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# Grounding Physicalism

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# GROUNDING PHYSICALISM

by

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# ABSTRACT

# GROUNDING PHYSICALISM

by

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Grounding physicalism is the thesis that fundamental physical truths ground every other truth. Ted Sider and Shamik Dasgupta have recently put forward a serious challenge to grounding physicalism. The challenge is an instance of a more general challenge concerning what grounds grounding facts, which has been powerfully presented by Karen Bennett. If $A$ is some fundamental fact about physics that grounds some fact $B$ about mental states, then what grounds the fact that $A$ grounds $B$? The grounding physicalist who says that such facts are either grounded or ungrounded seems to face a dilemma: Either grounding facts are grounded and there is an infinite regress of grounding facts, or they are ungrounded and grounding physicalism is false. I reject the dilemma. I argue that grounding facts are ungrounded and that this view is consistent with grounding physicalism. I argue that rival views that say grounding facts are grounded fail.

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# Chapter 1

# Introduction

Physicalism, broadly construed, may be formulated as the thesis that fundamental physical truths – such as facts about particle positions and field values – determine every other truth. All God had to do was "fix" the fundamental physical truths and everything else followed.[1] One recent way of understanding this formulation is to understand it as a thesis of *ground*.[2] There are a variety of ways of spelling out a grounding formulation of physicalism, but the version that I will defend in this essay is the idea that fundamental physical truths ground every other truth. Call this view *grounding physicalism*. Or more officially:

> **Grounding Physicalism (GP):** Every truth that is not a fundamental phys-
>
> ical truth is grounded in a fundamental physical truth.[3]

Now consider the following. I just stubbed my toe on my chair and I am now in pain. What explains my being in pain? According to the grounding physicalist, we might give at least two types of explanations of my pain: a causal explanation or a grounding explanation.[4] A causal explanation presumably explains my being in pain by causally

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[1]The use of the God metaphor to characterize physicalism apparently originates with Kripke (1980) p. 153-4), but has been widely used in the literature. See Crane (1991) for a prototypical case. See Hellman and Thompson (1975) for an early defense of physicalism as the view that the truths of fundamental mathematical physics determine all other truths.

[2]For suggestions that physicalism might be characterized in terms of the technical notion 'ground', see Schaffer (2009), Bennett (2011a), Sider (2011), Fine (2012), deRosset (2013), and Stoljar (2015), among others. For more sustained discussions, see Dasgupta (2014), Kroedel and Schulz (2016), Ney (forthcoming), and Schaffer (forthcoming). See Wilson (2014) and Melnyk (forthcoming) for some criticisms of grounding formulations of physicalism.

[3]The label 'grounding physicalism' has also been used by at least Stoljar (2015) and Kroedel and Schulz (2016). I will not be addressing here how my formulation of the thesis differs from others.

[4]Although there is a growing consensus that the grounding relation is importantly linked to explanation, the relationship between ground and explanation is not entirely clear, and it is not universally agreed upon that ground should be so linked to explanation. See Raven (2015) and Correia and Schnieder (2012) for more discussion.

relating the event of the stubbing of my toe to the event of my being in pain. The special sort of explanation the grounding physicalist has in mind, however, is some kind of non-causal metaphysical explanation that is supposed to capture what is *constitutive* of pain, or *what it is to be* in pain.[5] We might express this latter type of explanation in a few different ways. Consider the following examples:

1. I am in pain because certain neurons are firing.

2. The fact that I am in pain is grounded in the fact that certain neurons are firing.

3. The fact that I am in pain holds in virtue of the fact that certain neurons are firing.

The thought is that, in each of these sentences, the locutions 'in virtue of', 'grounded in', and 'because' express a special kind of non-causal explanatory relation where a "higher order" fact about the mental is in some sense determined by a more fundamental neurophysical fact. The sense of constitutive determination involved here is also thought to establish that the mental facts *depend* on neurophysical facts.

Ted Sider (2011) and Shamik Dasgupta (2014) have recently put forward a serious challenge to GP. The challenge is an instance of a more general challenge concerning what grounds grounding facts, which has been powerfully presented by Karen Bennett (2011a). I will present the challenge in the form of a dilemma. I present two popular responses to the dilemma and argue that each response fails. I then offer my response to the dilemma and then conclude. But I first want to say some things about the structural features of grounding explanations. Some of the features are fairly familiar and widely discussed in the literature. For instance, many (controversially) take grounding to be a transitive, irreflexive and asymmetric relation. I assume these features hold, but I want to focus on a feature that has not been emphasized in particular that I will call *notional priority*.

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[5]Cf. Fine (2012): "A number of philosophers have recently become receptive to the idea that, in addition to scientific or causal explanation, there may be a distinctive kind of metaphysical explanation, in which explanans and explanandum are connected, not through some sort of causal mechanism, but through some constitutive form of determination" (p. 37).

# Chapter 2

# Grounding Explanations and Notional Priority

It seems that in grounding explanations, the explanandum (whatever is explained) contains *notions* that are grounded in more fundamental notions in the explanans (whatever does the explaining).[6] I take notions to be the constituents of facts, such as properties, events, tropes, objects, etc. Following Schaffer (2009), then, I take the relata of ground to include facts and entities of multiple ontological categories, but I try to limit myself to emphasis on facts and properties here for maximal generality.[7] In other words, we should think of grounding as not only a relation that holds between facts, but as a relation that holds between the notions that are the component parts of grounding facts. In order to see what I mean, consider a structural breakdown of the following grounding explanation.[8]

> **Explanation (E):** The fact that I am in pain is grounded in the fact that my
>
> c-fibers are firing.[9]
>
> **Explanandum:** The fact that I am in pain.
>
> **Explanans:** The fact that my c-fibers are firing.

For the purposes of this discussion, I am calling grounding facts like E grounding explanations.[10] The explanandum and explanans in a grounding explanation are the two

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[6]See Schnieder (2006), Audi (2012), and deRosset (2013) for similar views.

[7]I stake no commitments here on whether ground involves one-one, many-one relations, etc.

[8]I follow Glazier (2016) with this presentation style.

[9]You might think like Wilson (2014) that if the physical *realizes* the mental then there is no work left for a grounding formulation of physicalism to do. I agree with Bennett (2011b), however, that realization, understood in a certain way, is a *species* of grounding (or 'building relation' in Bennett's terms). The dilemma I am concerned with should generalize so long as you endorse some completeness thesis to the effect "Fundamental physical truths realize (or determine) every other truth", such as Melnyk (2006) and Loewer (1993), among others.

[10]But I will sometimes take grounding explanations to be *sentences* like 1-3 taken together with the

factive parts of the explanation and stand in the grounding relation. The explanans and explanandum each may consist in one or more facts. The explanans explains the explanandum, but not vice versa, which is the sense in which E reflects explanatory asymmetry. In other words, if *B* is grounded in *A*, then *A* is not grounded in *B*.

But the *notions* contained in the explanandum and explanans of E also stand in a grounding relation. The idea here is that the explanans contains more fundamental notions than the explanandum. By fundamental I just mean ungrounded, and I take a more fundamental notion to be a notion that is closer to an ungrounded notion in a grounding chain. If you are friend to physicalism, then plausibly, pain is a less fundamental notion than c-fibers firing. So if pain is grounded in c-fibers firing, then c-fibers firing is grounded in an even more fundamental notion that more immediately bottoms out in an absolutely fundamental notion, i.e. the notions of particle physics.[11]

For example, the notion *being negatively charged* plausibly is not grounded in any other notion. It is a rock-bottom notion. It sits at the "ground floor" of microphysics. The notion *being an atom* is not rock-bottom. It is grounded in intermediate notions that at some point bottom out in ungrounded notions. In general, it is because there is something more metaphysically basic about c-fibers firing such that it grounds my being in pain that the two facts in E reflect relative priority.[12] I call this general feature *notional*

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grounding facts they express. So when I talk of bad explanations or failures of explanation in what follows, I am really saying that certain sentences are false, or otherwise fail to "track" corresponding grounding facts "out in the world".

[11]If the minimal requirement for non-reductive physicalism is (1) mental and microphysical properties are numerically distinct, and (2) mental properties supervene on microphysical properties, then I take GP to be a non-reductive physicalist view. I cannot discuss here implications of my view for versions of non-reductive physicalism that require the special sciences to be in some sense be autonomous.

[12]Something may be fully or partially grounded. I will sometimes alternate between full and partial grounds. It is commonly assumed full grounds necessitate or strictly entail what they ground. I thus accept the following principle: (*P* fully grounds *Q*) $\rightarrow \Box$ (*P*$\rightarrow$*Q*). I also accept: (*P* fully grounds *Q*) $\rightarrow \Box$ (*Q*$\rightarrow$*P*), which can be taken as a condition for dependency. The worry with the biconditional is multiple realization, as Schaffer (2013) raises for Sider's metaphysical semantics. In reply, I just take *human pain* (Cf. Lewis (1986)) to be a determinable functional property where pain is determined by different determinate types of pain, such as burning pain and throbbing pain. These variants of pain supervene on certain variations in neural activity (e.g. c-fiber stimulation in this way, c-fiber stimulation in that way). We can generalize this for a pain property that can account for the experience of pain in non-earthly creatures such as silicon-based lifeforms. This kind of solution is recommended by Kim (1993). Putnam (1967) calls the solution ad-hoc, but it strikes me as the most plausible account of the phenomena.

*priority*, which concerns a grounding relation that holds between notions contained in the explanans and explanandum.

On principle, then, we should say proffered grounding explanations ought to reflect this feature. But it is not sufficient for notional priority that it require notions in the explanandum to be grounded in more fundamental notions in the explanans. To see this, I want to consider one reason why we think a certain kind of explanation fails. Consider the following:

**R:** The fact that a proton exists is grounded in the fact that a proton exists.

This is a bad explanation. But why? It might be argued that the problem with R is that the notions contained in the explanans are *redundant*. As Bennett (2011a) says, "Typical failures of reductive explanation involve the explanans appearing, perhaps discreetly, in the explanandum" (p. 31). True enough, but we should clarify what exactly is problematic about redundancy. Suppose for the sake of discussion two up quarks and one down quark are bound together by gluons that are mediating the strong force interaction between them. The bond gives rise to a proton. Now consider the following (partial explanation) of the proton's existence:

**Explanation (R*):** The fact that a proton exists is grounded in the fact that a proton exists whenever certain quarks are bound together in a certain way.

**Explanandum:** The fact that a proton exists.

**Explanans:** The fact that a proton exists whenever certain quarks are bound together in a certain way.

R* is more explanatory than R even though the notions in the explanandum are contained in the explanans. This suggests that notions in the explanans may appear in the

explanandum so long as the explanans contain *further* notions that do not already appear in the explanandum. If this is right, we might formulate our requirements in terms of the following principle as a constraint on grounding explanations:

> **Notional Priority (NP):** The explanandum must contain notions grounded in more fundamental notions in the explanans that do not appear in the explanandum.[13]

We can now explain why exactly R fails to be a good explanation. The problem with R is that it violates NP. The explanandum does not contain notions grounded in more fundamental notions in the explanans that do not appear in the explanandum. NP thus rules out explanations like R, but it does *not* rule out *all* explanations where notions appearing in the explanans appear in the explanandum.[14] Notional priority thus captures the Bennett insight about redundancy, but helps us discriminate more clearly when and why redundancy is problematic. Given these considerations about the structure of grounding explanations, we can now turn back to our challenge to grounding physicalism.

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[13]Schnieder (2006) introduces a similar view along these lines for 'conceptual' explanations, which can be distinguished from *metaphysical explanations* that I focus on here. See Liggins (2012) for criticisms of Schnieder's approach. deRosset's (2013) view is perhaps closer to my own since he understands grounding explanations in terms of grounding facts and entity grounding, but neither seem to defend anything as strong as the principle I am calling notional priority, which rules out various forms of redundancy and is ultimately inconsistent with the views they defend.

[14]Here is a potential counterexample to NP. Suppose $P$ obtains. It would seem that $P \lor Q$ is grounded in $P$. In reply, I deny there are disjunctive and conjunctive facts. I distinguish between ground and truth-making (Cf. Griffith (2014)). Truth-making is a relation between sentences and facts, or representations and facts. Metaphysical grounding is a relation between the facts that make sentences true, or between the worldly constituents of facts that make concepts refer. The sentence '$P \lor Q$' is made true by the fact that $P$. The sentence '$P \land Q$' is made true by the fact that $P$ and the fact that $Q$. We can generalize for representational states. My belief that $P$ grounds $Q$ holds in virtue of the fact that $P$ grounds $Q$, but where the 'in virtue of' expression picks out the truth-making relation and not the metaphysical grounding relation. Finally, I should also point out I ultimately reject explanations like R*, but for factors concerning generalizations and laws that go beyond the scope of this essay.

# Chapter 3

# A Dilemma for Grounding Physicalism

Grounding physicalism is the thesis that every truth that is not a fundamental physical truth is grounded in a fundamental physical truth.[15] What is a fundamental physical truth? Or even a physical truth for that matter? Defining a physical truth is notoriously difficult.[16] But for the purposes of this discussion, I take a physical truth to be any truth whose notions are either (A) the fundamental notions of physics, or (B) grounded in the fundamental notions of physics. The fact that a plant is poisonous is a physical truth because its notions are grounded in the notions of fundamental physics. And the fact that an electron is negatively charged is a physical truth because its notions *just are* those of fundamental physics. As mentioned, fundamental notions of physics are whatever the ungrounded notions of physics are, such as *being negatively charged.*

It may then seem natural under these assumptions to say that a fundamental physical truth is any ungrounded physical truth (A) whose notions are those of fundamental physics. Sider (2011) has put forward a plausible principle called 'purity' that requires something to this effect. I formulate a physicalist version of the purity principle as follows:

> **Purity:** Fundamental physical truths contain only fundamental notions of physics.

The idea here is that fundamental physical truths, e.g. the fact that an electron is negatively charged, should only contain notions of fundamental physics. If you are a friend

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[15]We need not assume this thesis to be sufficient for physicalism to generate our problem. Physicalism may also require in addition to a grounding thesis a causal thesis about the completeness of fundamental physical truths, which may turn on whether we take causation to be a grounding relation.

[16]See Montero (2001) and Ney (2008) for instances. I will not be taking up Hempel's dilemma here, but for now I assume *current* physics is what is of primary relevance to defining our terms.

to physicalism, purity seems very plausible. The insight behind purity is best brought out by a familiar metaphor: When God was writing the book of the world, she thought of only fundamentally physical things. She did not write down any sentences involving notions such as consciousness, sporting events, and democracies. As a good physicalist, she just wrote about things like particle positions and field values. This fits nicely with our grounding physicalism thesis GP. We might further develop the metaphor by imagining the book of the world as a kind of long recipe, specifying the basic fundamental ingredients of nature's stew from which all the higher level stuff arises. The fundamental ingredients are put in place for everything else to follow. So once the recipe for nature was complete and set into motion, nature's self-organizing processes took care of the rest. In the end, everything boils down to these basic fundamental ingredients and nothing is over and above them.

This is the picture of grounding physicalism. Now here is the challenge. Consider the fact that I am in pain. Given purity, the fact that I am in pain is not a fundamental physical truth because it includes the notion pain, which is not a notion of fundamental physics. Given GP, the fact that I am in pain must be grounded in some fundamental physical truth. So far, this result is consistent with what any physicalist would expect. But now consider the following grounding fact M that says this fact about my being in pain is grounded in some rock-bottom fundamental physical truth:

> **M:** The fact that certain particles are $\varphi$ing grounds the fact that I am in pain.[17]

The grounding physicalist who accepts M faces a difficult question: What, if anything, grounds M? There are two views here. The *Grounded View* and the *Ungrounded View*. The Grounded View says that M is grounded in a fundamental physical truth. The Ungrounded View says M is ungrounded. But the assumption of GP, purity, and M together

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[17]To be clear, I am not claiming that the brain exhibits any strange quantum effects. This is just a placeholder intended to reflect the idea that our brain chemistry is made out of more fundamental microphysical stuff.

seem to generate a dilemma for anyone considering endorsing one of these views. Here is a reconstruction of the dilemma:

(D1)  Either M is grounded in a fundamental physical truth or M is not grounded in a fundamental physical truth.

(D2)  If M is grounded in a fundamental physical truth, then we face a regress of truths about ground.

(D3)  If M is not grounded in a fundamental physical truth, then grounding physicalism is false.

(D4)  Thus, either we face a regress of truths about ground or grounding physicalism is false.[18]

The Grounded View faces the first horn of the dilemma, or the implication in premise D2 of the argument, and the Ungrounded View faces the second horn of the dilemma, or the implication in premise D3 of the argument.

Here is the argument for D2. Suppose M is grounded in some fundamental physical truth. Call that truth $M'$. But if $M'$ grounds M, then what grounds *the fact that $M'$ grounds M*? Since it includes M, that fact contains the notion pain. Given purity, it must not be a fundamental physical truth, and given GP, it too must be grounded. Rinse, repeat, and we end up with a regress.

Here is the argument in support of D3. Since purity banishes notions that are not notions of fundamental physics from the fundamental physical truths, M is not a fundamental physical truth. It contains the notion pain. But if M is not a fundamental physical truth, and is not grounded in anything else, then GP is false.

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[18]This presentation of the problem is largely due to Sider (2011). Bennett (2011a) and Dasgupta (2014) present similar problems for grounding ground and GP, respectively. There are relevant differences between how Sider presents the problem, Bennett's dilemma, Dasgupta's puzzle, and the dilemma presented here, but the arguments are built out of roughly the same machinery. Bennett considers in addition to purity an argument from Schaffer that appeals to a modal recombination principle. For present purposes and in the interest of space, I must set aside my response to this objection for now and limit myself to the objection from purity, as both Dasgupta and Sider seem to be committed to something along the lines of purity to generate the argument against GP in particular.

Given the dilemma, if our primary goal is saving GP, then it looks like we must take the Grounded View and bite the bullet on the regress.[19] The job of the Grounded View then is to show that the regress is not vicious or problematic. Accepting the regress does not guarantee that we have rescued GP, however. Indeed, I would like to show why accepting the regress undermines GP as an explanatory thesis, or in any case, why two popular proposals currently on offer do. It seems the only other strategy for saving GP then is to simply reject the dilemma by denying one of its premises. One way out of the dilemma would be to deny D2. This would require explaining why grounding M does not commit us to a regress. I do not find this proposed solution promising given two of my objections to the Grounded View which do not depend on the assumption of a regress. I will present these objections in a moment. My preferred strategy is to take the Ungrounded View and reject D3. In particular, I suggest that we respond to the dilemma by giving up one of its chief assumptions: the purity principle. D3 rests on the assumption that M is not a fundamental physical truth, which is entailed by purity. If we reject purity and can provide an alternative reading of GP, then we can reject D3. I aim to do just that. But first I want to present my objections to the Grounded View.

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[19]Dasgupta (2014) does not explicitly present the challenge to GP by appeal to the purity principle, but it seems his argument assumes something in the vicinity of purity. He says "The argument can be formulated without reference to facts [by assuming] there is a list of sentences r expressed in a purely physical vocabulary." If this is not purity in the letter, then it surely is in spirit.

# Chapter 4

# Objections to the Grounded View

The Grounded View strategy accepts the regress, or the implication in D2, but argues that the regress is not problematic. This view comes in two standard responses: the reductionist response and the connectionist response.[20] The reductionist says that when $A$ grounds $B$, $A$ grounds not only $B$, but also the fact that $A$ grounds $B$. And with each resulting grounding fact, the reductionist will reply that any additional grounding fact $n$ is still yet grounded in $A$. We end up with a regress, but supposedly not a vicious regress since, in a sense, $A$ is the ultimate ground of each regressive fact. The connectionist's strategy is to say M is grounded in a more general connection between the mind and body. This general connection might be characterized in a number of ways. It may either be an essential truth, necessary truth, conceptual truth, or a metaphysical law that facts about mental states, for instance, are grounded in facts about microphysical states. First, let me address the reductionist response. Here is M again:

**M:** The fact that certain particles are $\varphi$ing grounds the fact that I am in pain.

The reductionist argues that M is grounded in the fact that certain particles are $\varphi$ing. This response seems deeply unsatisfying. I think the reason it does is because it violates our principle about grounding explanations. Consider the breakdown of the reductionist's grounding explanation of M as follows:

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[20]See Raven (2015) for an overview of this debate. For some accounts or defenses of the reductionist response, see Raven (2011), Bennett (2011a), deRosset (2013), and Korman (2015). For the connectionist response see Raven (2011), Rosen (2010), Fine (2012), Dasgupta (2014), and Glazier (2016).

> **Explanandum:** The fact that certain particles are $\varphi$ing grounds the fact that I am in pain.

> **Explanans:** The fact that certain particles are $\varphi$ing.

Now recall NP:

> **Notional Priority (NP):** The explanandum must contain notions grounded in more fundamental notions in the explanans that do not appear in the explanandum.

M does not contain notions grounded in more fundamental notions in the explanans that do not appear in the explanandum. In fact, the explanans does not contain *any* notions that do not appear in the explanandum. It thus violates NP. Given NP, I think we should reject the reductionist response.

The reductionist strategy fails for explanatory reasons, which means we still need to explain M. How does the connectionist fare? In my estimation, probably worse. One version of connectionism is defended by Dasgupta (2014). He prefers an essentialist account of the connection. So return to M. Why does the fact that certain particles are $\varphi$ing ground the fact that I am in pain? Dasgupta's response: Because (in part) it is just a brute fact about the essence of pain that this is so. In other words, Dasgupta says M is grounded in the following two non-conjunctive facts:

(a) The fact that certain particles are $\varphi$ing.

(b) The fact that it is essential to being in pain that if certain particles are $\varphi$ing then someone is in pain.

What grounds (b) – the fact about essence? Nothing. The essential connection is ungrounded. It is simply a brute fundamental fact. Dasgupta says such facts are not "apt for ground". He calls this view *brute essentialism.*

My first objection to this response is that not only is it inconsistent with grounding physicalism, it appears to give up on physicalism altogether. Note that the essential fact (b) contains the notion pain, which given purity means that it is not a fundamental physical truth. GP thus requires (b) to be grounded, but Dasgupta says the essential facts lack a ground. In other words, (b) is inconsistent with GP.[21] In fact, Dasgupta is committed to a form of dualism. The dispute between physicalists and dualists is now largely taken to be a dispute about whether or not the mental is a fundamental feature of the world. Most physicalists take the fundamental notions to be supplied by fundamental physics, or somehow exhausted by the vocabulary of fundamental physics, and physics currently does not include the mental among its fundamental notions or basic categories. If Dasgupta's view is correct, then the essence of pain is presumably a fundamental notion, but it is not a notion of fundamental physics.

Suppose we divide up the world between essences of things that are notions of fundamental physics and those essences that are not. Since the essence of something is an ungrounded notion and thus a fundamental notion, then we have two brute kinds of essential entities: those essential entities that are fundamentally physical and those that are not. An argument for the brute essentiality of pain then is in effect an argument for dualism. Any good physicalist will want to reject this thesis.

My second objection to the connectionist response concerns the commitment to a regress. The fact about essence (b) that figures into the grounds of M is fundamental and ungrounded. Arguably, this response is resistant to my objection from NP to the reductionist. The brute essentialist will want to say that the essence of something is more fundamental than anything already contained in the explanandum. But what about *the fact that M is grounded in (a) and (b)*? What grounds that fact? Dasgupta simply bites the bullet here. That fact, call it U, is grounded in some further fact G, which is about, perhaps, the essence of ground, as Dasgupta says. But the fact that G grounds U, call

[21]I end up rejecting purity, but I recommend a variant of purity that has this same consequence for brute essentialism.

that fact P, must also have a ground, and presumably no notion more fundamental than the essence of ground will appear in those grounds. It is an absolutely rock-bottom notion. If so, then the grounds of each reiterated grounding fact will not contain more fundamental notions than what is found in the facts they ground, which is in violation of NP.

Alternatively, Dasgupta may claim that every grounding fact is grounded in a fact that *does* contain a notion more fundamental than any notions found in what they ground. Perhaps he will say *the essence of ground* in U's ground G is a more fundamental notion than *the essence of pain* in M's ground (b). But then if P, the fact that G grounds U, has a ground that contains some notion more fundamental than the essence of ground, and this process continues *ad infinitum*, then Dasgupta ends up with an infinite number of distinct fundamental notions. Very plausibly, we should limit our inventory of fundamental notions if we can help it, but Dasgupta's conclusion will commit us to an inflated ideology of fundamental notions. This is a deeply unsatisfying result. It lacks the parsimony and simplicity we expect from our explanations. Here is a Bennett-esque picture of Dasgupta's grounding fact regress (where arrows indicate the grounding relation and brackets indicate a grounding fact).[22]
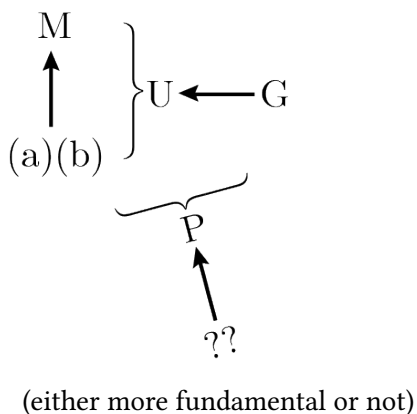


(either more fundamental or not)

Figure 1: Dasgupta's grounding fact regress

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[22]Cf. figure 1 in Bennett (2011a).

My objection thus can be stated in the form of a dilemma for the brute essentialist. If the essential facts (such as (b), G, or ??) do not contain more fundamental notions than the facts they help ground, then the brute essentialist response is in violation of NP. If the essential facts do contain more fundamental notions than the facts they help ground, then the brute essentialist is committed to an inflated ideology. On either horn, brute essentialism fails to be explanatorily satisfying.

Given the explanatory failures of the reductionist and connectionist response, I now want to turn to a possible Ungrounded View reply to the dilemma. If the Grounded View fails and the Ungrounded View seems to entail the falsity of grounding physicalism, then what are the prospects for a grounding formulation of physicalism? Given our package of bad options, one way the proponent of GP might meet the challenge to their thesis and provide a more satisfying response to the dilemma than rival views would be to show that their view (i) does not violate NP, (ii) limits the number of fundamental notions that appear in one's overall account of grounding facts, and (iii) is consistent with GP. I would like to suggest that the Ungrounded View can potentially provide the path toward such a view. This move involves giving up on purity, which is an intuitively plausible principle, but I will argue that this is no mark against the view if purity can be replaced by a plausible alternative that answers to the physicalist virtues that motivate purity in the first place.

# Chapter 5

# Prospects for an Ungrounded View

In response to the question of what grounds M, the Ungrounded View says that *nothing* grounds M. But if M is not a fundamental physical truth, then M *must* have a ground if grounding physicalism is true. The Ungrounded View's response thus seems like an untenable move if you are a grounding physicalist. My response is to reject the claim that M is not a fundamental physical truth. It is the assumption of purity that commits us to this claim, but it is an assumption I think we can give up on without any explanatory cost. I think we can maintain the spirit of purity by endorsing a distinctively grounding variant of the purity principle in its stead:

> **Pure grounds:** Fundamental physical truths that ground other truths contain only fundamental notions of physics.

Pure grounds requires that any notion that enters into a fundamental physical fact that grounds another fact – or, in other words, anything that figures into the scope of the ungrounded explanans of a grounding fact – must be a fundamental notion of physics. In slogan form, fundamental grounds in grounding facts must be *pure*. So if the fact that certain particles are $\varphi$ing is a fundamental physical truth that grounds the fact that I am in pain, then pure grounds requires these grounds to contain fundamental notions. The fact that certain particles are $\varphi$ing must consist in fundamental notions, but unlike purity, pure grounds does not require the explanandum in a grounding fact to consist in fundamental notions.

The idea here is that our "structural foundations" or "basic building blocks" are pure. Or, to exploit the metaphor, when God was preparing the basic ingredients for nature's stew, she thought of reality in its *purest form* and specified the ingredients in completely

fundamental terms. She did not think of things like mental states and sporting events, but only of things like particle positions and field values. But our God is all knowing, and she was aware that all of the complexity in nature would arise out of these basic fundamental ingredients. Grounding facts are like instructions in a recipe book, specifying where the fundamental ingredients go and how everything ultimately fits together in connection to them.[23]

Pure grounds is a nice principle since it seems like a natural extension of NP. We should expect that as the explanans becomes more and more fundamental, it will bottom out in completely fundamental notions. We hit rock-bottom at the fundamental foundations of physics. Pure grounds also allows the Ungrounded View to be consistent with grounding physicalism. Grounding physicalism says fundamental physical truths ground every other truth, and since M is ungrounded, M must be a fundamental physical truth. I accept this result. Recall that I take a physical truth to be any truth whose notions are either (A) the fundamental notions of physics, or (B) grounded in the fundamental notions of physics. M meets this condition. Its notions are those of fundamental physics and those grounded in notions of fundamental physics. It is thus a physical truth, and since it is an ungrounded truth, it is a fundamental physical truth. If one is inclined toward the view that explanations should end somewhere, then terminating with fundamental physics, and facts about the explanatory priority of fundamental physics, seems like a good place to stop.

Finally, pure grounds helps accommodate one of the key commitments of physicalism that the mental is not fundamental, because it forbids the mental from being a "building block" or "fundamental ingredient" of nature. The fundamental ingredients of nature are provided by fundamental physics. If one insists that pain is a fundamental ingredient, then one has given up on physicalism, since it admits of fundamental mentality in a way that is in tension with (at least current) fundamental physics.

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[23]For instance, a recipe for a cake includes instructions about each stage in the process and information about how best to enjoy the final product. Thanks to Joshua Spencer for this suggestion.

Another way of thinking about this, which helps get at what is special about grounding facts, is to point out that grounding facts are not themselves building blocks or ingredients for anything. They do not ground anything. In other words, they are not themselves *foundational*. Take the grounding physicalist thesis for instance: Every truth that is not a fundamental physical truth is grounded in a fundamental physical truth. Nothing further grounds this fact and it grounds nothing further. We should not expect a fact that reports the explanatory completeness of fundamental physics to be grounded in anything else nor for it to ground anything else. It is explanatorily complete. It explains nothing further than what it describes, which reports the fundamental structure of reality. Grounding facts are thus only "fundamental" in the sense that they are ungrounded, but they are *not* fundamental in the sense of being "the basic ingredients out of which everything arises". They do not "make the world". As in our cooking metaphor, they are merely the rules or instructions that explain how the world is structured and prepared out of the most basic ingredients, and those basic ingredients are fundamentally physical.

# Chapter 6

# Conclusion

I have argued that that since pure grounds is as plausible as purity, then we can reject the claim that M is not a fundamental physical truth. Given pure grounds, it does not follow that if M is not grounded in a fundamental physical truth, then grounding physicalism is false. This is because M is a fundamental physical truth and grounding physicalism does not require fundamental physical truths to be grounded. I thus recommend that we reject D3 of our dilemma, thereby blocking this particular challenge to grounding physicalism. To clarify, my only aim here has been to remove one challenge to someone who is a proponent of grounding physicalism, i.e. the challenge posed by this dilemma. As Dasgupta notes, we may have other objections to grounding physicalism, perhaps based on more general considerations about qualia, conceivability arguments, or the knowledge argument, but if I am right, then we should not reject grounding physicalism on the basis of the claim that M is not a fundamental physical truth as a consequence of our commitment to the purity principle.

# References

Audi, Paul. 2012. "Grounding: Toward a Theory of the In-Virtue-Of Relation." *The Journal of Philosophy* 109(12):685–711.

Bennett, Karen. 2011a. "By Our Bootstraps." *Philosophical Perspectives* 25(1):21–41.

Bennett, Karen. 2011b. "Construction Area: (no hard hat required)." *Philosophical Studies* 154:79–104.

Correia, Fabrice and Benjamin Schnieder. 2012. "Grounding: An Opinionated Introduction." In *Metaphysical Grounding: Understanding the Structure of Reality*, ed. F. Correia and B. Schnieder. Cambridge: Cambridge University Press.

Crane, Tim. 1991. "All God Has to Do." *Analysis* 51(4):235–244.

Dasgupta, Shamik. 2014. "The Possibility of Physicalism." *The Journal of Philosophy* 111(9-10):557–592.

deRosset, Louis. 2013. "Grounding Explanations." *Philosophers' Imprint* 13:1–26.

Fine, Kit. 2012. "Guide to Ground." In *Metaphysical Grounding: Understanding the Structure of Reality*, ed. F. Correia and B. Schnieder. Cambridge: Cambridge University Press.

Glazier, Martin. 2016. "Laws and the Completeness of the Fundamental." In *Reality Making*, ed. M. Jago. Oxford: Oxford University Press.

Griffith, Aaron M. 2014. "Truthmaking and Grounding." *Inquiry* 57(2):196–215.

Hellman, Geoffrey Paul and Frank Wilson Thompson. 1975. "Physicalism: Ontology, Determination, and Reduction." *The Journal of Philosophy* 72(17):551–564.

Kim, Jaegwon. 1993. "Multiple Realization and the Metaphysics of Reduction." In *Supervenience and Mind: Selected Philosophical Essays*. Cambridge: Cambridge University Press.

Korman, Daniel Z. 2015. *Objects: Nothing out of the Ordinary*. Oxford: Oxford University Press.

Kripke, Saul. 1980. *Naming and Necessity*. Cambridge: Harvard University Press.

Kroedel, Thomas and Moritz Schulz. 2016. "Grounding Mental Causation." *Synthese* 193:1909–1923.

Lewis, David. 1986. *On the Plurality of Worlds*. Oxford: Blackwell Publishing.

Liggins, David. 2012. "Truth-makers and Dependence." In *Metaphysical Grounding: Understanding the Structure of Reality*, ed. F. Correia and B. Schnieder. Cambridge: Cambridge University Press.

Loewer, Barry. 1993. "From Physics to Physicalism." In *Physicalism and its Discontents*, ed. C. Gillett and B. Loewer. Cambridge: Cambridge University Press.

Melnyk, Andrew. 2006. "Realization and the Formulation of Physicalism." *Philosophical Studies* 131(1):127–155.

Melnyk, Andrew. forthcoming. "Grounding and the Formulation of Physicalism." In *Scientific Composition and Metaphysical Grounding*, ed. K. Aizawa and C. Gillett. London: Palgrave-Macmillan.

Montero, Barbara. 2001. "Post-Physicalism." *Journal of Consciousness Studies* 8(2):61–80.

Ney, Alyssa. 2008. "Defining Physicalism." *Philosophy Compass* 3(5):1033–1048.

Ney, Alyssa. forthcoming. "Grounding in the Philosophy of Mind: A Defense." In *Scientific Composition and Metaphysical Grounding*, ed. K. Aizawa and C. Gillett. London: Palgrave-Macmillan.

Putnam, Hilary. 1967. "The Nature of Mental States." In *Art, Mind and Religion*, ed. W. H. Capitan and D. D. Merrill. Pittsburgh: Pittsburgh University Press.

Raven, Michael J. 2011. *Ph.D. Thesis*. New York University: ProQuest/UMI.

Raven, Michael J. 2015. "Ground." *Philosophy Compass* 10(5):322–333.

Rosen, Gideon. 2010. "Metaphysical Dependence: Grounding and Reduction." In *Modality: Metaphysics, Logic, and Epistemology*, ed. B. Hale and A. Hoffman. Oxford: Oxford University Press.

Schaffer, Jonathan. 2009. "On What Grounds What." In *Metametaphysics: New Essays on the Foundations of Ontology*, ed. D. J. Chalmers, D. Manley and R. Wasserman. Oxford: Oxford University Press.

Schaffer, Jonathan. 2013. "Metaphysical Semantics Meets Multiple Realizability." *Analysis Reviews* 73(4):736–751.

Schaffer, Jonathan. forthcoming. "The Ground between the Gaps." *Philosophers' Imprint* .

Schnieder, Benjamin. 2006. "A Certain Kind of Trinity: Dependence, Substance, Explanation." *Philosophical Studies* 129:393–419.

Sider, Theodore. 2011. *Writing the Book of the World*. Oxford: Oxford University Press.

Stoljar, Daniel. 2015. "Physicalism." *Stanford Encyclopedia of Philosophy* .

Wilson, Jessica. 2014. "No Work for a Theory of Grounding." *Inquiry* 57(5/6):535–579.