

# Physicalism and Moorean Supervenience

forthcoming in *Analytic Philosophy*

Thomas W. Polger  
University of Cincinnati  
[thomas.polger@uc.edu](mailto:thomas.polger@uc.edu)  
<http://homepages.uc.edu/~polgertw>

## Abstract:

G. E. Moore argues that goodness is an intrinsic non-natural property that supervenes irreducibly on the intrinsic natural properties of its bearers. Accordingly, it is often supposed that “Moorean” supervenience is incompatible with physicalism, a naturalistic thesis. In this paper I argue that Moorean supervenience is not in itself incompatible with physicalism, Moore’s ethical non-naturalism notwithstanding. Understanding why will help us to better appreciate the full range of ontological resources available to physicalists.

## Keywords:

physicalism, naturalism, supervenience, dependence, Moore, Horgan, Dreier, Jackson

## Running Head:

Moorean Supervenience

## Inclusive Word Count:

9218

# Physicalism and Moorean Supervenience

Thomas W. Polger  
University of Cincinnati  
[thomas.polger@uc.edu](mailto:thomas.polger@uc.edu)  
<http://homepages.uc.edu/~polgertw>

There is, therefore, no intrinsic difficulty in the contention that ‘good’ denotes a simple and undefinable quality. There are many other instances of such qualities.

—G. E. Moore (1903:10)

if a thing is good (in my sense), then that it is so *follows* from the fact that it possesses certain natural intrinsic properties, which are such that from the fact that it is good it does *not* follow conversely that it has those properties.

—G. E. Moore (1968: 588)

The materialist wants to claim that microphysical facts are the *only* metaphysically-fundamental facts, and that these facts *alone* determine all other facts about our world.... I take it that one acid-test of such an account will be that it rules out objective non-naturalist metaethical theories such as Moore’s.

—Terry Horgan (1984: 24-25)

## 1. Introduction\*

In *Principia Ethica*, G. E. Moore (1903) argues that goodness is an intrinsic non-natural property that supervenes irreducibly on the intrinsic natural properties of its bearers.

Accordingly, it is often supposed that “Moorean” supervenience is incompatible with the truth of physicalism, presumed to be a naturalistic thesis. This conclusion has been

---

\* A distant ancestor of this paper began as a commentary on Terry Horgan’s (2006) when it was presented at the 2006 On-Line Philosophy Conference. Versions of this paper were presented at the American Philosophical Association, Southern Society for Philosophy and Psychology, University of Cincinnati, Duke University, and York University. In addition to Terry and audiences at those events, I’d like to thank Paul Bloomfield, David Chalmers, Shamik Dasgupta, George Graham, Larry Jost, Geoffrey Lee, Michael Lynch, Kevin Morris, Alyssa Ney, Elliott Sober, Kari Theurer, Kelly Trogdon, Tobias Wilsch, and Gene Witmer.

exploited, for example, by Terry Horgan (1984, 1993, 2006) in articulating the demands that must be met by physicalism. In this paper I argue that Moorean supervenience is not in itself incompatible with physicalism, Moore's ethical non-naturalism notwithstanding. Understanding why will help us to better appreciate the full range of ontological resources available to physicalists.

In the next section, I will lay out some general obstacles to adequately formulating a physicalist thesis. This will allow us to focus on the one aspect for which questions of supervenience are germane. In section 3, I examine a representative attempt to characterize physicalism in terms of supervenience, and then review Horgan's objection to that formulation and his proposed solution. Horgan will be my quarry because his argument appeals directly to the incompatibility of physicalism and Moorean non-naturalism, and because he has repeatedly made use of the Moorean worry over many years. In sections 4 and 5, I argue that Horgan's solution is too rash because he misidentifies the problem for physicalism that is raised by Moorean non-naturalism. In section 6 I argue that a theory that admits some sorts of "Moorean" supervenience can still count as a version of physicalism. And in section 7 I begin to sketch what a physicalism that incorporates such kinds of supervenience might look like, and indicate the reasons for a physicalist to adopt such a view.

## **2. Three Challenges for Physicalists**

Crudely put, physicalism is the thesis that everything is either physical or dependent on and determined by the physical (Kim 2005: 14). For example, physicalists about the mental hold a position of the following form:

(K) If some  $x$  has a mental property  $M$  (or is in mental state  $M$ ) at time  $t$ , then  $x$  is a physical thing and  $x$  has  $M$  at  $t$  in virtue of the fact that  $x$  has a physical property  $P$  (or is in physical state  $P$ ) that stands in relation  $R$  to  $M$ . (adapted from Kim 2006: 116).<sup>1</sup>

There are three well-known challenges for those who seek a specific and precise formulation of physicalism. These correspond to the difficulties of specifying the candidates for the  $M$ s,  $P$ s, and  $R$ s in the above formulation.<sup>2</sup>

The first challenge for formulations of physicalism concerns the base entities, the  $P$ s, on which the physicalist claims that the non- $P$  entities depend and by which they are determined. If we take our  $P$ s from physical theory as it is currently known, then a physicalism so formulated is very likely false because current physics is very likely false. But if we take our  $P$ s from a postulated future or completed physical theory then physicalism may prove to be trivial or indeterminate. Physicalism will be trivial if future physics just is the theory that provides the basis for adequate accounting of all phenomena, for in that case the claim that everything depends on and is determined by physics will be trivially satisfied. Yet if we say that physicalism's  $P$ s will come from

---

<sup>1</sup> The suggested formulation modifies Kim's proposal mainly by generalizing the possible relations  $R$  in virtue of which  $P$  constitutes  $M$ , and by clarifying that  $P$  may be a state or a property. Kim's formulation specifies that  $R$  is *realization*.

<sup>2</sup> For a small sample of recent discussions of all three questions, see the papers collected in Gillett and Loewer, *Physicalism and Its Discontents* (2001), and the special issue of *Philosophical Studies* (October 2006, Vol. 131, Issue 1).

Two additional challenges are less familiar, and I will not discuss them other than to mention them in this note: There is a question as to whether physicalism is best formulated as a claim about objects, properties, states, events, processes, facts, claims, or etc. And there is a question about the modal status of physicalism: Is the [purported] fact of physicalism a contingent or necessary truth? On the first question, I take no stand. I use the generic terms 'such as 'entity' and its forms to bypass the issue. On the second, see Levine and Trogdon (2009), Polger (2011).

whatever the finished physical theory is, then we have not given physicalism any determinate content.<sup>3</sup>

The second challenge concerns whether there exists anything other than the strictly physical, and if so what it is. With respect to the above formulation, this is the question of what the domain of the mental Ms might be and whether it is non-empty. But the question can be generalized. Here it is useful to draw the familiar distinction between the strictly or fundamentally physical and the broadly physical. The strictly physical entities are those that are explicitly among the Ps. The broadly physical things are those that are strictly physical along with any other entities that are physically acceptable. These physically acceptable but not strictly physical entities are the Ms, in the above formulation. Neither advocates nor critics of physicalism take it to be the view that the only things that exist are the strictly physical things. So both sides assume that there is no contradiction in something being broadly physically acceptable without being strictly or fundamentally physical. The question is not about the coherence of such things, but about their identities: What things are in fact among the broadly physical Ms? For example, are molecular substances, artifacts, causal relations, or qualia among the Ms?

As difficult as these first two questions may be, my concern herein is with the third challenge to formulating the thesis of physicalism. That challenge is to explain the relation(s) R by which the Ms (whatever they may be) depend on and are determined by the Ps. This is the problem of identifying the kinds of dependence and determination relations that a physicalist can appeal to in formulating physicalism. One way to see the

---

<sup>3</sup> Moreover, the latter option appears to be compatible with a future physics that includes mental entities among the fundamental entities of physics. Yet that seems to violate the spirit of the physicalist theory. (The problem of fixing the physical Ps on which everything else is said to depend is known as *Hempel's Dilemma*, as Hempel (1980) is often credited with raising the challenge. See, e.g., Melnyk (1997).)

force of this problem is to consider an odd variant of an occasionalist theory of mind. The traditional occasionalist is a substance dualist who holds that an omnipotent deity facilitates the mind-brain interaction by intervening miraculously on each occasion of interaction. Let us imagine a new wave occasionalist who holds that, rather than facilitating the interaction of material and mental substances, the omnipotent deity ensures that Ms are tokened whenever Ps are tokened by miraculously superadding the M properties to the objects that token the P properties. This theory is one way of filling out the schema (K), above. But most would agree that the relation R of “miraculous superaddition” should not be part of a physicalist theory.

The lesson is that even after fixing the Ms and the Ps, there are constraints on the relations R to which the physicalist can appeal. Not just any Rs will do. What we need is a relation (or relations) R by which the Ms can depend on and be determined by the Ps, and that is acceptable to physicalists. Many philosophers have thought that physicalism can be formulated in terms of broadly logical dependence relations, particularly supervenience.<sup>4</sup> In this context, our problem comes down to that of finding a formulation of supervenience physicalism that is physicalistically acceptable—roughly what Horgan (1993) calls *superdupervenience*.

---

<sup>4</sup> A notable holdout from the supervenience physicalists is Andrew Melnyk (2003). Note that it is usually taken for granted that broadly logical relations such as supervenience are physically “kosher” (broadly physical). This is an assumption that I will not dispute. Nevertheless, there are reasons for doubting that these relations come for “free” (Lycan 2003, 2009; Byrne 1999).

Recently much discussion of dependence has been going on under the guise of “grounding” (see DeRossett 2011 and Trogdon forthcoming). For more on ontological dependence, see Fine (1995), Correia (2008), Bennett (2011a, 2011b), and Trogdon (forthcoming). One argument that the relation cannot be a P-relation or M-relation comes from Lynch and Glasgow (2003), which will be discussed in detail below.

### 3. Supervenience Physicalism and Superdupervenience

A common way to think about physicalism is to think about how two possible worlds could differ or fail to differ if physicalism is true of one of them (Lewis 1983, 1994; Horgan 1993; Jackson 1998). As a first pass, we might think that physicalism claims that two worlds that are physically identical are identical *simpliciter*. But if physicalism merely contingent (as many philosophers believe), then we will need to constrain the physicalist thesis so that it only makes claims about some worlds—for example our own. Intuitively, the idea is that if physicalism is true of our world, then (after Jackson 1998: 12):

(MPD) Any world that is physically identical to our world and doesn't contain any extra stuff (that is, is a "minimal physical duplicate" of our world) will be identical *simpliciter* to our world.

(MPD) captures the idea that if physicalism is true, then in any minimal physical duplicate of our world, nothing that is in our world will be left out, and nothing absent from our world would appear.

But now we come to the crux of the matter. The trouble is that while the (MPD) formulation of physicalism guarantees that the Ms supervene on the Ps, it doesn't ensure that the supervenience relation is itself physicalistically acceptable—it does not guarantee superdupervenience (2006: 159). To illustrate the problem, Terry Horgan directs our attention to the example of G. E. Moore's metaethical non-naturalism:

Moore held that *intrinsic goodness* is an objective, non-natural, property. He held that its instantiation is supervenient on the instantiation [sic.] of certain natural properties (although he did not use the *term* 'supervenient'), in a modally very strong way: in any possible world in which thus-and-such natural property is instantiated by an individual *i* at a

time *t*, the non-natural property of intrinsic goodness is thereby instantiated by *i* at *t*. He also held that the necessary connection linking the pertinent natural property to intrinsic goodness is itself metaphysically fundamental and *sui generis*—rather than being derivative from any other facts. (He held that we know such metaphysically fundamental, synthetic, necessary truths by a special faculty of moral intuition.) Moorean non-naturalism in metaethics surely should not be considered consistent with metaphysical materialism. Yet, because of the modal strength of the metaphysically fundamental necessary connections that supposedly obtain between certain natural properties and intrinsic goodness—connections that obtain in *all* possible worlds, even though they are synthetic... a *minimal* physical duplicate of any physically possible world, or of any spatiotemporal region of such a world, will be just like that world (or region) with respect to how the non-natural property of intrinsic goodness is instantiated. (Horgan 2006: 159-160)

The trouble with (MPD) is that it tells us only *that* some worlds are alike in certain ways. It does not explain *why* or *how* they are so related. So (MPD) can be satisfied by plainly non-naturalistic Ms such as Moorean goodness. Thus, (MPD) may provide a necessary condition on physicalism but it is not yet sufficient to state the thesis of physicalism.<sup>5</sup>

This much seems right. Our question, now, concerns what kind of adjustment must be made to (MPD) to craft a thesis that is sufficient for physicalism. How can we adapt (MPD) so that it is not satisfied by non-natural goodness and other properties that are incompatible with physicalism?

In Horgan's assessment the culprit in the failure of (MPD) is that it allows "brute" metaphysical connections between the Ps and the Ms, as illustrated by the example of

---

<sup>5</sup> I follow Horgan in assuming that physicalism is a form of metaphysical or ontological naturalism, so that non-natural entities are incompatible with physicalism. Kim (2011) also assumes that physicalists must be (metaphysical) naturalists.



Moore's ethical non-naturalism. Call this sort of connection *Moorean supervenience*.<sup>6</sup> On Horgan's reading, it is because Moore holds that "the necessary connection linking the pertinent natural property to intrinsic goodness is itself metaphysically fundamental and sui generis—rather than being derivative from any other facts" that Moore's account of goodness is incompatible with physicalism (2006: 161). Accordingly, he proposes to exclude such relations by explicitly proscribing them. He amends (MPD) with a clause that rules out "brute inter-level relations of metaphysical necessitation," namely:

(B) there are no brute inter-level relations of metaphysical necessitation linking physical particulars or properties to non-physical particulars or properties.<sup>7</sup>

The conjunction, (MPD+B), preserves what was right in the (MPD) account. But it goes further, ruling out a physicalism based on "brute" metaphysical relations. Horgan announces himself satisfied with this addendum (MPD+B) as an "explication of the thesis of materialism" (2006: 162).<sup>8</sup>

Regarding (B), Horgan remarks, "Perhaps [it] could itself be further explicated; I leave open whether this is so, and also whether it would be worthwhile seeking such an explication" (2006: 162). Indeed there is much to be said about (B). For one, (B) is *ad hoc*. Horgan notices that (MPD) appears to be compatible with certain kinds of non-naturalism; this is deemed problematic; so in response he adds a clause that says, in effect, "and no non-naturalism." This works, of course. Yet it would be nice if the

---

<sup>6</sup> By calling these "metaphysical" relations Horgan contrasts them with nomological or logical/analytic relations. Note that what I am calling "Moorean supervenience" Horgan calls, prejudicially, "Moorean emergentism."

<sup>7</sup> This is thesis (3) in Horgan (2006: 161).

<sup>8</sup> Horgan frequently uses the term "materialism" rather than "physicalism" but the latter has been more common in recent discussions. Some reserve the term "materialism" for a metaphysical view tied to an antiquated notion of material substance, e.g., one current in the Seventeenth and Eighteenth Centuries. Others use the three terms interchangeably, as I assume they may be for present purposes.

constraint fell out of the rationale of the formulation rather than being tacked on.

Moreover, the more basic problem is that adding a constraint like (B) is the wrong tactic. The temptation to remedy (MPD) with (B) derives from a misdiagnosis of the defects in (MPD) itself. To this misdiagnosis we now turn.

#### **4. Moorean Supervenience and Non-Naturalism**

The example of Moorean non-naturalism demonstrates that (MPD) alone does not give sufficient conditions for physicalism. But what is the feature of Moore's account of goodness that brings it into conflict with physicalism? Horgan focuses on Moore's appeal to a "brute" relation of metaphysical necessitation as the disqualifying feature. But in so doing he overlooks a more obvious culprit: the fact that Moorean goodness is a non-natural property.

Horgan takes it as given that Moorean goodness is a non-natural property. And, with Horgan, I suppose that whatever non-natural properties are, they are not among the broadly physical properties. This is because however we understand physicalism, physicalism is at least a form of metaphysical naturalism (Kim 2011). Thus, any proposed formulation of physicalism that admits non-natural entities is going to be inadequate. That is why it is Moorean goodness, not just goodness, that is supposed to be a problem for (MPD). But, and here's the rub, compatibility with a non-natural entity is going to be a disqualifier for a proposed formulation physicalism regardless of the relation that is supposed to hold between it the non-natural property and the natural physical properties. Let the relation between the physical and non-natural goodness be as strong as you like, it will not sanitize the non-naturalness. But it's one thing to point out

that “brutely” supervening on the strictly physical is not enough to qualify something as broadly physical, and it’s another thing to show that such supervenience cannot play any part in physicalism.

Of course one might suppose that what *makes* Moorean goodness non-natural is that it supervenes with brute metaphysical necessity on the physical properties. This is surely the thought that lies behind Horgan’s argument. But it does not seem to be correct.

There is general agreement, extending to Moore himself (1942), that in *Principia Ethica* he did not offer a specific account of the distinction between natural and non-natural properties.<sup>9</sup> And, indeed, the consensus seems to be that Moore never succeeded in articulating a workable explanation of the distinction he had in mind: “nowhere in his work is there a clear and coherent explanation of which properties are non-natural that is also consonant with his claim that Good is non-natural” (Dreier 2007: 192; see also Broad 1942 and Jost 1973). What is important for present purposes is that it’s fairly clear that Moore did not take it that the “bruteness” of the supervenience of goodness on the natural is what makes goodness itself non-natural. Let’s see why.

Horgan attributes to Moore the view (quoted unabridged above) that goodness “is supervenient on the instantiation [sic.] of certain natural properties... in a modally very strong way.... He also held that the necessary connection linking the pertinent natural property to intrinsic goodness is itself metaphysically fundamental and *sui generis*—rather than being derivative from any other facts” (2006: 159). I take it that Horgan’s claim that the Moorean supervenience relation is “*sui generis*—rather than being derivative from any

---

<sup>9</sup> Needless to say, it will not settle the current dispute over physicalism to determine whether Moore thought that what makes goodness a non-natural property is that it supervenes on the natural in a way that is not “derivative from any other facts” (Horgan 2006: 161). But it may nevertheless shed some light on the issue.

other facts” is his gloss on Moore’s thesis that goodness is unanalyzable. For, the thought goes, if goodness were analyzable, then it would depend on its analysans in a way that is not brute. So bruteness comes from lack of analysis. The question, then, is whether the unanalyzability of goodness is what is supposed to make it non-natural.<sup>10</sup>

Jamie Dreier considers precisely the question that presently occupies us: What makes goodness non-natural, according to Moore? And the first hypothesis that Dreier considers is that the unanalyzability of good is what make goodness non-natural: “Now, it *might* be thought that there really is no more to Moore’s claim that good is non-natural than that it is unanalyzable” (2006: 193). However, Dreier immediately rejects this explanation. The trouble is that Moore also holds that yellow is simple and indefinable (unanalyzable), but he does not thereby conclude that yellow is a non-natural property (1903: 10). Yellow, in fact, is a paradigm case of a natural property for Moore. So the fact that a supervenience relation is “brute” in the sense of being unanalyzable and not “derivative of other facts” does not render the supervening properties non-natural. If it did, Moore should think that yellow is a non-natural property. But that is not his view.

At this point it could seem like the right thing to say is, “So much the worse for Moore.” After all, as Dreier points out, we cannot assume that in calling goodness ‘non-natural’ Moore was using that expression as we do to begin with (2006: 192). And if, as seems plausible, Moore was groping toward a distinction of which he had only an inchoate grasp (Dreier 2006: 197-98), then it would be understandable if he made some incorrect judgments, for example, about the joint unanalyzability and naturalness of yellow. But if Moore does not mean by ‘non-natural’ something like what we do, then we

---

<sup>10</sup> Notice that even Horgan’s own way of explaining Moore’s view suggests that the answer is negative, for he says that Moore holds that goodness has two characteristics: it is non-natural and it “also” holds that goodness supervenes brutally.

have no reason to think that Moorean goodness will be even a *prima facie* counter-example to a formulation of physicalism like (MPD), as Horgan supposes. Second, Moore surely did mean to draw a contrast between the properties of yellowness and goodness; and we should not be too eager to say he was confused about there being a contrast, even if he was unable to explain its basis. Moreover, with Dreier we should concede that when Moore calls goodness ‘non-natural’, “what he had in mind clearly did have something to do with Good’s unanalyzability” (Dreier 2006: 199).

Dreier argues that the distinction that Moore was after in calling goodness ‘non-natural’ is the distinction between “descriptive” and “evaluative” properties (2006: 205-206).<sup>11</sup> What makes goodness non-natural is that natural properties “describe the intrinsic nature of what possesses them” (Moore 1942: 272, in Dreier 2006: 205) whereas goodness does not *describe* an object at all. That is why saying of something that it is good “cannot be reduced to any assertion about reality” (Moore 1903: 114). In short, it seems that what makes goodness non-natural for Moore is that it is a normative property. For Moore holds that “evaluative” properties are not “descriptive” whereas he assumes that all natural properties are “descriptive.” The fundamental distinction, then, seems to be between “descriptive” and normative properties.

That (MPD) is compatible with Moorean non-naturalism surely reveals that it is not sufficient for the formulation of the physicalist thesis. But if the above reasoning is

---

<sup>11</sup> See also Bloomfield (2006). The point, of course, is not to suggest that we should think that evaluative or normative properties are *ipso facto* incompatible with naturalism, merely that Moore so thought. (On Moore and naturalism, see also Jost 1973.)

Contemporary readers may be exasperated by the talk of properties (rather than terms) being descriptive or evaluative, which I preserve from Moore. Dreier notes that Moore does not always seem to have attended to the use/mention distinction, and thereby the predicate/property distinction (2006: 206). For present purposes the important idea is that for Moore there are two kinds of properties, one denoted by descriptive predicates and one not. See also Hochberg (1962) concerning Moore’s use of ‘property’ and ‘predicate’.

correct, the incompatibility stems not from the bruteness of the supervenience but from the fact that Moorean goodness is a non-natural property. According to Moore, this is in virtue of being an “evaluative” property; but the salient feature for Horgan’s purposes is it a non-natural property, and non-natural properties are incompatible with physicalism. But even if we go along with Moore’s contention that all natural properties are “descriptive” rather than “evaluative”, it should be clear that brute metaphysical supervenience does not *make* goodness an “evaluative” and *ipso facto* non-natural property.<sup>12</sup> For it is not generally true that brutally supervenient entities or properties are normative—as Horgan’s own example of Cartesian souls illustrates: “one could hold that in every metaphysically possible world, living organisms with the physical composition of human beings *have immaterial Cartesian souls, in which inhere mental properties*” (2006: 161). In this example, the physically disqualified entities are immaterial souls, rather than evaluative or normative properties or entities.

We have to attend carefully to how each of Horgan’s examples works. What he misses is that Moorean goodness and Cartesian souls are incompatible with physicalism for different reasons—one is normative, the other involves non-physical substances. They are both “non-natural” but in different ways, and neither seems to have anything to do with the bruteness of the imagined supervenience. There’s no disputing that physicalism is incompatible with Cartesian immaterial souls. The question is whether the source of the incompatibility is the alleged brute metaphysical supervenience. I don’t think so. The obvious problem with Cartesian souls is that they are already understood to

---

<sup>12</sup> It’s worth noting that if Horgan were to argue directly from the compatibility of (MPD) with normative properties to the insufficiency of (MPD) for formulating physicalism, his argument would be treated as inconclusive or question-begging. It is controversial whether physicalists can accommodate normative properties, in general; but Horgan’s argument purports to be distinct from an argument that supervenience physicalism cannot accommodate normativity.

be immaterial, i.e., non-natural.<sup>13</sup> But whatever it is that makes Cartesian souls problematically immaterial, it isn't the bruteness of their supervenience on the strictly physical. Immaterial souls would be just as big a problem for physicalists if there were a law of nature guaranteeing the co-occurrence of brains and souls, or if immaterial souls floated around on their own. Likewise, I have argued, whatever it is that makes Moorean evaluative properties non-natural, it isn't the "bruteness" of their supervenience on the physical. It is useful to remember that supervenience is merely a covariation relation (Kim 1998), so it is unsurprising that non-natural things can co-vary with physical things.

Horgan draws our attention to cases that involve a "brute" supervenience relation between physical properties or entities and non-physical properties or entities. He correctly observes that "it should be clear that mere supervenience of higher-order properties and facts on physical properties and facts cannot be enough to confer materialistic respectability" (1993: 565). To this we can agree: *Merely* supervening on the physical is not sufficient to "naturalize" the non-natural. He then goes on to draw a further conclusion: "The moral is not that supervenience cannot be an important part of a broadly materialistic metaphysics, but rather this: putative supervenience relations that are themselves unexplainable and *sui generis* cannot play such a role" (1993: 565-566). Yet this further step is not warranted. Horgan has shown that formulations of physicalism only in terms of unqualified "brute" supervenience relations are by themselves insufficient to express the thesis of physicalism. It does not follow, however,

---

<sup>13</sup> The problem with Cartesian souls is that they are stipulated to have essences that are incompatible with their being even broadly physically acceptable—this is why it is "Cartesian" souls rather than "thinking things" that figure in the example. The point that Horgan is making through this example is that Cartesian substance dualism is compatible with brute supervenience, but not with physicalism. But the example also illustrates my point that the bruteness of the supervenience doesn't invariably produce the kind of problem we saw above with Moorean goodness and normativity—immaterial souls are not, *eo ipso*, evaluative. (Nor does brute supervenience invariably produce immaterial substances: goodness is not a substance, at all.)

that with qualification such supervenience relations cannot be part of any physicalist account. The most that Horgan is entitled to conclude is that one cannot cleanse non-natural properties merely by asserting that they stand in supervenience relations to physical properties.

Where does this leave us? On one hand, Horgan is correct that a thesis like (MPD)—one that allows any brute metaphysical supervenience relations between the Ps and the Ms—doesn't yet give us sufficient conditions for physicalism. On the other hand, it's not clear that proscribing all brute supervenience relations is the right solution. This would be the right solution if the non-naturalness of the Ms was a result of the bruteness of the R relation. But Horgan has not shown that the "bruteness" of supervenience is the culprit.

## **5. Moorean Supervenience and Emergence**

What's wrong with Moorean supervenience if it's not that the entities that it licenses are ipso facto non-natural? In some passages Horgan seems to suggest that Moorean brute metaphysical necessities are incompatible with physicalism in their own right:

Just as standard emergentism is at odds with materialism because it posits metaphysically fundamental *laws of nature* other than the metaphysically fundamental laws of physics (viz., inter-level laws linking physical properties to emergent properties), likewise Moorean emergentism is at odds with materialism because it posits sui generis *principles of metaphysical necessitation* (viz., inter-level principles expressing brute, fundamental, metaphysical-necessitation relations between physical properties and emergent properties). A doctrine worthy of the label materialism should not countenance brute inter-level relations of metaphysical necessitation, any more than it should countenance brute



inter-level laws of nature. And it should not countenance Moorean-emergent properties, any more than it should countenance standard-emergent properties. (2006: 160)

This passage suggests both of the objections that we have considered. On the one hand, he asserts that there is a basic incompatibility with physicalism and “brute, fundamental, metaphysical-necessitation relations.” On the other hand, he seems to suggest that the reason such relations are problematic is that they would generate “emergent” properties, which he assumes are incompatible with physicalism.

Horgan associates Moorean supervenience with traditional emergentism, as familiar from the so-called British Emergentists of the 19th Century (see McLaughlin 1992). Moorean supervenience—“Moorean emergence” as Horgan calls it—is supposed to come out unfavorably by this association. But the comparison is misleading. Let us agree that (a) traditional emergentism posits metaphysically fundamental inter-level laws of nature, i.e., laws of nature not derivative from or determined by other laws of nature, and (b) that those interlevel laws of nature link physical properties to emergent properties. Yet in what sense are the “emergent” properties emergent or *sui generis*? They are, of course, novel properties, that is, properties that do not appear among the strictly physical Ps. *Liquidity* and *fragility* might be emergent in this sense, as well as *yellowness*, *treeness*, and *chairness*. *Life* seems to be emergent in this sense. Supervenient properties are typically emergent properties in this sense. But that is not by itself incompatible with physicalism, unless we suppose that physicalism is committed to the existence of only strictly physical entities and properties; but that is not the view of most physicalists or their critics, and it is not Horgan’s view. So if Moorean

supervenience is problematic, it cannot be only because it relates novel properties to the strictly physical properties.

British Emergentists tended to hold that emergent properties are more than merely novel. As Horgan recounts, the traditional emergentists were not physicalists because they “denied that physics is a causally complete science,” and they held that the emergent properties are “fundamental force-generating properties, over and above the force-generating properties of physics” (1993: 557). Now in this second, traditional sense, emergent properties are indeed a problem for physicalism. But, like the examples of non-natural goodness and Cartesian souls, the example of “emergent” properties does not show that the source of their physical incompatibility is their “Moorean” supervenience on the physical. It looks, rather, like the physicalistically transgressive principle is the rejection of the causal closure of the physical (about which see Papineau 2001). Certainly Horgan has not argued that all Moorean supervenient properties violate the causal closure of physics; which is just as well, because that is not a very plausible claim.<sup>14</sup>

The temptation to think that “emergent” properties must be incompatible with physicalism may stem from ambiguities in expressions like ‘emergent’ or ‘sui generis’. We have already noted that the advocate of physicalistic Moorean supervenience will surely hold that the supervenient properties are “emergent” or “sui generis” in one sense, viz., they are properties that are not instantiated by strictly physical particulars. But the physicalist will just as surely deny that the supervenient properties are “emergent” or “sui generis” in a second sense, that is, the sense that involves denying the causal closure of

---

<sup>14</sup> See, e.g., Sober (1999).

physics.<sup>15</sup> Whatever may be the problem with Moorean relations, it is not that they inevitably produce “emergent” properties in the latter, problematic sense associated with British Emergentists. Seen this way, Horgan’s comparison of Moorean supervenience to emergence does not illustrate the allegedly troubling aspects of brute supervenience. Rather it proves to be another appeal of the sort we examined in the previous section, with examples of goodness and Cartesian souls: non-natural properties or entities can brutally supervene on the physical. But we have not yet found a reason to think that every property that brutally supervenes is *ipso facto* non-natural.

Thus we have not yet found a reason to exclude every Moorean supervenience relation from any formulation of physicalism, as (B) requires. After all, that a relation may be capable of having physicalistically unacceptable relata does not in itself show that the relation itself is physicalistically unacceptable. If there are Cartesian souls, then they somehow causally interact with the physical. But that will not physicalistically disqualify causation. If there are supernatural ghosts, they may stand in similarity relations to one another, and to children wearing sheets as Halloween costumes. Similarity can hold between natural entities, between non-natural entities, and between one and the other. But similarity is not thereby physicalistically disqualified. It’s not enough to undermine a relation’s physicalist credentials to show that it can have some non-natural relata. Thus, if the comparison between British Emergentism and Moorean supervenience is to impugn the latter’s physicalist credentials, it must be because of something defective about

---

<sup>15</sup> One might, of course, try to argue that physicalists should not recognize any non-microphysical properties unless they have entirely novel causal powers. But that would be a different argument than Horgan employs. (Kim [1998, 2005] sometimes seems to apply what he calls “Alexander’s Dictum” in this way.)

“metaphysically fundamental inter-level” relations, not merely because they both admit “emergent” properties as relata.

## **6. Physicalism and Comprehensive Ontology**

Horgan’s aversion to “brute” metaphysical necessities is not unique. David Chalmers and Frank Jackson argue that physicalists should not invoke “brute” or “strong” metaphysical necessities (2001; see also Chalmers 1996 and Jackson 1998). Against those like myself who would do so, they say: “Ontologically... it is compatible with a materialist ontology on which the explained phenomenon is ultimately physical. But epistemically, it is more akin to... property dualism” (2001: 353).<sup>16</sup> As “brute” necessities are a problem for Horgan’s “cosmic hermeneutics” (1984, 2006), so too they seem to run against Jackson’s argument that “serious metaphysics” proceeds by conceptual analysis (1998) and David Lewis’s project of “Humean Supervenience” (1986, 1994). Of course, those are problems only if physicalists must engage in those projects, about which there is room for doubt (Block and Stalnaker 1999, Byrne 1999, Polger 2008). And presently we’re trying to figure out whether there is a good argument that physicalists must reject any form of Moorean supervenience.

What, exactly, is physicalism’s alleged incompatibility with brute, inter-level, metaphysical necessity? The general idea is something like this: If physicalism is the claim that absolutely everything is physical or determined by the physical, then it seems that the determination relations must themselves be either physical or determined by the physical. Moorean supervenience relations are neither, and so must be incompatible with

---

<sup>16</sup> See Loewer also (1996), Mackie (2002), Kallestrup (2006), Kirk (2006), Barnes (2007), Polger (2008), Whittle (2010), and Nolan (2012), among others.

comprehensive physicalism. Put in terms of pairs of worlds: Moorean supervenience seems to allow that two worlds could be minimal physical duplicates of one another, but differ because they have distinct “principles of metaphysical necessitation ” (Horgan 2006: 160).

The puzzle we have arrived at can be spotted directly in the rough sketch of physicalism with which we began. If physicalism is the thesis that everything is among the Ps or else stands in R to the Ps, then we must ask: Does R itself satisfy the physicalist thesis?

There are reasons to think that the R-relations cannot be among the Ps or dependent on the Ps, nor among the Ms (Lynch and Glasgow 2003). If the R-relation linking the Ps and the Ms is among the Ms, then either it depends on and is determined by the Ps or it does not. If it does not, then the claim that all Ms depend on and are determined by the Ps is falsified, for R itself is an M that is not determined by the Ps. But if it is so dependent, then we will need to know by what R-relation it so depends, and we’re off and running on a regress. So it seems that the R-relation cannot be among the Ms. But it is also hard to see how R could be among the base Ps. After all, if it were a strictly P-relation, how could it link Ps to non-Ps? Or, how could a dependence relation linking the Ms and the Ps qualify as a P-relation? Including such an “interlevel” relation among the Ps seems to be in tension with the idea that the Ps alone are fundamental. Ted Sider, for example, offers a principle of purity that says: “fundamental truths involve only fundamental notions” (2011: 106).<sup>17</sup> If physicalism is the view that only the Ps are

---

<sup>17</sup> My discussion here follows Lynch and Glasgow (2003). I learned about Sider’s principle from Bennett (2011b). Bennett proposes that R relations (she calls them “grounding” or “building” relations, following recent discussions) can themselves be grounded—non-fundamental—without leading to a vicious regress. I discuss her suggestion below. Others suspect that the regress is not vicious (deRosset unpublished).

fundamental, then it seems that R cannot be among them. And if R cannot be among either the Ps or the Ms, this seems to leave the physicalist with no options. Thus Moorean supervenience seems to be incompatible with a comprehensive physicalism.<sup>18</sup>

At this point, even those who are unsympathetic to physicalism should worry that something has gone awry. The above argument seems to show that physicalism is incoherent. But the argument goes through, if it does, even though we have not specified the Ps or the Ms. So this is not an argument against physicalism, but against any comprehensive ontology: Put whatever you like into the base entities, you will face the same problem. Any theory that claims that everything is an A or determined by and dependent on the A's will face the same question about the determination and dependence relations, leading to the same regress. And it will not matter whether the As are homogenous or heterogenous—let them be just the physical, or the five Aristotelian elements, or any number of things. Whatever is going wrong here is not peculiar to physicalism. It seems to arise for any theory that makes use of determination and dependence relations (Lynch and Glasgow 2003, Bennett 2011b, Dasgupta unpublished).<sup>19</sup>

---

<sup>18</sup> One might try to exclude determination relations from the scope of the physicalist claim by fiat (Tye 1984).

<sup>19</sup> Of course, what is a problem for any comprehensive ontology is still a problem for physicalism. Perhaps we should conclude that that physicalism is simply false, an anonymous referee wonders. But there are at least three reasons for resisting that conclusion, at least on the basis of this argument. First, if physicalism is false on these grounds, no other comprehensive ontology is true either. So this kind of failure of physicalism is no solace to advocates of alternative ontologies. Second, most of the critics of physicalism hold that it is a contingent thesis; they do not deny that there could be some physicalist worlds, they only deny that ours is among them. So this conclusion contravenes their views, as well. Third, and more narrowly applied to the present discussion, if this is what is wrong with physicalism then it cannot be fixed by adding a constraint like (B), so it is no aid to Horgan. I am grateful to the anonymous referee for pushing me to clarify why we should not simply accept that the regress argument establishes the conclusion that physicalism is subtly incoherent.

The lesson I draw is that it is time to reconsider the purported pretensions of physicalism to be entirely comprehensive. When physicalists claim that “everything” is physical or dependent on and determined by the physical, should they claim that the dependence relations are themselves either physical or dependent on and determined by the physical? I argue that they should not.<sup>20</sup>

The problem with über-physicalism can be exposed by setting the weaker and stronger determination theses side by side. For convenience, let us state our two competitors in terms of properties. Consider first the weaker thesis:

(P) Every property is either physical or determined by and dependent on the physical properties.

Now consider the stronger thesis:

(P+) Every property is either physical or determined by and dependent on the physical properties in virtue of a determination relation that is itself either physical or determined by and dependent on the physical properties.

(P) captures the idea that the physical properties are those that determine all other properties, but it leaves open the nature of those determination relations themselves.

(P+), on the other hand, captures the stronger claim that not only do the physical properties determine all other properties, but moreover the determination relations—whatever they are—must themselves be either physical or physically determined.<sup>21</sup>

Now (P) is plainly too weak to capture all that physicalists want to say. Like (MPD) it can be counter-exemplified by Moorean non-natural goodness and Cartesian

---

<sup>20</sup> The final answer depends on what those dependence relations turn out to be, Shamik Dasgupta reminds me. And, of course, that is the topic at hand. See also Dasgupta (unpublished).

<sup>21</sup> If the universal quantifier in (P) is unrestricted, then (P) implies (P+). So (P) has to be understood as excluding the dependence relations from the domain of the quantifier to make the distinction I have in mind. I omit this qualification to the formulations in the text for the sake of simplicity, trusting that the gist is more important than precision in this case. I thank Robert Howell for pushing me to make this explicit.

souls. But (P+) is too strong. It requires not just that there be some physicalistically acceptable determination relations, but moreover that those determination relations be themselves either physical or physically determined by the physical. And, as I pointed out above, the problem is not limited to physicalism; it will arise for any comprehensive ontology regardless of how many basic types it acknowledges (cf. Bennett 2011b, esp. 27-28). This suggests that the problem is (P+) itself, and that it should be rejected. (P+) makes a demand on the physicalist akin to the Tortoise's demand that Achilles endorse only those principles of reasoning that are among his premises (Carroll 1895).<sup>22</sup> It is this requirement that the connecting principles themselves be found among the basic materials that renders physicalist superdupervenience self-defeating, and equally so any ontology with comprehensive pretensions. So we should give up (P+).

If (P+) were the preferred formulation of physicalism, then opting for something weaker indeed would "soften physicalism considerably."<sup>23</sup> Generally as metaphysicians we prefer the stronger principle. But that injunction cannot apply when the stronger principle is itself defective; the rule of thumb must be to prefer the strongest principle that is not self-defeating, or some such. Because (P+) leads to a regress, there is no reason for physicalists to aspire to it. Thus there is no retreat in endorsing a physicalism that is weaker than (P+). We know that (P) by itself is inadequate. But merely abandoning (P+) is not abandoning physicalism.

---

<sup>22</sup> Karen Bennett (2011b) and Louis deRosset (unpublished) have independently noticed the similarity of this regress to that of Carroll's Tortoise and Achilles.

<sup>23</sup> Comment of an anonymous referee.



## 7. On Moorean Determination Relations

In the previous sections, I argued that we have not been given adequate reasons to accept a certain constraint on physicalist theorizing, viz., the ban on metaphysically “brute” determination relations. I suggested that the widespread acceptance of the constraint stems from a misunderstanding of certain cases (such as that of Moorean goodness) and a commitment to a formulation of physicalism that can independently be shown to be unreasonably demanding. Supposing I have succeeded, I have cleared the way for physicalists to make use of some non-logical determination relations that are not strictly physical or strictly physically determined by the strictly physical.

But even if such relations are permissible, they might still be undesirable or simply mysterious. What reason could we have to accept them? In particular, what reasons could physicalists have to accept them. Now I will take a moment to speculate on the nature of “brute” metaphysical necessities and the reasons they seem so odd.

Whereas I have been arguing that some “brute” metaphysically necessary relations are physicalistically acceptable, it’s nevertheless plain that some are not. The question therefore arises: What are the brute determination and dependence relations that are physically acceptable? This is a good question, and a difficult one. It doesn’t seem automatically more difficult or less tractable than the problem of saying what the physical base properties and entities are; but that is not saying much in its favor.

One of the reasons it is hard to see how a physicalist can accept “brute” metaphysical dependence relations is that these relations are often thought of as, as it were, necessities *post res*—tacked onto the physical. This assumption is natural to the (MPD) formulation of physicalism, for example. We *first* imagine two possible worlds

that are microphysical duplicates of one another and which contain nothing that is not physical, and *subsequently* we ask ourselves whether different metaphysical dependence relations could hold in one than in the other. A negative answer seems to support the contention that in physicalist worlds all the dependence relations are determined only by the distribution of physical properties. An affirmative answer seems to require that we postulate something other than a physical relation on which any difference could be pinned—a non-physical relation *added* to the independently existing physical ontology.

But this is not the only option. From the fact that fixing how the world is physically fixes how it is *tout court*—something a physicalist would find appealing—it does not follow that all the fundamental relations that do the fixing are strictly physical relations or dependent (only) on strictly physical entities and properties.

Consider a chess game. The total state of a chess game depends upon the board positions of the pieces. If the positions of the chess pieces on the board are fixed, then all of the chess properties are fixed. But the properties of particular pieces and the their board positions do not exhaust the fundamental facts about chess. Constraints that govern how the pieces move—the rules—are also determinant of the identity of the pieces. And the rules are not mere regularities about the movements of pieces; it's not coincidental that pawns or rooks move the ways that they do, and not others. Whereas the position of the pieces on the board is sufficient to determine the game state given the identities of the pieces, it is nevertheless mistaken to think that board position is the only fundamental fact that determines all the chess states. The board position fixes all the chess facts only insofar as the rules are *in rebus* determination relations that wholly or partially constitute the identity of the pieces, which is distinct from their positional

individuation. The rules govern the pieces with “brute” necessity insofar as the rules cannot be derived from the positions and properties of the pieces. A knight at c3 cannot travel to d4, i.e., cannot travel one square diagonally.<sup>24</sup> But this is not a fact in addition to the position facts about the knight; it is an *in rebus* fact about the knight. It is constitutive of a certain particular *being* a knight, in the game.<sup>25</sup> Could there be a knight that can move diagonally? No. But something qualitatively very much like a knight and situated at c3 (or a position qualitatively like c3) might be able to do so. That same physical particular could be a pawn in some other game; but that is not a case of the knight moving as a pawn does. How things are in a game of chess is not just a matter of how some particular objects are distributed across the playing surface, even if fixing those facts fixes all the facts about the game.

The possible worlds formulation of physicalism favored by Lewis (1994), Chalmers (1996), Jackson (1998) and appealed to by Horgan (1993, 2006) is particularly prone to confusing “how things are physically” with “how the physical properties are distributed”—as though the distribution of physical qualities is all there is to say about how the world is physically. The chess example illustrates that even if fixing the physical facts (*viz.*, the positions of the pieces) fixes all the facts *simpliciter*, it does not follow that all the fundamental fixing relations are themselves physical or dependent on the physical. The chess rules are not among the board position facts and are not determined by them. Likewise there could be determination or fixing relations that are constitutive of the

---

<sup>24</sup> An anonymous referee asks whether the rules govern the pieces, or govern the players. It is plausible that the rules govern the pieces *qua* chess pieces, and only derivatively the players. The players must follow the rules if they wish to play chess. But it is the chess pieces that are ontologically dependent on the rules in that they will fail to be the pieces that they are if they do not move according to the rules.

<sup>25</sup> The idea here is closely related to what some call “grounding in essence” (Dasgupta unpublished, deRosset unpublished; and see Wilsch unpublished for objections to this sort of proposal.)

physical, but that are not themselves strictly physical or dependent on the strictly physical. One way that this could occur is if there are some additional determinants of both the metaphysical facts. These would be the *sui generis* metaphysical laws that Horgan abhors. But we need not think of such relations as being added onto the physical entities, *post res*. Rather, we can think of them as necessities *ante rebus* or (better) *in rebus*. Then fixing the physical facts fixes and determines all the facts, per the “minimal physical duplicates” formulations of physicalism; but that does not show that the physical determiners are all of the determiners. Whereas Horgan assumes that the “additional” determination relations must be added *post res*, here the suggestion is that they are already present in the physical.

The *in rebus* version is perhaps the more attractive option: The physical facts may themselves be partially constituted by the metaphysical relations that they can enter into. This would be the case if it is wholly or partially determinant of the actual way things are physically that certain other states of affairs are dependent on and determined by the physical states of affairs in characteristic ways. This suggestion is not merely a philosopher’s fantasy, but seems to reasonably characterize the way that physical theory construes fundamental and near-fundamental entities and their properties. Consider the fundamental forces and particles posited by the Standard Model of contemporary physics. According to the Standard Model, quarks and leptons are individuated by the different ways that they interact with the four fundamental forces. The particles are as they are because they interact with the fundamental forces as they do. If the forces were different then, in a plain sense, we would not have bottom quarks and electrons but things (at best) qualitatively similar—bottom quarks\* and electrons\*. Bottom quarks\* and electrons\*

might be much like (and yet not like) actual quarks and leptons. (Maybe electrons turn into electrons\* when energies are very high or very low, or in universes with extra fundamental forces.) Similarly, we can imagine a universe that has no strong force, but something qualitatively like the strong force—the strong\* force—one that acts across a wider distance, say.<sup>26</sup>

We can think of the strictly physical stuff of our world as being what it is because of the fundamental metaphysical relations that constitute it. Could there be quarks that do not form protons and neutrons? Could there be protons and neutrons that are not made of quarks? Well, there could be particles very much like protons and neutrons but that are not dependent on and determined by quarks. That is, physically similar simple particles would occupy the same spaces and enter into the same physical relations, as though there were protons; but without the existence of any composite object, the proton. Needless to say, this is not a serious empirical alternative to physics as we know it. But it is a metaphysical alternative to the world we inhabit. Our world has quarks and leptons rather than their qualitatively similar but compositionally infertile counterparts. These imagined counterparts differ from the genuine articles not because something is different about their physical combination *post res* but rather because they are different in their natures, as reflected by the different metaphysical determination relations in which they

---

<sup>26</sup> My interpretation of the Standard Model here follows Allday (2002) and Smolin (2006). It is true that physicists hope to discover a more fundamental explanation for the Standard Model, involving fewer basic entities and forces. But those proposals all share the feature of interest here: that the entities are identified constitutively according to the laws that govern them. A similar story can be told about the chemical elements, as partially described by the periodic table.

participate and that are *ipso facto* constitutive of them.<sup>27</sup> Quarks and leptons—our quarks and leptons—do in fact enter into what Karen Bennett (2011a) calls “building” relations.

Bennett herself has recently advanced a proposal that has some resemblance to my own (2011b). What I have discussed in the guise of determination relations, she calls *grounding* or (as above) *building* relations. Her idea is to think of the grounding relation for grounding itself as “superinternal” in that the intrinsic nature of just one of the relata (the Ps, in my terminology) ensures that the relation obtains. (This contrasts them with ordinary internal relations, which also come “for free” but require the presence of both relata—the classic exmple being the way that *taller than* comes “for free” with heights.) On Bennett’s view, a relation R could depend on the Ps without requiring a distinct R\* relation that links Ps to the Ms that themselves depend on the Ps by R. As she puts it, “If grounding is superinternal, then wherever it obtains, it obtains in virtue of the intrinsic nature of the first relatum(a). This is equivalent to the claim that all grounding facts are grounded in their first relatum(a)” (2011b: 33). Bennett’s proposal that grounding relations may obtain in virtue of the intrinsic natures of things is similar to my proposal that dependence relations are already present in the nature of the Ps. But she still sees the grounding relations as being determined by and coming out of the fundamental properties, whereas I suggest the reverse: that the fundamental properties are what they are in part because of the determination relations in which they participate.<sup>28</sup> Insofar as these are related proposals, mine has the advantage of taking the further step of explaining how such relations could be internal to the natures of the Ps and explaining

---

<sup>27</sup> Dasgupta (unpublished) prefers to think of the in rebus relations as part of the essences of the “higher” level things, rather than the lower as I suggest. That alternative is not explored here.

<sup>28</sup> This appears to make my view more like Dasgupta’s than like Bennett’s.

how a physicalist could endorse the idea that dependence relations are grounded by the “intrinsic” properties of the Ps without being among the strictly physical entities. Some Moorean supervenience relations could be physically acceptable if those dependence relations were partly constitutive of the Ps. The physicalist should feel comfortable accepting the strictly physical, whatever depends on the strictly physical in physically acceptable ways, and that on which the strictly physical itself depends.

Notice that on the necessity *in res* way of construing the dependencies that underwrite Moorean supervenience it is not the case that two minimal physically duplicate worlds could differ metaphysically. This is because the metaphysical determination relations, while not themselves strictly physical or physically determined, are already built into the way the world is physically—into the nature of the physical. This also helps to address the concern that any view that acknowledges determination relations that are not strictly physical or physically determined by the strictly physical is simply not a form of physicalism. For the determination relations that could be part of a physicalistically acceptable Moorean supervenience are just those that are already presupposed by the physical, not further additions. We may count them as physicalistically “kosher” because our reasons for accepting them are just our reasons for accepting the strictly physical properties and relations. In this respect they are quite similar to how some physicalist philosophers think about numbers and other abstracta: if they exist and our reasons for thinking so are tied up with their use in the physical sciences (if they are indispensable for doing science, for example), then they are physicalistically acceptable as well.

Of course we will want to know which dependence and determination relations are of this sort, rather than being like supernatural superaddition. This is a good question, and I gather that scientists and metaphysicians of science are both keen to answer it.

## **9. Conclusion**

When thinking about how things are physically, we are prone to the error that Kripke pointed out, the error of thinking in terms of how things are qualitatively, how they would appear to an observer who takes only a snapshot view. From this sort of “neutral” view, two things that are physically alike could differ in other ways only if some extra-physical force were applied to one or the other.

But there is an alternative. The alternative is to think of the metaphysical natures of things as prior to or constitutive of them. Of course we’d like to know which metaphysical relations are physicalistically “kosher” because they are constitutive of the physical. The metaphysics of science is a difficult business, but there is some hope that scientists and philosophers working diligently can make progress. If this is right, then Horgan, Chalmers, Jackson, and others are too quick to proscribe any appeal by physicalists to metaphysically basic ontological dependence relations. Physicalists might have good reasons to accept them.

On the proposed view, physicalism already inherits some ontological resources. It may be that fixing the physical facts fixes all the facts, without it also being the case that all of the fundamental fixing relations are physical relations or dependent on the physical relations. How the world is physically determines how it is *simpliciter*. But how



the world is physically may nevertheless depend upon how it is metaphysically. And that is just as any metaphysically serious physicalist should expect.

## 9. References

- Barnes, G. P. 2007. Necessity and Apriority. *Philosophical Studies* 132: 495-523.
- Bennett, K. 2011a. Construction Area (No Hard Hat Required). *Philosophical Studies* 154: 79–104.
- Bennett, K. 2011b. By Our Bootstraps. *Philosophical Perspectives*, 25: 27-41.
- Bloomfield, P. 2006. Opening Questions, Following Rules. In T. Horgan and M. Timmons (Eds.), *Metaethics after Moore*. Oxford: Oxford University Press, 2006.
- Brentano, F. 1874/1995. *Psychology from an Empirical Standpoint*, transl. by A.C. Rancurello, D.B. Terrell, and L. McAlister. London: Routledge
- Broad, C. D. 1942. Certain Features in Moore's Ethical Doctrines. In Schlipp (1942).
- Byrne, A. 1999. Cosmic Hermeneutics. *Philosophical Perspectives* (13): 347-383.
- Carroll, L. 1895. What the Tortoise said to Achilles. *Mind* 4 (14): 278-280.
- Chalmers, D. 1996. *The Conscious Mind*. New York: Oxford University Press.
- Chalmers, D. and F. Jackson. 2001. Conceptual analysis and reductive explanation. *The Philosophical Review*, 110 (3): 315-361.
- Correia, F. 2008. Ontological Dependence. *Philosophy Compass* 3/5: 1013-1032.
- Dasgupta, S. unpublished. The Status of Ground.
- deRosset, L. unpublished. Grounding Explanations.

- deRosset, L. 2011. What is the Grounding Problem? *Philosophical Studies* 156(2): 173-197.
- Dowell, J. 2006. Formulating the Thesis of Physicalism: An Introduction. *Philosophical Studies* 131 (1): 1-23.
- Dreier, J. 2006. Was Moore a Moorean? In T. Horgan and M. Timmons (Eds.), *Metaethics after Moore*. Oxford: Oxford University Press, 2006.
- Fine, K. 1995. Ontological Dependence. *Proceedings of the Aristotelian Society*, New Series, Vol. 95, (1995), pp. 269-290.
- Gillett, C. and Loewer, B. (Eds.) 2001. *Physicalism and Its Discontents*. Cambridge: Cambridge University Press.
- Hempel, C. 1980. Comments on Goodman's *Ways of Worldmaking*. *Synthese* XLV: 193-199.
- Hochberg, H. 1962. Moore's Ontology and Non-Natural Properties. *Review of Metaphysics* 15: 365-395.
- Horgan, T. 1984. Supervenience and Cosmic Hermeneutics. *Southern Journal of Philosophy* 22, Spindel Conference Supplement on Supervenience, 19-38.
- Horgan, T. 1993. From Supervenience to Superdupervenience: Meeting the Demands of a Material World. *Mind* 102, 555-86.
- Horgan, T. 2006. Materialism: Matters of Definition, Defense, and Deconstruction. *Philosophical Studies* 131 (1): 157-183.
- Horgan, T. and M. Potrc. 2000. Blobjectivism and Indirect Correspondence. *Facta Philosophica* (2): 249-270.

- Jackson, F. 1998. *From Metaphysics to Ethics: A Defense of Conceptual Analysis*.  
Oxford: Oxford University Press.
- Jost, L. 1973. *Ethical Naturalism: A Contemporary Category with Ancient Application*.  
Ph. D. dissertation at the University of Toronto.
- Kallestrup, J. 2006. Physicalism, Conceivability, and Strong Necessities. *Synthese* 151  
(2): 273-295.
- Kim, J. 1998. *Mind in a Physical World*. Cambridge, MA: The MIT Press.
- Kim, J. 2005. *Physicalism, or Something Near Enough*. Princeton: Princeton University  
Press.
- Kim, J. 2006. *Philosophy of Mind, 2nd Edition*. Boulder, CO: Westview.
- Kim, J. 2011. From Naturalism to Physicalism: Supervenience Redux. *Proceedings of the  
American Philosophical Association*, 85 (2): 109-134.
- Kirk, R. 2006. Physicalism and Strict Implication. *Synthese*, 151: 523-536.
- Levine, J. and K. Trogon. The Modal Status of Materialism. *Philosophical Studies*  
145(3): 351-362.
- Lewis, D. 1983. New Work for a Theory of Universals. *Australasian Journal of  
Philosophy* 61: 343-377.
- Lewis, D. 1986. *Philosophical Papers, Volume II*. Oxford: Oxford University Press.
- Lewis, D. 1994. Reduction of mind. In S. Guttenplan, (ed), *A Companion to the  
Philosophy of Mind*. Oxford: Blackwell Publishers: 412-431.
- Loewer, B. 1996. Humean Supervenience. *Philosophical Topics*, 24: 101-127.

- Lycan, W. 2009. Serious Metaphysics: Frank Jackson's Defense of Conceptual Analysis. In Ian Ravenscroft (ed.), *Minds, Worlds and Conditionals: Essays in Honour of Frank Jackson* (Oxford: Oxford University Press).
- Lycan, W. 2003. Vs. a New A Priorist Argument for Dualism. In E. Sosa and E. Villanueva (eds.), *Philosophical Issues*, Vol. 13: 130-47.
- Lynch, M. and J. Glasgow. 2003. The Impossibility of Superdupervenience. *Philosophical Studies*, 113: 201-223.
- Mackie, P. 2002. Deep contingency and necessary a posteriori truth. *Analysis* 62 (3): 225-236.
- Melnyk, A. 1997. How to Keep the 'Physical' in Physicalism. *Journal of Philosophy*, 94 (12): 622-637.
- Melnyk, A. 2003. *A Physicalist Manifesto: Thoroughly Modern Materialism*. Cambridge: Cambridge University Press.
- Moore, G. E. 1903. *Principia Ethica*. Cambridge: Cambridge University Press.
- Moore, G. E. 1942. A Reply to My Critics. In Schlipp (1942).
- Nolan, D. 2012. The Extent of Metaphysical Necessity. *Philosophical Perspectives*, 25: 313-339.
- Papineau, D. 2001. The Rise of Physicalism. In Gillett and Loewer (1991).
- Polger, T. 2011. Are Sensations Still Brain Processes? *Philosophical Psychology*, 24 (1): 1-21.
- Polger, T. 2008. H<sub>2</sub>O, 'Water', and Transparent Reduction. *Erkenntnis*, 69 (1): 109-130.
- Quine, W. V. 1948. On What There Is. *The Review of Metaphysics* (2): 21-28.

- Schlipp, P. A. (Ed.) 1942. *The Philosophy of G. E. Moore*. Evanston, IL: Northwestern University Press.
- Sider, T. 2011. *Writing the Book of the World*. Oxford: Oxford University Press.
- Smolin, L. 2006. *The Trouble With Physics*. Boston: Mariner Books, Houghton Mifflin Company.
- Sober, E. 1999. Physicalism from a Probabilistic Point of View. *Philosophical Studies*, 95 (1/2): 135-174.
- Trogon, K. forthcoming. An Introduction to Grounding. In *Dependence* (M. Hoeltje, B. Schnieder, and A. Steinberg, eds.) Basic Philosophical Concepts, Philosophia Verlag.
- Tye, M. 1984. Supervenience, Materialism, and Functionalism: Comments on Horgan. *Southern Journal of Philosophy* 22 (S1): 39-43.
- van Inwagen, P. 1990. *Material Beings*. Ithaca, NY: Cornell University Press.
- Whittle, B. 2010. There are Brute Necessities. *Philosophical Quarterly* 60 (238): 149-159.
- Wilsch, T. unpublished. Against Essentialism About Ground.