it comes to grounding explanations too: facts that are apt for having a ground and have one, facts that are apt for having a ground but lack one, and facts that are not apt for having a ground in the first

place. These final facts are what I call “autonomous”.

Before turning to examples of autonomy, a second analogy might help. Consider a formal system, such as axiomatic set theory. There are axioms of the system, and there are theorems that one proves from the axioms. But there are also explicit definitions. These serve to introduce by stipulation a new word into the language. For example, having started with the one nonlogical notion of set membership, one might introduce the word ‘subset’ as follows:

Definition: x is a *subset* of $y \equiv_{df}$ any member of x is a member of y .

Definitions such as these are interestingly different from theorems and axioms. One can ask, of a *theorem*, how one might prove it from the axioms. And one can ask, of an *axiom*, whether and how one might prove it from the others—one might find a proof, in which case the axiom is redundant; or one might discover that there is no proof (just think of Euclid’s 5th postulate). But one cannot legitimately ask how one might prove the above *definition* from the axioms, for it is not “apt for being proved” in the first place. We implicitly recognize this distinction in the way we naturally answer questions of proof. If asked how to prove the above definition of ‘subset’, the natural answer is not just to say that it cannot be proved, as in the case of a nonredundant axiom. Rather, the natural answer is to start talking about its role as a definition—e.g. that it functions to introduce a new term to the language—in an attempt to show that the question of how it might be proved does not properly arise.

My thought is that autonomous facts are not apt for being grounded in something like the sense that definitions are not apt for being proved. This analogy points to some examples of autonomy. For an explicit definition like the above is a statement of *what a word means*, and the worldly analogue is a statement of *what something is*, sometimes known as a “real definition”. For example, when one says that {Socrates} is the unique singleton containing Socrates, one is defining what the set is, i.e. giving its real definition. Or, equivalently, one is stating its essence or nature—I will use these terms interchangeably.

Of course, saying “what something is” is a context-dependent affair: in some contexts, it might be appropriate to identify the aforementioned set as Kit Fine’s favorite set. But while this latter description uniquely picks the set out, it does not *define* the set; it does not state its essence or nature. At least, that is what a fan of real definition will say. Others might reject the notion of real definition, complaining that there is no principled distinction between descriptions that define the set and those that do not. But that is a debate for another time; here I will assume that the notion of real definition (essence, nature) is in good standing. I will also assume that we can recognize standard examples. When we ask in a chemistry lab what water is, and consider the claim that it is a substance composed of H_2O , this is a claim about the real definition, or essence, of water. Or again, when we ask in a philosophy seminar what knowledge is, and consider the claim that it is true and justified belief, we are considering a claim about the nature of knowledge (in this case, one that turns out to be false). I will follow Fine (1995b) and assume that the logical form of these claims is

It is essential to x that φ

where x is an item of any ontological category and φ is a sentence. Call truths of this form *essentialist truths* (or facts). They are to be understood as synonymous with saying that it is *in the nature* of x that φ , that it is *definitional* of x that φ , or that it is part of *what x is* that φ . Note that it may only be *part* of what x is that φ , so it may be that φ does not uniquely specify x . Moreover it may be that there is no collection of such φ that uniquely specifies x . For example it may be that the only answer to the question of what scarlet is, is that it is a determinate shade of red. For this reason, I will mostly use the term ‘essence’ rather than ‘real definition’, since the latter might suggest that one can state what x in a way that uniquely specifies it. But I stress that as I use the term, an essentialist truth is a (possibly partial) definition of what something is.

So essentialist truths are the worldly analogue of explicit definitions of words. And, as predicted, they do appear to stand to ground as definitions of words stand to proof: just as the question of how to prove the above definition of ‘subset’ struck us as illegitimate, so the question of what grounds an essentialist truth also appears to be illegitimate. To see this, consider the following essentialist truth:

It is essential to {Socrates} that it is the unique singleton containing Socrates.

and suppose someone asks what grounds it. It is important to hear the question clearly. The question is not why {Socrates} is the unique singleton containing Socrates, but rather why this constitutes the real definition or essence of {Socrates}. Thus the question is: In virtue of what does this condition (of being the unique singleton containing Socrates) define *what {Socrates} is*? It is hard to know what to say. It is not as if there is an entity, {Socrates}, that exists independent of the condition, such that we can then ask in virtue of what *that entity* got defined by that condition. Rather, the condition defines what the entity is in the first place! So, to ask what makes the essentialist truth true seems to reveal a misunderstanding of its status as a real definition of the entity. We appear to recognize this in our natural responses to grounding questions. For if asked why that condition defines {Socrates}, one wants to reply: “What do you mean? That is *just what {Socrates} is*.” But of course that is precisely what we were asked to explain! On the face of it, this reply sounds like the beginnings of an attempt to show that the question is somehow illegitimate, rather than an attempt to answer it in any seriousness.

Thus the question of what grounds this essentialist truth strikes us as odd in something like the way that the question of how to prove the definition of ‘subset’ did, or the question of what caused 2 and 3 to sum to 5 did. Like those other cases, the appropriate response is not to offer an answer the question—by stating its grounds or saying that it has none—but rather to talk about the nature of essentialist truths in an attempt to show that the question is illegitimate.

So, as with causation and proof, we can recognize three categories. First, there are *derivative* facts, which are apt for being grounded and have a ground. An example might be the occurrence of a conference. Second, there are *fundamental* facts, which are apt for being grounded and lack one. There are no uncontroversial examples of such facts: some think that the positions of electrons and quarks might be examples, others think that those facts are grounded in the undulations of a quantum wave-function in a massively high-

dimensional Hilbert space.²⁴ Still, *if* the particle positions are groundless, they would be clear examples of facts that are apt for having a ground but simply lack one. And finally, there are *autonomous* facts, which are not apt for being grounded in the first place. There may be no uncontroversial examples of these either, but essentialist facts are reasonable candidates. Conceptual truths, and identities, might be other candidates—though both might be argued to be varieties of essentialist truths. But there is no need to determine the extent of the class of autonomous truths here.²⁵

Indeed, the claim that essentialist facts are autonomous is not important to most of what follows. The more important suggestion is that there is a distinction to be recognized between fundamental and autonomous facts. Facts of both kinds are groundless, so I will call them all *brute* to mark this similarity; but only facts of the former kind are apt to be grounded in the first place. Even if you disagree with my use of essentialist facts as an example of autonomy, we may still agree that there is a distinction to be recognized here.

The distinction is further illustrated by noting that fundamental facts are, in a sense, *arbitrary*. Suppose it is a fundamental fact that a given particle is located where it is. Then its position is in a clear sense arbitrary: there is no rhyme or reason why it is there, it is just there and that is all there is to say about the matter.²⁶ In contrast, autonomous facts are not in the same sense arbitrary. The case of essentialist facts arguably demonstrates this: even if essentialist facts are groundless, they are not arbitrary in the way that brute facts are. There is nothing arbitrary about the fact that {Socrates} is by definition the unique singleton containing Socrates: this is, after all, just what {Socrates} *is!*

There is, no doubt, more to be said to explicate the notion of autonomy. But I will assume for the sake of argument that we have enough of a grip on the notion. Let us now put it to work.

8 Physicalism regained

Our task is to argue that physicalism does not require that (C), or the general mind-body connections that the brute connectivist appeals to, have physical grounds. I will argue that this is true *if* the general connections are autonomous. For specificity, focus on the brute essentialist idea that (C) is grounded in

(C.i) My brain is in physical state P, and

²⁴ See Ney & Albert (2013) for essays that discuss this kind of view.

²⁵ We can now see that the analogy with causation is (like any analogy) not perfect. I said that arithmetical facts are not apt for causal explanation but they also (arguably) do not causally explain anything. In contrast, even if essentialist facts are autonomous they certainly ground other facts. A conjunction of two essentialist facts will (like any conjunction) be grounded in its conjuncts. Still, the point of the analogy is to bring out the similarity between arithmetic facts and essentialist facts *vis a vis* the question of *what explains them* regardless of what (if anything) they explain.

²⁶ There may of course be a *causal* explanation of why the particles are where they are; here my point is that with regards to *grounding* explanations there is no rhyme or reason why they are where they are.

(C.ii) It is essential to being conscious that if something's brain is in physical state P then it is conscious.

where (C.ii) is groundless. I will argue that *if (C.ii) is autonomous*, then this situation is consistent with physicalism even though (C.ii) is an ungrounded fact about consciousness. Very roughly, the idea is that autonomous facts fall outside the purview of theses like physicalism. It does not matter to physicalism if explanations bottom out in nonphysical facts like (C.ii), so long as they are autonomous. What physicalism requires is that, when explanations bottom out in substantive facts, like (C.i), they must be purely physical.

In the last section I suggested that essential truths like (C.ii) are indeed autonomous. Putting these pieces together, the result is that brute *essentialism*, at least, avoids the Siderean problem we started with. Other brute connectivist views—e.g. those that appeal to necessary truths, or conceptual truths, or metaphysical laws—similarly avoid the Siderean problem *if* it can be shown that those necessary truths, or conceptual truths, or metaphysical laws (respectively) are autonomous. I leave it for fans of those views to make that case; for now I continue to focus on brute essentialism for specificity (though the argument generalizes to any brute connectivist view).

We must argue that *if (C.ii) is autonomous*, then the brute essentialist explanation of (C) is consistent with physicalism. But the issue is not consistency in the ordinary sense: we do not have a clear thesis marked 'physicalism' in hand, such that we can then ask whether it and brute essentialism can be true together. Indeed this paper is an investigation into what physicalism is in the first place. All we have is a rough idea, a picture, so what we must argue is that brute essentialism "fits" with that physicalist picture. So, to proceed, let us look for a clear thesis that brute essentialism is consistent with in the ordinary sense, and then argue that that thesis fits well with the physicalist picture.

Of course, one thesis that fits with the physicalist picture is:

Strong Physicalism (SP): All nonphysical facts are grounded in physical facts.

But this is clearly not logically consistent with brute essentialism. Still, a related thesis is:

Weak Physicalism (WP): All *substantive* nonphysical facts are grounded in facts that are either physical *or autonomous*.

And this is consistent with brute essentialism, if essentialist truths are autonomous. For in that case (C.ii), being autonomous, lies outside the scope of WP. And while brute essentialism implies that (C) is substantive, it also implies that it is grounded in facts that are either physical (i.e. (C.i)) or autonomous (i.e. (C.ii)), and so the situation is consistent with WP.

The question, then, is: To what extent does WP fit the physicalist picture? And the answer is: To *some* extent, but only some. Let me describe the extent to which it does, and then the extent to which it does not, and then state another thesis that does better.

A quick argument that WP fits the physicalist picture is that WP gives a special explanatory role to physical facts, rather than (say) mental or normative ones.

Admittedly, WP does not state that physical facts ground *everything*, but it does state that the physical facts, along with the autonomous facts, ground all else. But this is too quick, for WP gives a special explanatory role to autonomous facts like (C.ii) too. Indeed, two special roles: first, WP allows that they are ungrounded; and second, WP says that they, along with the physical facts, ground all else. But it would clearly not fit the physicalist picture if we said that the fact that *I am conscious* played these two roles. And (C.ii) is a fact about consciousness. What, then, is special about (C.ii)? Why does it fit with the physicalist picture that *it* plays these special roles?

To answer this, consider each role in turn. To see why it fits with the physicalist picture that (C.ii) is ungrounded, remember that a grounding theorist thinks that physicalism is an *explanatory* thesis, a thesis about what grounds what. But autonomous facts are not apt for being grounded. So in asking what grounds what, the meaningful question is what grounds *those facts that are apt for being grounded*, i.e. what grounds the substantive facts. In asking this we bracket the autonomous facts—they are simply not under investigation. Insofar as physicalism is an answer to this question, it is consistent with physicalism that autonomous facts are ungrounded.

The point is supported by our analogy with causal explanation. Imagine that a cosmologist says that everything is causally explained by the initial state of the universe. If it turned out that the formation of our solar system had no causal explanation, this would be a counterexample. But it is no counterexample that there is no causal explanation of the fact that 2 is even, for this is not apt for causal explanation in the first place. Her thesis is (when interpreted charitably) a thesis to the effect that everything *that is apt for causal explanation* is ultimately explicable in terms of that initial state. Likewise, the physicalist picture that everything is grounded in the physical is, charitably interpreted, the idea that everything *substantive* is grounded in the physical.

Turn now to the second special role of autonomous facts: that they, along with physical facts, ground all else. Does it fit with the physicalist picture that they play this role? It does, to some extent. For facts are autonomous not thanks to their content (i.e. whether they are physical, normative, etc.) but thanks to their role in grounding explanations: they are characterized as those facts that are not apt for such explanation. So when we ask what grounds what, one natural and non-*ad hoc* explanatory project is to take autonomous facts for granted and ask what *else* one needs to ground the rest. WP answers: Just physical facts. This gives a natural and non-*ad-hoc* explanatory pride of place to the physical facts, in keeping with the physicalist picture.

Think of it pictorially like this. Substantive facts come in two kinds: grounded and ungrounded. The grounded ones “arise for free” once their grounds are in place; the ungrounded ones had to be “placed there by *fiat*” for the world to get going. But autonomous facts, by virtue of being autonomous, are different: they do not have to be “placed there by *fiat*”, yet nor do they “arise for free” out of others. If you like, they were “there anyway”. So one principled and natural explanatory project is to take them for granted and ask what needs to be placed there by *fiat* in order to ground everything. WP says just the physical facts, and thereby expresses a principled and natural and non-*ad-hoc* respect in which the physical facts are explanatorily special.²⁷

²⁷ This is a little woolly, no doubt. But it had to be. For our question is not whether WP is consistent with physicalism in the ordinary sense, but whether WP “fits” with the physicalist

That is the extent to which WP fits the physicalist picture. Still, there are respects in which it does not. The existence of a Christian God does not fit with the physicalist picture regardless of whether its existence is autonomous; and yet its existence is consistent with WP if its existence is autonomous. Or suppose that facts about the natural numbers (including their existence) have no physical ground and are instead grounded in some autonomous facts about (say) zero and the successor function. Then this would be consistent with WP, but arguably jars with the physicalist picture.²⁸

What, then, is the difference between (C.ii) and the existence of a Christian God? Why does the former fit with the physicalist picture so long as it is autonomous, whereas the latter jars with the physicalist picture regardless of whether it is autonomous? Well, (C.ii) states a physical sufficient condition for my being conscious, and (according to brute essentialism) underwrites a physical explanation of my being conscious. But the existence of God does neither. This suggests that the following conjunctive thesis better approximates the physicalist picture:

Moderate Physicalism (MP):

- i. (i) WP is true, and
- ii. (ii) All autonomous facts help underwrite the kind of grounding explanations required by WP.

What does it mean to “help underwrite the kind of grounding explanations required by WP”? Helping to ground an explanation of consciousness in *physical* terms, as (C.ii) does, certainly counts. But more counts too. For one thing, an explanation of consciousness in physical terms might proceed in stages, first explaining it in biological terms and then in chemical terms and finally in physical terms. A fact that helps ground any of these intermediary stages would “help underwrite” a physicalist explanation, as I use the phrase. And for another thing, if my brain were in a different physical state then my being conscious might have a different physical ground; and this different grounding fact would then be grounded in an essentialist fact other than (C.ii). This other essentialist fact *would* help ground a physical explanation of consciousness were the physical facts different, even if it *actually* does not. Still, it “helps underwrite the kind of grounding explanations required by WP” as I intend the phrase.

This notion of underwriting could be defined more precisely, but it would be distracting to do so here. The idea is clear enough to see that brute essentialism is consistent with MP. For we know that it is consistent with WP, and the essentialist truth (C.ii) clearly underwrites the explanations required by WP in the intended sense.

Moreover MP fits the physicalist picture better than WP. For MP agrees with WP that, along with the autonomous facts, the physical facts are sufficient to ground all else. But MP goes further and says that the autonomous facts are entirely at the service of those physicalist explanations. This rules out the possibility of a Christian God whose existence is autonomous.

Indeed if the autonomous truths that underwrite physicalist explanations of a phenomenon are *essentialist* truths about it (as brute essentialism says), then what MP

picture. This is a woolly question, so the answer had to get woolly at some point, and this is that point.

²⁸ Thanks to Gideon Rosen and Graham Priest for emphasizing this point to me.

implies is that there can be nothing more to the *essence* of that phenomenon than what underwrites physicalist explanations of it. This is a strong claim indeed. It rules out the view that the essence of goodness involves a link to motivation, for this essential link would not underwrite a physicalist explanation of goodness.²⁹ Any link between goodness and motivation must, according to MP, be grounded in physics (and, perhaps, autonomous facts of the right kind). So, when coupled with brute essentialism, MP gives a very strong explanatory pride of place to physics indeed: it requires that there be nothing more to what something is than would underwrite *physicalist* explanations of it.

One might now think that MP goes too far and that physicalism is something weaker. But there is no need to settle the issue here, for I am not offering a conceptual analysis of ‘physicalism’ (indeed it is not clear that the English word ‘physicalism’ has a unique analysis). The argument is just (a) that the physicalist picture gives physics an explanatory pride of place, and (b) that brute essentialism is consistent with views (like MP and WP) that give physics an explanatory pride of place; therefore brute essentialism approximates the physicalist picture well.

One might object that the physicalist picture finds its natural expression in various slogans such as ‘All God had to do when making the world was determine the purely physical facts’. But, the objection goes, this slogan expresses the idea that the *only* ungrounded facts are physical facts, *contra* brute essentialism.

In response, I think that a reasonable interpretation of the slogan is consistent with brute essentialism. For what does the slogan ‘All God had to do when making the world was φ ’ mean? One interpretation is that φ is whatever would be sufficient to *causally explain* everything, but that is not what we have in mind when we use the slogan to express physicalism. Another interpretation is that φ is whatever would be sufficient to *ground* all else. This is closer to what we might have in mind, and the objection is right that brute essentialism contradicts this interpretation.

But there is a third interpretation of the slogan. The slogan derives from the theistic view that there really is a God that ultimately explains things. Since we are concerned with *grounding* explanations, the theistic view at issue is that everything is ultimately grounded in facts about God (e.g. her will, her nature, whatever). But even if this theistic view were true, God would not ground the autonomous facts since they are not apt for being grounded in the first place. So on the interpretation of ‘All God had to do when making the world was φ ’ that fits with this theological view, φ consists in determining the *substantive* facts that, along with the autonomous facts, ground all else. So interpreted, brute essentialism is consistent with the physicalist slogan after all. For once God determined that I am in physical state P, brute essentialism implies that this was indeed sufficient, along with the autonomous fact (C.ii), to ground (C).

9 Ampliativity

For these reasons, we should reject

- (1) Physicalism is true only if all nonphysical facts “arise out of” physical facts.

²⁹ The correct formulation of this link is a notoriously delicate matter, but the current point does not hang on this.

Physicalism does not require that (C), or (C.ii), arise out of physical facts, *if* (C.ii) is autonomous. So even if we formulate physicalism as a grounding thesis, it does not fail at the get-go. This is my response to the Siderian argument that ground is unsuitable for formulating theses like physicalism.

The picture that emerges is this. The exciting idea behind ampliative theses like physicalism and normative naturalism is that at some “lower-level” the world is constituted by a relatively sparse *substantive* basis (e.g. of physical or natural facts), and that this sparse basis grounds “higher-level” facts concerning something new (e.g. consciousness or normativity, respectively). But this does not require that the links between the levels—the specific grounding facts, and the general (essential or necessary or conceptual or nomic) connections—are themselves grounded in the lower level, *so long as* those general connections are autonomous.

On this picture, these ampliative theses like physicalism are both stronger and weaker than one might have thought. They are weaker, insofar as physicalism so understood does not now require that *every* nonphysical fact has a physical ground. But they are also stronger, for physicalism is now seen to require *autonomous* connections between (say) mind and body. Indeed if brute essentialism is correct then physicalism requires that there are *essential* connections between mind and body. This will be disappointing to physicalists who hoped that formulating physicalism in terms of ground would recuse them from having to offer tight connections of essence or analysis between mind and body. On the current picture, this hope is dashed.

The argument in the last section was neutral on what the general mind-body connections are, i.e. whether they are essential truths, necessary truths, metaphysical laws, or what have you; all we assumed is that they are autonomous. But for the remainder let us continue to focus on one implementation of this approach, the brute essentialist one. It consists of two claims: (i) brute essentialism, and (ii) the claim that essentialist facts are autonomous. I have already motivated each, but I will end by discussing objections to them in turn.

10 Regress?

We started with the fact that I am conscious, and we supposed that it has a physical ground:

(C) The fact that my brain is in physical state P grounds the fact that I am conscious.

We then asked whether (C) has a ground, and the brute essentialist says:

(C') (C) is grounded in the following two facts:

(C.i) I am in physical state P, and

(C.ii) It is essential to being conscious that if something's brain is in physical state P then it is conscious.

But what about (C')? Does *it* have a ground? If not, then it is a counterexample to Weak

Physicalism and so the possibility of physicalism is lost. To satisfy even Weak Physicalism we must say that (C') is grounded in some Xs; and then we must say that the fact that those Xs ground (C') also has a ground; and so on *ad infinitum*.

Thankfully, brute essentialism can deliver this result. But if so, one might now worry that we have a vicious regress of grounds. Thus one might object to brute essentialism by posing a dilemma: Either brute essentialism implies that all these grounding facts have grounds, or not. If it does, there is a regress; if not, the possibility of formulating physicalism in terms of ground is lost.³⁰

In response, I suggest that the brute essentialist embrace the regress but argue that it is not problematic. To see how this might go, let us clarify the canonical form of brute essentialism, or at least a particularly simple version of it. Suppose some Xs ground Y. According to the simple version of brute essentialism I have in mind, this is explained partly by the Xs and partly by a fact about the essence of a constituent of Y that implies that the Xs are materially sufficient for Y. This characterization slurs over some details, not least over the notion of implication involved, but the basic idea is clear enough for current purposes.

Applying this canonical form to (C'), we get that (C') is grounded in (C.i), (C.ii), and a fact about the essence of ground that implies that (C.i) and (C.ii) are sufficient for (C). Following the examples of consciousness and conferences used in this paper, this essentialist fact might be something like this:

(G) It is essential to ground that for any Xs and any Y, if the Xs obtain and if a fact about the essence of a constituent of Y implies that the Xs are materially sufficient for Y, then the Xs ground Y.

For (G) implies that if (C.i) and (C.ii) obtain then (C) obtains (to see this substitute in (C.i) for the Xs, and substitute the fact that I am conscious in for Y).

It may be hard to parse, but the proposed explanation is plausible. The question is: If it is essential to consciousness that I am conscious if I am in physical state P, and if I am in state P, why does this ground the fact that my being in state P grounds my being conscious? And the proposed answer is: Because that follows from the nature of ground. That is: given that I am in state P and given the essence of consciousness, it follows from what ground is that my being in state P grounds my being conscious.

And on the *next* iteration, the question is why (C.i), (C.ii), and (G) ground (C'). And the answer is: Because of (C.i), (C.ii), (G), and (G). Here (G) performs double duty: in the above canonical form it is one of the Xs, and it is also the fact about the essence of a constituent of Y. The pattern is clear. As we keep iterating, the (iterated) grounding fact is grounded in some combination of physical facts—i.e. (C.i)—and essentialist facts—i.e. (C.ii) and (G). Which is consistent with Weak and Moderate Physicalism.

We started with the one grounding fact (C). We now have infinitely many grounding facts: that some Xs ground (C), that some Ys ground the fact that the Xs ground (C), that some Zs ground the fact that the Ys ground the fact that the Xs ground (C), and so on. Is this problematic? I think not. For one thing, it is not an infinite descending chain of ground. It would be an infinite descending chain if (C) were grounded in the Xs, and *the*

³⁰ Bennett (2011) considers a similar dilemma. Her solution is somewhat different than mine, though, since she endorses simple reductionism.

X s were grounded in the Y s, and so on.³¹ But that is not the situation: it is not *the Xs* that are grounded in the Y s but rather *the fact that the Xs ground (C)* that is grounded in the Y s. So it remains open that the X s are all ungrounded and that there are no infinitely descending chains of ground.

One might instead object that on this view one grounding fact implies the existence of infinitely many grounding facts. This is true, but I do not see why it is problematic. For one thing, *any* fact A implies the existence of infinitely many facts AVB , AVC , and so on. For another thing, notice that all the implied grounding facts use some combination of (C.i), (C.ii), and (G) as their grounds, so it is not that each grounding fact appeals to yet new explanantia. Finally, remember that I officially treat ground as a sentential operator and remain neutral on the existence of facts. So on my official view the situation is just that one true sentence of the form

S because Γ

implies infinitely many true sentences of this form, and I do not see what is problematic about that.³²

11 Are essentialist facts autonomous?

I suggested earlier that they are, but this is open to dispute. In evaluating the claim, it is important to note that by an essentialist fact I mean a statement of what something is *in its most core respects*, what Fine calls a statement of “constitutive” essence. I take this notion of constitutive essence to be primitive. A number of extensions can then be defined. We can close it under logical consequence, so that if it is essential to x that ϕ then it is essential to x that $\phi \vee \psi$, for any ψ . Fine calls this the notion of “consequential” essence. Or we can chain essences together to get what Fine calls a “mediated” essence. If it is constitutively essential to knowledge that knowledge is true and justified belief, and constitutively essential to truth that truth corresponds to the facts, then it is *mediately* essential to knowledge that knowledge is justified belief that corresponds to the facts. Now this mediated essence of knowledge is plausibly grounded in the two constitutive essences of knowledge and truth, in which case mediated essences are not autonomous. Similarly, if it is constitutively essential to x that ϕ , then its being consequentially essential to x that $\phi \vee \psi$ is plausibly grounded in the constitutive essence. So, to be clear, the claim is just that *constitutive* essences are autonomous (though I will drop the qualification for brevity).³³

³¹ When I say that the X s are grounded in the Y s, this can be understood in the distributive sense in which each one of the X s has a ground amongst the Y s.

³² Thanks to Tom Dougherty for an enlightening conversation about this section.

³³ For more on the notion of constitutive and mediated essence see Fine (1995b). In his papers on this topic Fine takes the notion of consequential essence as basic, and he then defines the notion of constitutive essence by “generalizing away”. But statements of consequential essence would be recognizable as statements of “what things are” only by a logician, and so it strikes me as a curious choice of a primitive. The notion of constitutive essence is far more natural. Koslicki (2012) also distinguishes a number of other notions of essence. It is a good question whether one of them can be taken to ground the others but I cannot discuss it here.

To motivate this claim, I suggested that the question of what grounds an essentialist fact strikes us as odd in something like the sense that the question of what caused 2 and 3 to sum to 5 does. So one might object to this claim by arguing that the question is not odd after all. In Dasgupta (forthcoming) I replied to some objections of this kind. Here, let me consider two objections that agree that there is something odd about the question, but which argue that this is not because essentialist facts are autonomous. According to these objections, they instead fall into some other interesting category.

First, one might argue that essentialist facts are not autonomous but are instead “zero grounded”. Fine (2012) introduces this notion by analogy with sets: ‘Any non-empty set $\{a, b, \dots\}$ is generated (via the ‘set-builder’) from its members a, b, \dots . The empty set $\{\}$ is also generated from its members, though in this case there is a zero number of members from which it is generated’ (p. XX) So Fine distinguishes between the null set, which is zero-generated, from things that are not generated by the set-builder operation at all, such as my desk. Similarly, thinks Fine, we should distinguish facts that are ungrounded from facts that are zero-grounded. And so one might claim that what is special about essentialist facts is that they are zero-grounded.³⁴

In response, I admit to finding the notion of zero-ground rather obscure. But putting that aside, the claim that essentialist facts are all zero-grounded strikes me as false simply because it has the implausible consequence that all essentialist facts have the very same ground. Suppose that it is essential to water that it is a compound, and essential to $\{\text{Socrates}\}$ that it contain Socrates. If we say that essentialist facts are zero-grounded then we are conceding that both these essences are substantive (i.e. apt for being explained), and moreover that they both have an explanation; and we are then saying that their explanation is exactly the same (i.e. the zero explanation). And this is hard to believe: *if* the facts are substantive and *if* they have an explanation, surely the explanation is different in each case.³⁵

Second, one might argue that the interesting thing about essentialist facts is not that they are autonomous but that they are all grounded in an iterated essential fact. For consider the following principle:

(E4) If it is essential to x that φ , then it is essential to x that it is essential to x that φ .³⁶

And consider also the following principle proposed by Rosen (2010):

Essential Grounding: If it is essential to x that φ , then φ because it is essential to x that φ .

Now consider any true sentence S of the form ‘It is essential to x that φ ’. By (E4), it is essential to x that S . And then Essential Grounding implies: S because it is essential to x that S . Therefore, any essentialist fact is grounded in an iterated essentialist fact; so no

³⁴ Kit Fine and Jon Litland have both suggested this to me in conversation.

³⁵ To be sure, one might think for independent reasons that *everything* has a common ground, e.g. in the nature of God. But that thesis is in need of independent support. What I object to here is the stock idea that essentialist facts all have the same ground.

³⁶ I have used the label ‘(E4)’ out of respect for the axiom of modal logic that it resembles.

essentialist fact is autonomous.³⁷

In response, I deny (E4). Remember, a statement of constitutive essence is a statement of what something is *in its most core respects*. It is the “essential core” of the thing from which extended essentialist claims about (say) mediated essence can be derived (and perhaps grounded). To state the constitutive essence of Socrates might require stating that he is human. But it is odd to think that his essential core also includes the fact that it is part of his essential core that he is human. This latter, iterated claim of essence is something that follows from (or is grounded in) his essential core and not part of the essential core itself.

Admittedly, (E4) is a theorem of the system presented in Fine (1995a). But that system was developed to govern *consequential* essence, the notion that is closed under logical consequence, and I do not believe that it plausibly governs constitutive essence. To see this, consider the axiom scheme that Fine uses to prove (E4), an instance of which is

(*) If it is not essential to Socrates that he drank the hemlock, then it is essential to Socrates that it is not essential to him that he drank the hemlock.³⁸

Our question is whether this is plausible when understood as governing constitutive essence, and I think it is not. Stating the constitutive essence of Socrates might require stating that he is human, that he had certain parents, and so on. But it is odd to add to this description of what he is *in the most direct and immediate sense* that it is not essential of him that he drank the hemlock.

So I claim that (*) is false when understood to govern constitutive essence. Still, there is a truth in the vicinity. Say that it is *derivatively* essential to x that φ iff the fact that φ is grounded in (i) facts of the form ‘it is constitutively essential to x that φ ’, and (ii) a totality fact to the effect that those are all the true claims about the constitutive essence of x . Then it is tempting to say that if it is not constitutively essential to x that φ , then it is derivatively essential to x that it is not constitutively essential to x that φ . Roughly speaking: the fact that φ is not a member of the set of all true claims about the constitutive essence of x is what makes it the case that it is not constitutively essential of x that φ .³⁹ Then (*) is true when its second occurrence of ‘essential’ is understood to express derivative essence.

12 Conclusion

I said at the beginning that one can think of physicalism pictorially as a multi-story building, with physical facts on the first floor, chemical facts on the second floor, and so on. My view, I said, is that the ungrounded connections between the physical and the nonphysical are not part of the building itself but are the scaffolding around which the building is built.

³⁷ I am extremely grateful to Jon Litland for bringing this objection to my attention, and indeed for many enlightening conversations on the topic of this paper.

³⁸ This is an instance of the axiom scheme (II)(iii) in Fine (1995a), p. 247.

³⁹ This is analogous to the popular view that negative facts in general are grounded in positive facts plus a totality fact.

I have tried to turn this picture into a theory. The facts in the building are substantive facts, with the ungrounded ones on the ground floor and grounded ones further up. The scaffolding that connects the floors consists in autonomous facts. They are not apt for grounding explanations and so do not appear on any particular floor of the building. Physicalism requires that the facts on the first floor are all physical, but it allows that the scaffolding contain non-physical facts without grounds. In this way the possibility of physicalism as a grounding thesis is secured.⁴⁰

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⁴⁰ This material was presented in the spring of 2011 at a colloquium on Fundamentality at the APA Pacific Division meeting and in my graduate seminar at Princeton. It was also presented in January 2013 at Dartmouth University and a conference on The Philosophy of Kit Fine at NYU. Thanks to those present at all these events for their invaluable feedback. The paper has also benefitted from enlightening conversations with Ralf Bader, Louis deRosset, Tom Dougherty, Kenny Easwaran, Branden Fitelson, Elizabeth Harman, Thomas Hofweber, AJ Julius, Shieva Kleinschmidt, Boris Kment, Kathrin Koslicki, Jon Litland, Eliot Michaelson, John Morrison, David Plunkett, Jonathan Schaffer, Susanna Schellenberg, Ted Sider, Will Starr, and Bruno Whittle.

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