

# Grounding physicalism and “Moorean” connections

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This article is forthcoming in *Inquiry*.

ABSTRACT: ‘Grounding physicalism’ names the doctrine that mental properties are metaphysically grounded in underlying physical properties. The present paper develops a novel challenge to this view derived from two main claims: one of them concerning the natures of phenomenal properties, the other concerning the relation between grounding and essence. The central goal of the paper is to explain how grounding physicalists can meet this challenge by means of appealing to grounding laws, thereby making room for “Moorean” connections between distinct types of property.

## I Introduction

An increasingly popular way to capture the doctrine of physicalism is in terms of the notion of *metaphysical grounding*. In a grounding framework, reality stratifies into levels, with fundamental items at the metaphysical ground floor, and then a range of derivative items (located at various non-fundamental levels) metaphysically grounded therein. Physicalism can thus be captured as the doctrine that the fundamental level comprises the basic physical items (perhaps those objects and properties disclosed by some completed future physics), and that everything else, including mentality, is metaphysically grounded in those things. Mentality thus classifies as being broadly physical by virtue of being grounded in the basic physical items comprising the metaphysical ground floor.<sup>1</sup>

In the recent literature, there has been growing interest in this kind of view, which we can refer to as grounding physicalism’ (see Aleksiev 2022; Bader forthcoming; Blaesi 2022; Dasgupta 2014; Goff 2017; Liu forthcoming; Hattiangadi & Moran forthcoming; Moran 2021; Pautz manuscript; Sassarini 2021; Schaffer 2017). Moreover, the view looks promising in various important ways. For instance, it constitutes a form of physicalism that is both genuinely non-reductive and also non-eliminative, and which thereby adequately makes room for mentality in a nonetheless wholly physical world. Additionally, the view appears to open up various potential new avenues for answering important arguments that physicalists have traditionally faced, including, notably, the ‘conceivability argument’ (Chalmers 1996) the ‘explanatory gap argument’ (or ‘hard problem’) (Levine 1983) and the ‘knowledge argument’ (Jackson 1982).<sup>2</sup> There is, therefore, considerable interest not only in assessing whether grounding physicalism is defensible, but also in establishing the precise form that this view should take.

The present paper contributes towards both of these aims by setting out an important objection to grounding physicalism and then developing a response.

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<sup>1</sup> One might prefer to call derivative properties as being *material* rather than physical, to distinguish them from the basic physical properties at the fundamental level (cf. Schaffer manuscript).

<sup>2</sup> For ground-theoretic responses to these problems see (respectively) Moran (2021); Schaffer (2017a) and Moran (forthcoming).

Driving the objection are two main claims. One is a thesis concerning the natures of phenomenal properties, i.e., those mental properties that are constitutively involved in phenomenally conscious experience and which have traditionally been the main focus of the mind-body debate. The other is a general thesis about how metaphysical grounding works, and which explicitly links the notions of grounding and essence. As we will see, these theses are in tension, and this causes a problem for the grounding physicalist view. What I'll suggest, however, is that grounding physicalists can respond by appealing to the apparatus of grounding laws. In turn, this suggests that any adequate development of grounding physicalism must appeal to a framework on which at least some grounding relations, including physical-to-mental grounding relations, are backed by substantive grounding laws that serve to connect the grounding-related properties.

*Roadmap.* The next section states grounding physicalism more precisely and then sets out the argument I wish to focus on (§2). The following section develops a response to this argument that invokes a framework on which some grounding relations are backed by grounding laws (§3). The final section concludes (§4).

## 2 The challenge

For present purposes, it will be useful (simplifying a little) to think of grounding physicalism as the thesis that the mental is metaphysically grounded in the physical.<sup>3</sup> We can operate with a standard conception of grounding as a relation of metaphysical dependence and determination apt to back metaphysical or constitutive explanation. We can officially treat grounding as a relation on facts (though I will often speak loosely of grounding relations between properties) and we can express grounding relations in the standard way via the 'in virtue of' locution.<sup>4</sup> Grounding physicalism can then be stated as the view that mental facts, (i.e. instantiations of mental properties) are grounded in or obtain in virtue of physical facts (i.e. instantiations of physical properties). The fact that Jane is in pain, for instance, will on grounding physicalism be grounded in (obtain in virtue of) the fact that Jane's c-fibres are firing (to stick with this familiar if empirically inadequate example).

The challenge to grounding physicalism I want to focus on turns on two main claims. The first is a thesis about the nature of phenomenal properties. The second is a more general thesis concerning the nature of grounding as such. The problem is that whilst it can be argued that grounding physicalists face pressure to accept both theses, they jointly entail that grounding physicalism is false.

### 2.1 Phenomenal properties

It is plausible to think that phenomenal properties have *wholly phenomenal essences*. That is, it is plausible to think that the essence of a phenomenal property is exhausted by its phenomenal character i.e., what it is like to instantiate it. Call this:

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<sup>3</sup> Contrast the more general statement of grounding physicalism offered above, namely that (i) the fundamental properties are the basic physical properties disclosed by some completed physics and that (ii) all other properties, including mental properties, are grounded in those basic properties.

<sup>4</sup> For more on my own views about the grounding relation cf. Moran (2018). See also Audi (2012); Fine (2001); Rosen (2010); Schaffer (2009) for classic introductions to the notion.

**PHENOMENAL ESSENCE:** Phenomenal properties have phenomenal essences. That is, for any phenomenal property, P, the essence of P can be exhaustively captured just by describing what it is like for a subject to instantiate P.

As Aleksiev (2022: 17) explains: ‘A priori, experiences are essentially what they feel like. Their essences appear fully constituted by their phenomenal characters. For example, a priori, the essence of pain is that pain hurts.’ In other words, the essence of pain is apparently given just by the way that pain phenomenologically feels. Moreover, the same appears to hold of phenomenal properties in general.

Notably (though perhaps unsurprisingly) one finds endorsements of **PHENOMENAL ESSENCE** (or at least something very much like it) throughout the history of philosophy. To take just a few examples (somewhat at random): Descartes (1641) endorses the thesis in his reply to Arnaud; Russell (1927) and Eddington (1928) rely on something very like it in their discussions of (what we now call) Russellian monism; Kripke (1980) endorses the thesis in *Naming and Necessity* and so does Nagel (1974) in ‘What is it like to be a bat?’ Some more recent examples include Aleksiev (2022: 174), Goff (2017), and Nida-Rümelin (2007, manuscript).

**PHENOMENAL ESSENCE** is closely connected to a further attractive thesis, which is epistemic in character. This states that a subject can come to know the full essence of a phenomenal property just by virtue of instantiating it. This claim is known as:

**REVELATION:** The mere instantiation of a phenomenal property P by a subject S is sufficient for that subject to come to know completely the essence of P.

Whilst **REVELATION** is not entailed by **PHENOMENAL ESSENCE**, the converse does appear to hold. After all, it’s hard to see how one could be in a position to know the whole essence of a phenomenal property just by virtue of instantiating it unless there were no more to the essence of that property than its phenomenological character. This connection is nicely brought out by Philip Goff in the following passage:

Surely, you know exactly what your pain is—what it is for someone to feel pained in precisely that way—just by attending to pain and thinking about it in terms of how it feels. There is nothing in any way hidden from you about the reality of how you’re feeling; nor is it possible that you’re not really feeling that way. And that’s because the feeling is “right there” for you, in such a way that its reality cannot be doubted. (2017: 108, cf. Liu forthcoming).

In other words, the nature of pain is fully revealed to one in introspective reflection and is thereby revealed to have a purely phenomenal essence. The truth of **REVELATION** therefore seems to entail that **PHENOMENAL ESSENCE** holds as well.

Just like **PHENOMENAL ESSENCE**, **REVELATION** is widely acknowledged to be prima facie rather plausible (see for example Chalmers 2016, 2018; Goff 2015, 2017; Horgan & Tienson 2001; Lewis 1995; Liu 2021; Nida-Rümelin 2007, Roelofs 2020; Schroer 2010; Trogdon 2017). Accordingly, we can acknowledge at least two routes to motivating the former thesis. In the first place, we might note how intuitive that thesis is in and of itself. But in the second place, we might note just how plausible the second thesis is, and then point out that it entails the first.

That being said, both of these theses tend ultimately to be endorsed only by advocates of dualist or other non-physicalist views. Nor is it hard to see why this should be. Consider the classic materialist who thinks that mental properties are identical to physical properties—so that being in pain, for example, is identical to some physical property like *c*-fibres firing.<sup>5</sup> Clearly, no such theorist can accept PHENOMENAL ESSENCE. After all, no such physical property has a wholly phenomenal essence.<sup>6</sup> Accordingly, if mental properties just are such physical properties, as on reductive physicalism, then, by Leibniz’s Law, PHENOMENAL ESSENCE is false.

In contrast, dualists (for example) can easily accept PHENOMENAL ESSENCE. On their view, mental properties are wholly distinct from physical properties, and so one cannot appeal to a Leibniz’s Law argument as above to show that dualism and PHENOMENAL ESSENCE are incompatible. Moreover, dualists are free to endorse the following view, namely, that while the nature of a phenomenal property is fully exhausted by its phenomenal feel, phenomenal properties are synchronically caused by underlying physical properties in accordance with fundamental psycho-physical laws. Indeed, this is precisely the sort of ‘naturalistic’ dualism endorsed by Chalmers (1996); Gertler (2020); Nida-Rümelin (2007); and Pautz (2009).

Various other non-physicalist views would also seem quite compatible with PHENOMENAL ESSENCE, including panpsychism (cf. Goff 2017) and idealism (cf. Foster 1982). Accordingly, one might conclude that it ought to be no surprise if this thesis turns out to be—as the argument of this section seeks to show—incompatible with the ‘grounding physicalist’ view set out above.

That said, on the face of it at least, grounding physicalism seems quite compatible with PHENOMENAL ESSENCE, and indeed just as compatible with this thesis as naturalistic dualism. Just like naturalistic dualists, grounding physicalists can claim that mental properties (like being in pain) are wholly distinct from underlying physical properties (like *C*-fibres firing); hence, while they will agree that while no physical property (like *C*-fibres firing) has a wholly phenomenal essence, they can insist nonetheless that the mental properties grounded therein (like being in pain) do have wholly phenomenal essences. In fact, the only difference between the grounding physicalist and the naturalistic dualist at this point is that while the naturalistic dualist thinks that mental properties are synchronically caused by physical properties (in accordance with naturalistic psycho-physical laws), the grounding physicalist insists that mental properties are metaphysically grounded in such properties instead.<sup>7</sup>

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<sup>5</sup> We know, of course, that this isn’t quite right, but we can continue to use the term ‘*c*-fibres firing’ in what follows, letting it serve as a kind of placeholder for whatever physical property pain turns out to be identical to (if indeed it is identical to any physical property).

<sup>6</sup> Of course, in a grounding physicalist framework, mental properties are also physical properties, so some physical properties will have wholly phenomenal essences, namely the mental ones. Those that lack wholly phenomenal essences will be the more basic (non-mental) physical properties (e.g. neural properties) in terms of which the mental properties are grounded. A qualification should therefore be entered in the preceding sentence in the main text. Consider it made.

<sup>7</sup> Cf. Rosen (2010: n. 8): ‘There is a difference between the [physicalist] who holds that the facts about phenomenal consciousness are grounded in, and hence necessitated by, the neurophysiological facts that underlie them, and the dualist for whom the neural facts merely cause or generate conscious states according to contingent causal laws.’ (This is *pace* Pautz [manuscript], who argues that the difference between the naturalistic dualist and the grounding physicalist is not especially deep. For pushback against Pautz on this issue see Schaffer 2017; cf. also Moran manuscript.)

The prima facie compatibility of grounding physicalism with PHENOMENAL ESSENCE is nicely brought out by Gideon Rosen (2010) in the passage below:

Consider a version of non-reductive materialism [on] which every fact about phenomenal consciousness is grounded in facts about the material organ of consciousness (in our case, the brain) even though no phenomenal property is reducible to any neurophysiological property or to any functional property that might be realized by a brain state. On this sort of view, I might be in pain in virtue of the fact that my *c*-fibres are firing, even though my being in pain would not *consist in* the firing or my *c*-fibers, nor in any disjunctive state of which *c*-fiber firing was a disjunct, nor in some existentially general state of which *c*-fiber firing was an instance. According to this non-reductive materialist, the *nature* of pain is exhausted by its phenomenal character; and yet, when my *c*-fibers are firing, I am always in pain in virtue of this fact *in the same sense in which a thing is square in virtue of being an equilateral rectangle.* (2010: 131)

Indeed, not only is grounding physicalism prima facie compatible with PHENOMENAL ESSENCE, but this appears to be both an attractive and a distinctive feature of that view. In the past, the attractive thesis of PHENOMENAL ESSENCE has been viewed as being the sole preserve of dualist and other non-physicalist views. It would be an important result, therefore, and would provide significant motivation for grounding physicalism, if one could show that grounding physicalism is indeed compatible with PHENOMENAL ESSENCE like it initially appears to be.

In this paper, my goal will be to explain how grounding physicalism can live up to this promise.<sup>8</sup> First, however, I want to set out the case for thinking that grounding physicalism and phenomenal essence are incompatible after all. Again, this turns on a plausible principle concerning the nature of metaphysical grounding as such. I'll now set out that principle and sketch out the motivation for it.

## 2.2 Mediation

Grounding relations are often backed or mediated by the natures or essences of the properties involved. Consider, for example, the claim that *a* is red in virtue of being scarlet. Here, the grounding connection seems to be mediated by the essences of the properties *being red* and *being scarlet*. That is to say, it seems to be in some sense *thanks to* the natures or essences of the properties *being red* and *being scarlet* that the grounding relation between the facts  $\langle a \text{ is scarlet} \rangle$  and  $\langle a \text{ is red} \rangle$  obtains. One might think, moreover, that all grounding relations are like this, i.e., that whenever some fact  $\Gamma$  grounds some further fact  $\Delta$ , the grounding connection between  $\Gamma$  and  $\Delta$  is backed or mediated by the natures of the properties involved. This leads us to the second thesis on which the argument against grounding physicalism turns:

$$\text{MEDIATION} \quad \forall x \forall F \forall G (Fx \leftarrow_g Gx) \supset \Box_{F \circ G} (\exists y Gy \supset Fy \leftarrow_g Gy)$$

That is: for any  $x$ , any  $F$  and any  $G$ , if  $x$  is  $F$  in virtue of being  $G$ , then it lies in the nature of the properties  $F$ ,  $G$ , that if anything is  $G$ , it is  $F$  in virtue of being  $G$ . (Here we use Fine's notation  $\Box_F P$  to mean that it lies in the nature of (*being*)  $F$  that

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<sup>8</sup> Essentially, I will be developing a suggestion in Rosen (2010), who anticipates the problem of combining grounding physicalism with PHENOMENAL ESSENCE and briefly outlines a solution

P. And we use Rosen’s notation  $Fx \leftarrow_g Gx$  to mean that the fact that  $x$  is  $F$  obtains in virtue of (is grounded in) the fact that  $x$  is  $G$ . Finally, we read “ $\Box_{F \circ G} P$ ” as the claim that it lies in the nature of  $F$ , or  $G$ , or else  $F$  and  $G$  taken together, that  $P$ .<sup>9</sup>

Versions of this principle have been defended in Audi (2012); Dasgupta (2014); Fine (2012); Lenart (2021); and Rosen (2010, 2015).<sup>10</sup> In the rest of this sub-section, I set out five main arguments for it. First, however, a note of clarification.

Consider the arbitrary grounding claim:

(G)  $a$  is  $F$  in virtue of being  $G$ .

The idea that grounding relations are mediated by the essences of the properties involved is the idea that when grounding claims like (G) hold, there must be something about the nature of  $F$  or  $G$  (or perhaps both of these properties taken together) that makes this so, i.e. that claims like (G) can only obtain if we also have:

(E) It lies in the nature of  $F$ , or  $G$ , or perhaps the natures of  $F$  and  $G$  taken together, that, in general, if anything is  $G$ , then it is  $F$  in virtue of being  $G$ .<sup>11</sup>

In other words, the fact that  $a$  is  $F$  in virtue of being  $G$  is backed by some truth stating that in general, the natures of the properties  $F$  and/or  $G$  are such that if a thing is  $G$ , then it is  $F$  for that reason. (Just as, in our previous examples, the natures of *being red* and *being scarlet* make it so that when a thing is scarlet it is red for that reason, which then explains why  $a$ ’s being scarlet makes it the case that  $a$  is red.)

How should we think of the relation between (G) and (E)? Following Rosen (2010), one might think of (E) as part of the ground of (G). That is, supposing that grounding facts (such as  $\langle a \text{ is red in virtue of being scarlet} \rangle$ ) are themselves in need of grounding, we might think that claims of the same form as (E) serve to supply the ground we need (so that the fact  $\langle a \text{ is red in virtue of being scarlet} \rangle$  would itself be grounded in some essential truth flowing from the natures of the properties involved). Alternatively, we might think of (E) as part of the metaphysical explanation of (G), if grounding and metaphysical explanation can come apart.<sup>12</sup>

There may also be other options. Fortunately, however, we need not decide between them here. All that we need to note is that MEDIATION is plausible, leaving

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<sup>9</sup> What about facts like  $\langle x \text{ is } F \text{ or } x \text{ is } G \rangle$  being grounded in (e.g.) the fact that  $\langle x \text{ is } F \rangle$ ? Here it isn’t the essence of the properties doing the work. If anything, it will be something about the nature of disjunction. Accordingly, the broader principle here seems to be that when one fact  $A$  is grounded in another fact  $B$ , there is something about the essences of one or more of the constituents of the facts involved that mediates the connection (cf. Rosen 2010). That being said, if we restrict our focus to what we might call atomic facts – instantiations of properties by particulars – then plausibly this broader mediation principle is going to entail the narrower one stated above.

<sup>10</sup> For related discussion in the context of the mind-body problem cf. Aleksiev (2021); Goff (2017: ch. 1); and Liu (forthcoming).

<sup>11</sup> Versions of this principle accepted by Audi (2012); Fine (2012); and Rosen (2010, 2015). For discussion of something rather like this principle in the context of the mind-body problem see Aleksiev (2021); Goff (2017: ch. 1); and Liu (forthcoming).

<sup>12</sup> Some think that grounding and metaphysical explanation are distinct and hence can come apart. E.g. one might think that in some cases at least, grounding claims supply only part of the full metaphysical or constitutive explanation of a given fact. The parties to this debate are sometimes called ‘unionists’ and ‘separatists’, respectively. For relevant discussion see Raven (2015).

the precise nature of the relationship between claims like (G) and (E) open.<sup>13</sup> To that end, then, let us consider the aforementioned arguments for MEDIATION.

[1] *The argument from real definition.*

It is sometimes possible to give a real definition of one property in terms of another. That is, it is sometimes possible to specify what it is for something to be F by stating that to be F is to be G. For instance: what it is to be a bachelor is to be an unmarried man; what it is to be a vixen is to be a female fox. Now, when a real definition of one property F can be given in terms of another property G, there will generally be a grounding connection between the two (cf. Rosen 2015). Suppose we have the following real definition:

( $\alpha$ ) D(F, G)

...then, it will generally be the case that:

( $\beta$ )  $\Box \forall x (Gx \supset Fx \leftarrow_g Gx)$

In other words: if what it is to be F is to be G then it will generally be the case that being G grounds being F, so that when something is G, that thing is F for that reason.

Note that in cases like this, MEDIATION will hold, for we can appeal to the essential connection between F and G to explain the grounding connection. Since what it is to be F is to be G, it is no surprise that whenever something has the grounding property G, that thing must also have the grounded property F for that reason.

In a similar way, it is often possible to give a real definition of some property F not in terms of just one further property but rather in terms of some plurality of properties  $G_1, G_2 \dots G_n$ , so that to be F is to be either  $G_1$ , or  $G_2 \dots$  etc. In these cases, too, there will often be grounding connections between the properties involved. Suppose that to be F is to be  $G_1$  or  $G_2$  or  $\dots G_n$ , so that we have the following real definition of being F:

( $\chi$ ) D (F, [ $G_1 \vee G_2 \dots \vee G_n$ ])

Again, in this kind of case, MEDIATION will hold, for we can appeal to the essential connection(s) between the properties to explain the grounding connection(s). Since what it is to be F is to be  $G_1$  or  $G_2$  or  $\dots G_n$ , it is no surprise that whenever something has one of these base properties ( $G_1$  or  $G_2$  or  $\dots G_n$ ), that thing must also have the grounded feature F for that reason.

In light of this, one might speculate that *all* grounding relations flow from associated real definitions in this kind of way. In other words, one might speculate that being F is only ever grounded in some plurality of properties  $P$  when one can give a real definition of being F in terms of the properties

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<sup>13</sup> There will, however, be further discussion of the relationship between facts of these kinds in what follows, in connection with the general question as to what grounds the grounding facts.

constituting *P*. The idea is not implausible.<sup>14</sup> If it is true, however, then we can argue for MEDIATION straightforwardly, on the basis that (i) all grounding claims flow from associated real definitions of the grounded property in terms of the grounding properties and (ii) if this is so, then all grounding relations are mediated by the essences of the properties involved (and, in particular, by the essences of the properties involved in the grounded facts).

[2] *Grounding the grounding facts.*

Many pages in the recent grounding literature have been devoted to the question: what grounds the grounding facts? Suppose that *a* is *F* in virtue of being *G*. Let  $\Gamma$  be the complex fact  $\langle a \text{ is } F \text{ in virtue of being } G \rangle$ . Assuming all facts are either grounded or fundamental, then in order to avoid a large plethora of fundamental grounding facts we have to find some ground for  $\Gamma$  and other grounding facts like it. An important question, therefore, concerns what this ground could be, i.e. the question is: *what grounds the grounding facts?*<sup>15</sup>

While various options have been canvassed in the literature, one of the more plausible is the thought that grounding facts are ultimately grounded in facts about essence. For instance, on this approach,  $\Gamma$  would be grounded in some relevant fact about the essences of the properties involved (*F* and *G*). Since facts about essence are plausibly ‘autonomous’, i.e. not themselves in need of grounding (cf. Dasgupta 2014), this account meets the explanatory demand without creating a further explanatory question and hence preventing a regress. We also get a plausible explanation as to what makes facts like  $\Gamma$  obtain. On this account of what grounds the grounding facts, however, MEDIATION clearly follows. So, this is another reason for thinking MEDIATION obtains.

[3] *The argument from disparity.*

The argument from disparity is drawn from Audi (2012). The main idea is that (i) only certain properties can stand in grounding relations and (ii) this needs to be explained. It is then claimed that we can provide an explanation in terms of the idea that in some cases, the relevant properties are ‘essentially connected’, whereas in others they are not. Audi puts the point like so:

Grounding is importantly tied to the natures of properties. Whether two facts are suited to stand in a grounding relation depends heavily upon what properties are involved in those facts. Facts involving redness and loudness,

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<sup>14</sup> Cf. Rosen (2010) on the ‘grounding-reduction link’, as well as Goff (2017: ch. 1), who argues that even if not all grounding relations need to flow from background real definitions, the kind of ‘constitutive grounding’ needed for grounding physicalism to genuinely classify as a kind of physicalism is such that all grounding relations of the constitutive kind must flow from associated real definitions. See also Fine (2012: 76), who argues that in general, if one fact  $\Gamma$  grounds another fact  $\Delta$  then what is needed to explain this grounding relation is an account the natures of the elements in the grounding fact  $\Delta$ , so that ‘what explains the ball’s being red or green in virtue of its being red is something about the nature of what it is for the ball to be red or green (and about the nature of disjunction in particular) and not something about the nature of what it is for the ball to be red’.

<sup>15</sup> For relevant discussion and a range of potential answers to this question see: Bennett (2011); Dasgupta (2014); deRosset (2013a); Litland (2017) and Sider (2020).



for example, never stand in grounding relations with one another. Nothing could be red in virtue of being loud, or loud in virtue of being red... These properties are simply too disparate. Compare maroonness. The fact that a thing is maroon is bound to ground its being red... To label this relationship, let us say that facts are suited to stand in a relation of grounding only if their constituent properties are *essentially connected*. Now, the reason for this label is that it seems to be of the essence of maroonness that its instances ground instances of redness... And likewise, it is of the essence of redness that an instance of it can be grounded in an instance of maroonness. (2012: 108-109)

In short, we must accept that MEDIATION holds, because in order to explain why only certain properties can stand in grounding relations, we must appeal to the fact that only certain properties are ‘essentially connected’.

[4] *The argument from generality.*

The argument from generality, meanwhile, turns on the thought that grounding relations involve a certain sort of generality and that the best way to explain this is to accept MEDIATION (cf. Audi 2012; Rosen 2010). In general, it seems that grounding relations do not vary from instance to instance of the properties involved, either within or across worlds. So, for example, if some object  $a$  in  $w$  is  $F$  in virtue of being  $G$ , it seems to follow that in general, not only within  $w$  but in all other metaphysically possible worlds, anything that is  $G$  is  $F$  for that reason.<sup>16</sup> Moreover, the truth of MEDIATION would account for this. If grounding connections are backed by the essences of the properties involved, then since the essences of properties do not vary from world to world, nor would the grounding relations these essences mediate.

[5] *The argument from necessity.*

A related argument is the argument from necessity. It is plausible to think (and often assumed in the literature) that grounding relations imply corresponding necessities, so that if  $\Gamma$  grounds  $\Delta$  then necessarily, if  $\Gamma$  obtains then  $\Delta$  obtains.<sup>17</sup> It is also plausible to think that necessities are never brute but rather always backed by facts apt to explain why they obtain. Perhaps the most plausible such account is the Finean one on which modal claims are backed by essences. For our purposes, moreover, the relevant feature of that account is that if some necessity obtains, then it obtains thanks to the essences of some item or plurality thereof.<sup>18</sup> To see why this is relevant, suppose that  $Fa \leftarrow_g Ga$  and, therefore, by necessitation, that  $\Box (Ga \supset Fa)$ . Given the Finean account, we need to locate some item or items whose essence or

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<sup>16</sup> For discussion of this idea see Rosen (2010, 2015) and Moran (2018, 2022).

<sup>17</sup> This is a standard assumption in the literature. Fine (2012) associates the idea that grounding facts necessitate the facts they ground with the idea that grounding facts supply the strictest possible type of explanation possible for the facts that they ground (cf. Dasgupta 2014). See also Skiles (2018). Philosophers sceptical to the idea that grounds necessitate include Chudnoff (manuscript); Dancy (2004); deRosset (2013b); Leuenberger (2014); Skiles (2015); Schnieder (2016).

<sup>18</sup> More precisely, the idea is that *what it is* for a proposition  $P$  to be necessary is for there to be some items the essential truths concerning which strictly imply that  $P$ . In other words, what it is for  $P$  to be necessary is for the negation of  $P$  to be incompatible with the complete set of essential truths.

essences *make it so* that whenever  $Ga$  obtains we get the grounded fact  $Fa$ . Plausibly, though, the only relevant items are going to be the properties  $F$  and  $G$ .<sup>19</sup> If that is right, however, then it appears that we have arrived at **MEDIATION**, and by the following route: we needed to explain the necessary truths that grounding claims imply, and to do this, it seems, we had to suppose, in line with **MEDIATION**, that grounding relations are in general backed by the essences of the properties that are involved.

The above arguments provide at least *prima facie* support for **MEDIATION**. Of course, there is much more that can be said; but we have said enough to justify the claim that grounding physicalists face at least some pressure to accept that claim. The trouble, however, as we will see, is that given **PHENOMENAL ESSENCE**, one can draw on the **MEDIATION** principle to show that grounding physicalism is false.<sup>20</sup>

### 2.3 The argument

The argument itself is straightforward. Suppose that grounding physicalism is true. Now take an arbitrary mental fact, say, the fact Anna is in pain ( $Fa$ ). We can then infer from grounding physicalism that there must be some physical property,  $G$ , such that Anna is in pain in virtue of having  $G$  (e.g. it might be that Anna is in pain in virtue of some neurological condition, say *c*-fibres firing). Thus we get:

$$(1) Fa \leftarrow_g Ga$$

Now given (1), and if **MEDIATION** is true, it follows that there must be something about the nature of  $F$  and/or  $G$  that mediates the grounding claim that (1) expresses, such that, given of course that  $F$  and  $G$  have the natures that they do, no item that is  $G$  could fail to be  $F$  (precisely in virtue of being  $G$ ). Next, taking **MEDIATION** as a second assumption, we can infer from our first premise that:

$$(2) \Box_{F \circ G} (\exists x Gx \supset Fx \leftarrow_g Gx)$$

The trouble now is that we can also argue, given **PHENOMENAL ESSENCE**, that (2) is false. So, taking **PHENOMENAL ESSENCE** as our third assumption, we now get:

$$(3) \neg \Box_{F \circ G} (\exists x Gx \supset Fx \leftarrow_g Gx)$$

Thus, grounding physicalism gives us (1), **MEDIATION** gives us (2), **PHENOMENAL ESSENCE**—or so I will argue presently—gives us (3). Accordingly, if we can take **MEDIATION** and **PHENOMENAL ESSENCE** as premises—and, once again, each of these claims is plausible—we can infer that grounding physicalism is false.

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<sup>19</sup> Well, one might think that the item  $a$  is somehow involved (cf. Rosen 2015; Moran 2018, 2021). Note, however, that we might also consider a case where in general the property  $G$  acts as the ground of the property  $F$ , so that necessarily, whenever anything whatever is  $G$ , that thing is  $F$ . Here it appears that we have to look to the essences of the properties involved and not elsewhere.

<sup>20</sup> For related arguments against physicalism that instead take **REVELATION** as a premise see Liu (forthcoming); Goff (2017: ch. 5); and Trogdon (2017).

Why think that from PHENOMENAL ESSENCE we can derive claim (3)? Again, the argument is straightforward. (3) tells us that it lies in the nature either of F, or G, or perhaps F and G taken together, that when a thing is G, that thing is F in virtue of being G. However, it can be argued that, given PHENOMENAL ESSENCE, this is not the case, since nothing about the nature of F, nor anything about the nature of G, entails that when a thing is G, that thing must be F for that reason.

We can run the argument in two parts. First, we argue that PHENOMENAL ESSENCE entails:

$$(4) \neg \Box_F (\exists x Gx \supset Fx \leftarrow_g Gx)$$

That is, we argue that—given PHENOMENAL ESSENCE—nothing about the nature of the mental property F entails that G-things (e.g. things with their c-fibres firing) are F (e.g. in pain) for that reason. And this seems right. F is a mental property; hence, by PHENOMENAL ESSENCE it has a wholly phenomenal essence. The nature of pain, for example, is how pain feels; there's nothing more to it than that. Hence, the essence of pain is silent about its physical grounds (actual or possible). You could know the complete nature of pain and know nothing about how it is grounded. Hence, PHENOMENAL ESSENCE entails:  $\neg \Box_F (\exists x Gx \supset Fx \leftarrow_g Gx)$ .

In the second step, we argue that—whether PHENOMENAL ESSENCE is true or not—we should accept:

$$(5) \Box_G (\exists x Gx \supset Fx \leftarrow_g Gx)$$

In other words, we argue that there is nothing about the essence of the physical property G (however exactly G is construed) that could mediate the grounding connection between F and G. Again, G is the physical property in virtue of which, according to grounding physicalism, Anna is in pain. Perhaps G is the property of c-fibres firing, in other words a certain kind of brain state. Plausibly, therefore, whatever we have by way of positive knowledge of G, we at least have the negative knowledge that it does not lie in the nature of that property that G-things are F in virtue of being G. Compare the following from Kripke:

What about the case of C-fibers? To create this phenomenon, it would seem that God need only create beings with C-fibers capable of the appropriate type of physical stimulation; whether the beings are conscious or not is irrelevant here. It would seem, though, that to make the C-fiber stimulation correspond to pain, or be felt as pain, God must do something in addition to the mere creation of the C-fiber stimulation; He must let the creatures feel the C-fiber stimulation as *pain*, and not as a tickle, or as warmth, or as nothing. . .if the phenomenon [of pain] exists at all, no further work should be required to make it into a pain. (1980: 153-154)

There are various ways to read this passage. However, I take it that among the various things going on, Kripke is pointing to the very plausible idea that it does not lie in the essence of c-fibres firing that beings whose c-fibres are firing should be in pain. Likewise, I'd want to say, for other relevant physical properties, whose natures, after all, can be wholly characterised in structural and/or causal terms. Even if (instances of) such properties do in fact ground (instances of) mental properties, there is nothing about the natures of such properties dictating that this

should be so. On the contrary, (the relevant) physical properties are simply silent about the realm of the mental; there is nothing in their natures that as it were points to mental properties that—at least if grounding physicalism is true—they ground.

If, however, we can derive both (4) and (5) on the assumption of PHENOMENAL ESSENCE, then it follows that we can derive (3) from PHENOMENAL ESSENCE TOO. For (3) is plausibly equivalent to (or at least is plausibly entailed by) the conjunction of those claims. At this point, therefore, we can conclude that PHENOMENAL ESSENCE implies claim (3), i.e. the claim that  $\neg \Box_{F \circ G} (\exists x Gx \supset Fx \leftarrow_g Gx)$ .

What the above brings out is that grounding physicalism is incompatible with MEDIATION and PHENOMENAL ESSENCE. Since both principles are plausible, it follows that one can argue against grounding physicalism by using them as premises:

- 1 If grounding physicalism is true, then either PHENOMENAL ESSENCE is false, or MEDIATION is false.
  - 2 PHENOMENAL ESSENCE is true.
  - 3 MEDIATION is true.
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- $\therefore$  Grounding physicalism is false. [1, 2, 3]

How should grounding physicalists respond? One option, of course, would be to reject PHENOMENAL ESSENCE. As I have said already, however, not only is this principle compelling, but it appears to be a potential selling point of grounding physicalism that, unlike other forms of physicalism, it can follow its various non-physicalist rivals (such as dualism and panpsychism) in accepting this claim. Hence, it is at least worthwhile exploring whether grounding physicalists might instead reject MEDIATION. Accordingly, the following section focuses on developing a form of grounding physicalism on which MEDIATION is false, but which is still able to respect the intuitive claim that phenomenal properties have phenomenal essences.

### 3 Grounding laws and “Moorean” connections

According to MEDIATION, grounding connections are backed or mediated by the essences of the properties involved. In my view, grounding physicalists should reject this claim. Instead, they should maintain that while mental (phenomenal) properties are grounded in physical properties, there is nothing about the essences of either the mental or physical properties involved that helps to make this so.

We can develop this view by appealing to grounding laws. What MEDIATION tells us is that whenever we have a grounding claim like:

(G) *a* is F in virtue of being G

... something about the nature of F and/or G serves to make it the case that (G) obtains. In other words, (G) must be backed by some truth of the form:

(E) It lies in the nature of F, or G, or perhaps the natures of F and G taken together, that, in general, if anything is G, then it is F in virtue of being G.

Suppose, however, that at least in some cases, truths like (G) are backed, not by the essences of the properties involved, but rather by substantive (governing) grounding laws. In other words, suppose that (G) obtains because:

(L) It is a *law of grounding* that:  $\forall x \forall F \forall G (Gx \supset Fx \leftarrow_g Gx)$ .

...where the grounding law itself does not hold thanks to the essences of the properties involved but is rather a root principle that serves to (at least partly) determine the grounding hierarchy by means of specifying what grounds what.

Following Rosen (2010), we can say that when a grounding claim is not mediated by the essences of the properties involved, we have a “Moorean” connection between the facts involved.<sup>21</sup> When we have a Moorean connection between some facts, the properties involved are not (in Audi’s sense) essentially connected. That is, their essences in no way ‘touch’. Accordingly, to explain why the grounding relation holds, we must appeal not to the natures of the properties or constituents involved in the facts that are grounding-related, but rather to a grounding law.

Here is how this goes in the case of the mind-body grounding relations linking phenomenal properties to the physical properties that ground them. Consider again the fact that Anna is in pain (Fa), which we suppose is grounded in the fact that Anna’s c-fibres are firing (Ga). The idea is that whilst we have the grounding claim:

(1)  $Fa \leftarrow_g Ga$

...we do not say that this grounding claim holds because:

(2)  $\Box_{F \circ G} (\exists x Gx \supset Fx \leftarrow_g Gx)$

Rather, we appeal a claim that brings in a relevant grounding law, namely:

(4) It is a law of grounding that:  $\forall x \forall F \forall G (Gx \supset Fx \leftarrow_g Gx)$ .

The phenomenal property F (being in pain) is thus grounded in the physical property G, but not because it lies in the nature(s) of F and/or G that in general, G-things are F in virtue of being G. Rather, the grounding connection holds thanks to a law of grounding specifying that whenever the grounding property G is instantiated, the grounded phenomenal property F is instantiated for that reason.

Note that in this framework, the grounding laws are not conceived as (further) partial grounds. Rather, the grounding fact is that *a* is G, and the grounding relation obtains *thanks to* the law. In the same way, causal laws are not further causes, nor inference rules further premises; rather, certain events are causes thanks to the laws of nature, and certain premises entail certain conclusions thanks to the inference rules. The grounding laws, accordingly, function to make it so that certain facts ground certain other facts, rather than acting as further partial grounds.<sup>22</sup>

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<sup>21</sup> Rydén (2022) refers to these as cases of ‘opaque’ grounding. On why the connection is said to be “Moorean” see fn. 23.

<sup>22</sup> For a similar conception of grounding laws see Bader (2017, manuscript-a) Schaffer (2017b). See in particular the discussion in Bader (manuscript-a) about the ‘two levels of goodmaking’ and

Return now to the arguments for *MEDIATION* discussed above. The first was the argument from real definition. In many cases, when being *G* grounds being *F*, i.e., when (in general) *G*-things in general *F* in virtue of being *G*, the grounding connection between these properties flows from the fact that there is an associated real definition of the grounded property (being *F*) in terms of the grounding property (being *G*). Moreover, this might lead one to speculate that grounding relations always flow from real definitions, so that grounding connections between properties, as per *MEDIATION*, are always backed by the essences of the properties involved (assuming that when a real definition of being *F* can be given in terms of being *G*, it lies in the nature of being *F* that *F*-things are *F* in virtue of being *G*.)

While the conjecture is not implausible, it can be resisted (at least in its full generality) on the grounds that there appear to be a range of non-reductive views that are well worth taking seriously but on which we have some irreducible property *F* (such that no real definition of *F* can be given) whose instances are nonetheless grounded in instances of more basic properties *G*<sub>1</sub>, *G*<sub>2</sub>..*G*<sub>n</sub>. For instance, if the grounding physicalist were to insist, in line with *PHENOMENAL ESSENCE*, that the nature of a phenomenal property is exhausted by its phenomenal character, then she would end up with a non-reductive picture on which phenomenal properties are grounded in physical properties and yet cannot be reduced to physical properties. Or consider a “Moorean” view in meta-ethics about goodness to the effect that goodness is a ‘simple’ unanalysable property that is nonetheless grounded in underlying descriptive properties (cf. Rosen 2017b).<sup>23</sup> Or consider a non-reductive view of the secondary qualities, as being simple qualitative properties that nonetheless have physical grounds (cf. Moran 2021). On each of these views, no real definition of the grounded property can be given. The grounded property is therefore both irreducible and derivative, i.e. grounded in underlying properties but also such that no real definition of it in terms of those underlying grounding properties can be given. (For further relevant discussion here cf. Rydén 2022.)

Note that with many non-reductive views of this nature, including plausibly the three examples just given, the essences of the grounding properties and the grounded properties will fail to ‘touch’. The non-reductive grounding physicalist, for instance, who thinks that mental properties have wholly phenomenal essences, will want to say that not only do mental properties ‘know nothing’ of their physical grounds, but also that the underlying grounding properties ‘know nothing’ of the mental properties that they give rise to (cf. section 3). In the context of these non-reductive theories, then, the essences of the properties involved will not mediate the relevant grounding connections (e.g. from the descriptive to the moral, or the physical to the qualitative). So, *MEDIATION* in these cases will fail to hold.<sup>24</sup>

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the conception of normative laws as being makers of goodmakers rather than goodmakers themselves. For an account on which grounding laws are conceived as partial grounds see Rosen (2017a).

As for the metaphysical status of the laws themselves, I think that they are best viewed, to echo Schaffer (2009: 373), as standing outside the grounding hierarchy altogether, instead ‘imposing structure upon it’. (Compare the treatment of essence-facts as ‘autonomous’ in Dasgupta 2014.)

<sup>23</sup> It is from considering this kind of view that Rosen (2010) gets the name ‘Moorean’ in the first place when labelling those grounding connections that are not mediated by essences.

<sup>24</sup> In a helpful related discussion, Rydén (2022) refers to such cases as instances of ‘opaque’ grounding relations (cf. fn.21). My argument in this section can be read as the claim that opaque grounding relations need to be backed by substantive laws.

That being said, since the irreducible property F will still in general be grounded by the underlying property G, we should want some account as to why exactly it is that being G makes for being F, given that being F does not consist in being G. The question, then, is how to meet this explanatory demand.

It is at this juncture that we can appeal to grounding laws. Suppose it is a grounding law that in general, being G makes for being F. We can then appeal to this law to explain just why it is that when a particular object is G, it will instantiate F for that reason. So, whilst being F will not consist in being G, since after all, no real definition of being F can be given, either in terms of being G or in terms of any other property, an explanation will exist for why it is that being G is an F-making feature, namely, that it's a law of grounding that being G makes for being F. In the same way, whilst an effect Y does not in any sense consist in the event X that causes it, we can readily make sense of why it is that X causes Y and, more generally, why X-type events cause Y-type events, in terms of there being some suitable law of nature to the effect that when X-type events occur, they produce Y-type events as their causal upshots.

At this point, then, we have an answer to the second argument, namely the argument from grounding the grounding facts. While the grounding facts may well need to be grounded, they need not always be grounded in essence-facts. Instead, they can sometimes be grounded in underlying facts invoking the grounding laws, whereby these facts, just as plausibly as the facts about essence, can be treated as 'autonomous' facts that are not themselves in further need of grounding.

The third argument was the argument from disparity. Here we can respond as follows. It is true that only some properties can be grounding-related. For instance, a thing can be red in virtue of being scarlet, but nothing could be square or loud in virtue of being scarlet. However, this can be granted even if we reject *MEDIATION*. The fan of *MEDIATION* says that what is able to ground what is fixed by the essences of things alone. But those who appeal to grounding laws in order to countenance Moorean connections can say instead that what grounds what is fixed in some cases by essences and in other cases by laws. Both views can respect equally the intuitive data regarding which properties are able to ground which others.

As for the argument from generality, here we face a choice point. Presumably, grounding relations do not vary from instance to instance within a world. If a is F in virtue of being G in w, then any x in w that's G is going to be F for that reason.<sup>25</sup> However, this can be secured without *MEDIATION* by treating the laws as having the logical import of universal generalisations. Likewise, if one wants to hold that grounding relations don't vary from world to world, one need only insist that the grounding laws hold also with metaphysical necessity. (One could even allow that the grounding laws are themselves further *sui generis* sources of necessity alongside essences; cf. here Rosen 2010.) That said, one could also allow that at least some grounding laws fail to hold with metaphysical necessity and can vary from world to world. Notably, this would give the grounding physicalist a nice way to deal with conceivability arguments by allowing that zombies are metaphysically possible albeit non-actual (cf. Bader forthcoming; Moran 2021, manuscript.)

A similar choice point arises in connection with the final argument, namely the argument from necessity. Suppose you want to say that grounding relations can in

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<sup>25</sup> But see Moran (2018, 2021) and Bader (manuscript-b) for some reasons to doubt this.

fact vary from world to world. To deal with a certain kind of zombie-case, for example, you might want to allow that in the actual world, Anna is in pain in virtue of her c-fibres firing, while also granting that in some other world Anna's c-fibres are firing, but she is not for that reason in pain (cf. Moran 2021, manuscript). This would be to deny that grounds necessitate; hence, one would not be forced to explain the necessities that grounding claims supposedly imply by means of a Finean-style explanation invoking the essential truths. In turn, this would allow one to avoid the argument from necessity for MEDIATION at a relatively early step.

Suppose, however, one did want to allow that grounds necessitate. Short of accepting brute necessities (which I assume we should avoid), one would then need to find an alternate source of necessity to account for the fact that necessarily, whenever Anna's c-fibres are firing, she is in pain. In a grounding-laws framework, this can be achieved by conceiving of the grounding laws as sources of necessity in themselves. Just as strong (non-Humean) laws of nature should be conceived as fundamental posits definable in terms of their purported role in the theory, whereby one such role is to make it the case that certain event-types generate certain other event-types with nomic necessity (cf. Schaffer 2016), so too the grounding laws can be conceived as fundamental posits definable again by their theoretical role, whereby one such role is to make it the case that certain facts ground-theoretically generate other such facts wherever in modal space the relevant base facts obtain. For instance, one defining role of the psycho-physical grounding laws would be to ensure that whenever Anna's c-fibres are firing (anywhere in modal space) Anna is in pain for that reason (and that the same holds for people in general).<sup>26</sup>

What the above brings out, I submit, is that by invoking a grounding laws framework, the grounding physicalist can resist the argument from section 2 against her view, even while holding on to PHENOMENAL ESSENCE, by means of rejecting the claim that grounding relations are always mediated by the essences of the properties involved. Notably, the resulting view is a robustly non-reductive form of physicalism, on which phenomenal properties are not reducible to and do not consist in underlying physical properties but are nevertheless grounded therein.

## 5 Conclusion

My goal in this paper has been to consider a challenge to grounding physicalism based on two plausible theses: PHENOMENAL ESSENCE and MEDIATION. What I have suggested is that to answer this challenge, grounding physicalists should reject the second claim (at least in its full generality), arguing instead that while some grounding connections may be mediated by essences, at least some such connections, including physical-to-mental grounding connections, are rather backed by laws. What results is an attractive and genuinely non-reductive physicalist view on which mental properties have wholly phenomenal essences but are nonetheless physical properties (or at least physicalistically-acceptable properties) due to being wholly grounded in underlying physical (and non-mental) properties that are more

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<sup>26</sup> Perhaps grounding laws could be introduced by means of the standard Ramsey-Lewis method for introducing ideology. If there are in fact no items in the ontology playing the relevant theoretical role (including acting as *sui generis* sources of necessity) then it will turn out that there are in fact no such laws and therefore that the theory that posits them is false. Cf. Schaffer (2017b).



basic. This conclusion, I submit, is important both for understanding how grounding physicalists can meet an important objection as well as for seeing how the grounding physicalist view should be developed, and in particular for appreciating the importance of appealing to grounding laws in order to articulate that theory.<sup>27</sup>

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<sup>27</sup> For helpful and enjoyable discussion thanks to Anandi Hattiangadi. This research was supported by a grant from the Irish Research Council, whose support I gratefully acknowledge.

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