

# **Mooreanism in Metaphysics from Mooreanism in Physics**

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**Abstract**

I argue that the way the world appears to be plays an important role in standard scientific practice, and that therefore the way the world appears to be ought to play a similar role in metaphysics as well. I then show how the argument bears on a specific first-order debate in metaphysics—the debate over whether there are composite objects. This debate is often thought to be a paradigm case of a metaphysical debate that is largely insulated from scientific considerations, and is often disparaged or avoided by naturalistically-inclined metaphysicians as a result. My argument below shows that this attitude is a mistake. The way in which metaphysical debates can be informed by our best science is more complex and far-reaching than is often acknowledged in the literature.

**Keywords**

Metaphysics, Common Sense, Composition

## 1 Introduction

Suppose some metaphysical theory accords well with our intuitions. Is that a reason to accept it? Suppose a certain view about the nature of some entity conflicts with common sense. Is that a reason to discard it? Consider the fact that the world appears to contain some thing. Is that a reason to think that thing exists? To answer “yes” to any of these questions is to adopt some version of *Mooreanism about metaphysics*.

The philosopher who thinks that we ought to accept the view that there are objective, determinate criteria for personal identity over time because that view just seems obvious, is a Moorean. So too is the philosopher who says that the view that there are a plurality of concrete possible worlds is just too crazy to be believed. When Thomson (1998, p. 153) rejects the view that objects are identical to their parts because “philosophy should not depart more than it absolutely has to from what we ordinarily think and say,” she is showing her Moorean *bona fides*. Similarly for Zimmerman (2008, p. 211) when he writes, “Are there objective differences between what is past, present and future?...Are present events and things somehow more “real” than those wholly in the past or future? I should like to respond “Yes”, to both questions. Affirmative answers sound obvious and commonsensical, at least to me.”

It is common these days, especially among naturalistically-inclined philosophers, to think that Mooreanism in metaphysics is deeply misguided. Indeed the prevalence of Moorean reasoning in metaphysics is often cited as a reason for thinking that the field as a whole is deeply flawed. Consider, for instance, the opening chapter of Ladyman and Ross 2007, in which the authors claim that much contemporary metaphysics “proceeds by attempts to construct theories

that are intuitive, commonsensical, palatable, and philosophically respectable”, and that insofar as it does, the “criteria of adequacy for metaphysical systems have clearly come apart from anything to do with the truth”.<sup>1</sup>

In this paper I argue that we ought to endorse at least one version of Mooreanism about metaphysics, and indeed that naturalistically-inclined philosophers have particular reason to do so. The argument for this conclusion has just two premises. The first premise is that a particular version of Mooreanism—I call it *the principle of minimal divergence*—plays an important role in standard scientific practice. The second premise is that if some principle of theory choice plays an important role in standard scientific practice, and that principle favors one metaphysical theory over a rival, we ought to adopt the metaphysical theory that the relevant principle favors. The conclusion, then, is that if the principle of minimal divergence favors one metaphysical theory over a rival, we ought to adopt the metaphysical theory that the principle of minimal divergence favors.<sup>2</sup>

I then show how the argument has significant consequences for a specific first-order debate in metaphysics—the debate over whether there are composite objects. This debate is often thought to be a paradigm case of a metaphysical debate that is largely insulated from scientific considerations and is often disparaged or avoided by naturalistically-inclined metaphysicians as a result. The argument below shows that this attitude is a mistake. The way in which metaphysical debates can be informed by our best science is more complex and far-reaching than is often recognized.<sup>3</sup>

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<sup>1</sup> Ladyman and Ross 2007, p. 13. See also, for instance, Bryant 2017 on what she calls “free range metaphysics”.

<sup>2</sup> In Emery 2017a, I claimed that a specific version of this argument creates problems for certain currently popular interpretations of non-relativistic quantum mechanics, according to which the fundamental space that we inhabit has something on the order of  $10^{80}$  dimensions. The goal of this paper is to defend a more general version of this argument and to explore its consequences for debates that are central to contemporary metaphysics (as opposed to philosophy of physics).

<sup>3</sup> One philosopher who explicitly leaves room for this sort of argument despite having an otherwise dismissive

## 2 Minimal divergence

Mooreanism comes in many varieties. First and foremost, versions of Mooreanism can be differentiated based on the specific sort of consideration that they take to be relevant when evaluating metaphysical theories. Above I suggested that appeals to intuition, to immediate appearances, and to surprisingness are all varieties of Mooreanism. I take it that all of these considerations can at least loosely be thought of as ways of appealing to *common sense*, and thus that Mooreanism can be defined in the following way:

*Mooreanism about metaphysics.* The extent to which a metaphysical theory coheres with some type of common sense is at least some reason to think that theory is true. And the extent to which a metaphysical theory departs from common sense is at least some reason to think that theory is false.

But this definition is only as clear as one's understanding of what counts as common sense, and in what follows I will not attempt to clarify that notion. With respect to this way of differentiating varieties of Mooreanism, my thesis will be quite circumscribed: I will only argue that considerations to do with one type of common sense—the way the world appears to be—are relevant when evaluating metaphysical theories. Perhaps other varieties of Mooreanism are viable as well, but I will not take up that question below. Indeed insofar as the reader is skeptical that there is any well-defined group of theses that are appropriately labelled as Moorean, she

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attitude toward the debate over composition is Bennett (2009), see p. 73.

still can—and indeed I think still should—endorse both my argument and the consequences that follow. Nothing important turns on my suggestion that the type of common sense that plays a role in that argument is a member of a well-defined larger group.

Another way of differentiating varieties of Mooreanism is in terms of the strength of the reasons to which the relevant type of common sense gives rise. At one end of the spectrum, a Moorean might think that the relevant type of common sense gives us a reason to believe some theory, but that it is a highly defeasible reason. At the other, a Moorean might think that coherence with the relevant type of common sense is a necessary condition, without which we ought not accept a candidate theory.<sup>4</sup>

With respect to this way of differentiating varieties of Mooreanism, my thesis will be more expansive. I will argue that considerations to do with the way the world appears to be are among the most important extra-empirical considerations that are relevant when evaluating metaphysical theories. Considerations to do with the way the world appears to be do not only hold when all else is equal. Sometimes even when there are substantive reasons in favor of some metaphysical theory, that theory is nonetheless ruled out because it conflicts with the way the world appears to be.

In order to understand the particular version of Mooreanism that I will be interested in below, start with the *manifest image*: the way the world appears to be. It will be helpful to think of the manifest image as generating a set of propositions *M* that accurately represent the way the world appears to be. The necessary and sufficient conditions for membership in *M* will

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<sup>4</sup> Many philosophers whom you might not have thought of as having especially Moorean inclinations endorse the view that common sense is in some sense relevant to theory choice in metaphysics. In *On the Plurality of Worlds*, for instance, Lewis admits a role for common sense, though he also insists that it “has no absolute authority in philosophy” (1986, 134).

undoubtedly be controversial, and I will not attempt to defend any such conditions here.<sup>5, 6</sup> But as examples of relatively uncontroversial members of M, consider the following:

- (1) I exist.
- (2) There are such things as tables and chairs.
- (3) The space we inhabit has three dimensions.<sup>7</sup>

The particular version of Mooreanism that I am interested in is one that says that an important consideration in whether to adopt a theory is the extent to which it diverges from the manifest image.

*The principle of minimal divergence.* Insofar as you have two or more candidate theories, all of which are empirically and explanatorily adequate, you ought to choose the theory that diverges least from the manifest image.

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<sup>5</sup> Readers who are worried about the notion of the manifest image as it plays a role in the argument below should be sure to read the first few objections and replies in section 5.

<sup>6</sup> Note that in terms of the argument that follows, nothing important turns on whether my use of the term ‘manifest image’ is the same as that found in, e.g. Sellars 1962. Indeed, nothing important turns on the use of that term at all. All that matters for the argument is that the reader have some sense of the way the world appears to be, and a way of generating a set of propositions that represent the way the world appears to be of which (1) through (3) below are paradigm examples. We can then define divergence from the manifest image below in terms of conflict with that set of propositions.

<sup>7</sup> The reader will note that this is a very thin characterization of the manifest image. This is intentional. My aim is to give just enough content to the notion for the argument to go through, while avoiding any controversial commitments. Part of what I think the argument below should do is to motivate further philosophical research into the best way to characterize the manifest image, including among naturalistically-inclined philosophers who might otherwise not have been especially interested.

There are several technical terms in the principle of minimal divergence that require spelling out. First, and most familiar is the notion of empirical adequacy. For our purposes, a candidate theory is *empirically adequate* insofar as it predicts the data that we actually observe.<sup>8</sup> Second, and less familiar, is the notion of explanatory adequacy. A candidate theory is *explanatorily adequate* insofar as it does not leave robust patterns in the phenomena unexplained. A theory<sup>9</sup> that just consists of a large list of all of the events that actually happen would be empirically adequate, but also explanatorily inadequate.<sup>10</sup>

What about the notion of *divergence* from the manifest image? In what follows, I will adopt the following definition:

A theory *diverges* from the manifest image insofar as, for some  $m$  that is a member of  $M$ , the theory entails  $\sim m$ .

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<sup>8</sup> Here and throughout the paper I am understanding the empirical data as quite thin—as consisting just of a description of our experience that is as theory neutral as possible. So when I look at a table, for instance, the data that I am collecting is a description of my experience that is neutral between there being a table before me, and there being a bunch of atoms arranged tablewise before me, and my envatted brain being stimulated in such a way as to produce the experience of a table before me. The data I am collecting, in other words, would be something like that I am having an experience as of a solid, brownish rectangular shape before me. On this view the manifest image, which was described above as including propositions like (1) - (3), goes substantially beyond the empirical data. And one way—though certainly not the only way—of further spelling out the notion of the manifest image at play here, is that it is the set of propositions that you get when you combine our data (as characterized above) with a common sense theory of what the world is like. On such a theory, tables are the sorts of things that give rise to experiences as of solid, brownish, rectangular shapes before us, so when our data consists of that sort of experience, the manifest image includes the proposition that there is a table before us.

It is of course also possible to have a thicker notion of data, according to which, when I look at a table, it is also part of the data itself that there is a table before me. On this thicker notion, the data itself rules out, e.g. compositional nihilism or the hypotheses that we are brains-in-a-vat. But note that on this view, one will still need something like the principle of minimal divergence, though it won't appropriately be called an extra-empirical principle. Instead it will be a principle that determines, based on our experiences and perhaps in conjunction with other principles, what our empirical data is. It will be a principle that determines, for instance, that when we have an experience of a solid, brownish rectangular shape in front of us, the data is (in part) that there is a table before us.

<sup>9</sup> Depending on how much you build into the notion of a 'theory' you may be able to avoid the explanatory adequacy condition entirely, by claiming that any so-called theory that leaves robust patterns in the phenomena unexplained does not deserve the name. But I will adopt a relatively thin notion of what constitutes a theory here.

<sup>10</sup> Note that it is plausible that both empirical and explanatory adequacy come in degrees. The principle of minimal divergence as stated above assumes that there is a minimal threshold of empirical and explanatory adequacy which candidate theories either meet or do not meet. Insofar as one thinks that there is no such threshold, but only relative measures of these criteria, one will need to modify the principle of minimal divergence to read something more like: Insofar as you have two or more candidate theories that are roughly equivalent in terms of empirical and explanatory adequacy, you ought to choose the theory that diverges least from the manifest image. By way of keeping things



There are, plausibly, other ways in which a theory might depart from the manifest image, which I will say nothing about here but which deserve further investigation. For instance, for some  $n$  that is not a member of  $M$ , a theory might entail  $n$ , or for some pattern  $p$  that holds throughout  $M$ , a theory might entail some set of propositions  $N$  such that  $p$  does not hold throughout the union of  $M$  and  $N$ . But I won't say anything about these other sorts of departure from the manifest image here.<sup>11</sup>

These definitions are rough and leave many interesting questions unanswered. (What exactly constitutes an observation? When does some phenomenon count as satisfactorily explained? In cases where all candidate theories diverge somewhat from the manifest image, how exactly should one weigh the extent of one's divergence against another?) The hope, however, is that these definitions are sufficiently clear to allow the principle to play the role that it is supposed to play in the arguments below, and that we can therefore leave those sorts of further details, interesting as they are, unspecified. Indeed I take it that part of what the argument below should do is to motivate interest in working out those further details.

Here, then, is a more detailed version of the argument that will be the focus of what follows:

P1 The principle of minimal divergence is a commitment of standard scientific practice.

P2 If a principle of theory choice is a commitment of standard scientific

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simple, I will continue to use the original formulation.

<sup>11</sup> In Emery 2017a, I discuss the former sort of divergence in detail and defend a version of the principle of minimal

practice, and that principle favors metaphysical theory A over competing metaphysical theory B, then we ought to adopt metaphysical theory A.

The conclusion of the argument is that the principle of minimal divergence should govern theory choice in metaphysics. In other words:

*Minimal divergence in metaphysics.* If the principle of minimal divergence favors metaphysical theory A over competing metaphysical theory B, we ought to adopt metaphysical theory A.

In what follows I will refer to the argument that establishes this conclusion as *the minimal divergence argument for Mooreanism in metaphysics*. Or, for short, the *minimal divergence argument*.

### **3 Mooreanism as a part of standard scientific practice**

The first premise of the minimal divergence argument says that the principle of minimal divergence is a commitment of standard scientific practice.<sup>12</sup> My argument for this premise will

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divergence in which it plays a role.

<sup>12</sup> The discussion of “standard scientific practice” here and throughout the paper suggests that there is a single unified practice across all scientific contexts. This is, of course, a controversial assumption. Note that all that is required for my argument is that there are at least some aspects of scientific practice that are uniform across scientific contexts, and that the principle of minimal divergence is one of aspects. It is perhaps also worth emphasizing that the manifest image as characterized above contains propositions that will be relevant to a variety of sciences. The proposition that the world has three spatial dimensions has the potential to play a role in theory choice in physics via the principle of minimal divergence while the proposition that I have hands will be relevant to theory choice in biology, and so on.

proceed in two steps.<sup>13</sup> First I will present a group of hypotheses that conflict with our best scientific theories. Then I will argue that the best, and possibly the only explanation of the fact that all of these hypotheses conflict with our best scientific theories is that the principle of minimal divergence is a commitment of standard scientific practice. I will call the relevant group of hypotheses *radical metaphysical hypotheses*.

Radical metaphysical hypotheses include the following:

*Solipsistic Idealism.* I do not have a physical body or brain. All that exists are my mental states. There is nothing corresponding to the world that I appear to inhabit.

*The Simulation Hypothesis.* I do not have a physical body or brain. I am a part of a computer simulation which gives rise to my experiences. The physical world, of which the simulation is part, is not at all the way the world appears to be.

*The Brain-in-a-vat Hypothesis.* I do not have a physical body. My brain is being stimulated in a way that gives rise to my experiences. The physical world around me is not at all the way the world appears to be.

*The Boltzmann Brain Hypothesis.* I do not have a physical body. My brain formed in a nearly empty region of space due to an extraordinary series of coincidences.

The world around me is not at all the way the world appears to be.

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<sup>13</sup> See Emery 2017a for a discussion of the similarities and differences between my defense of this premise and related claims made in the debate over quantum ontology, including those found in Monton 2006 and Allori 2013.

*The Evil Demon hypothesis.* I have a physical body and brain, but an evil demon is causing me to have experiences that do not in any straightforward way correspond to the world around me. The world around me is not at all the way the world appears to be.

More specifically, my focus will be on versions of these hypotheses that are further spelled out in such a way as to be empirically and explanatorily adequate.<sup>14</sup>

Readers will of course recognize these sorts of hypotheses as motivating various skeptical concerns in epistemology. (I say more about the relation between my argument and traditional discussions of skepticism in section 5.) But for now, the key thing to recognize is that all of these radical metaphysical hypotheses conflict with our best scientific theories. Our best scientific theories say that we have physical bodies and brains, and that our bodies and brains are causally connected in a straightforward way to the world around us. So, if any of the radical metaphysical hypotheses listed above turned out to be true, our best scientific theories would have turned out to be false. And indeed this is not just a feature of our current best scientific theories. Throughout the history of science, our best scientific theories at each time have conflicted with the various versions of these radical metaphysical hypotheses that were spelled out in such a way as to be empirically and explanatorily adequate at that time.<sup>15</sup>

Given that these radical metaphysical hypotheses conflict with our best scientific

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<sup>14</sup> Note that there is a difference between claiming that these hypotheses can be spelled out in such a way as to be explanatorily adequate (i.e. they do not leave robust patterns in the phenomena unexplained) and claiming that they can be spelled out in such a way as to provide better explanations than, e.g. our best scientific hypotheses. The latter view has been questioned by, e.g. Vogel (1990) and Huemer (2016). But I only need to assume the former. Note that one way of explaining patterns in the phenomena is to simply posit lawlike connections between them. This is presumably the strategy that the solipsistic idealist would take in order to make her theory explanatorily adequate.

<sup>15</sup> Note that it is compatible with the claim that our best scientific hypotheses conflict with the radical metaphysical hypotheses that scientists sometimes take radical metaphysical hypotheses seriously. What they are doing when they

theories, we ought to ask: why? Why is it that standard scientific practice systematically dismisses these hypotheses? By stipulation, it is not a matter of empirical or explanatory adequacy, since by stipulation the radical metaphysical hypotheses in question are spelled out in such a way as to be empirically and explanatorily adequate. By what criteria, then, are these hypotheses ruled out?<sup>16</sup>

I claim that the best and perhaps the only plausible answer to this question is that the principle of minimal divergence is a commitment of standard scientific practice.

A defense of this claim starts from the observation that what all of the radical metaphysical hypotheses in question have in common (besides conflicting with our best scientific theories and being empirically and explanatorily adequate) is that they all diverge significantly from the manifest image. It is a central feature of these hypotheses that the world is very different than it appears to be—that many of the propositions in M are, in fact, false. Indeed even given that we have said virtually nothing about how to weigh relative divergence among competing theories, I take it that on any plausible way of spelling out that such comparisons, the radical metaphysical hypotheses listed above diverge more from the manifest image than do our best scientific theories. It follows that the radical metaphysical hypotheses would be ruled out by the principle of minimal divergence.

Now note that, in addition, there does not appear to be anything further that unifies these

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take such hypotheses seriously is seriously considering the possibility that our best scientific theories might be false.

<sup>16</sup> Here and throughout this section I talk as though scientific practice involves the active, explicit rejection or dismissal of the radical metaphysical hypotheses. But nothing important turns on this. It may be that scientists do not explicitly rule out the radical metaphysical hypotheses but instead simply ignore them or never entertain them to begin with. If so, then the key question for what follows is: why is it standard scientific practice to systematically ignore, or systematically fail to entertain, the radical metaphysical hypotheses? But the options for answering that question, and my argument for the principle of minimal divergence will remain unchanged. (It is of course possible that there is no principled reason for scientists ignoring this group of hypotheses, but I take that no metaphysician who is at all naturalistically-inclined, should respond in this way.)

Note that if you think that standard scientific practice involves taking a very minimal kind of attitude toward one's theories—e.g. taking them to be useful as opposed to believing them to be true—then you should still accept the argument in this section but you may have significant questions about the justification of premise 2 in section 4. I say more about this at the end of section 4.

hypotheses. It is not the case, for instance, that all of the radical metaphysical hypotheses are unnecessarily complicated. Solipsistic idealism is both more qualitatively and more quantitatively simple than our best scientific theories. Nor is it the case that all of the radical metaphysical hypotheses listed above are especially unlikely. On standard ways of assigning probability in statistical mechanics, the Boltzmann Brain scenario can be spelled out in such a way that it is *more* likely than my experiences being the result of an embodied brain in a region of spacetime that corresponds in any straightforward way to my experiences.<sup>17</sup> Nor is it the case that all of the radical metaphysical hypotheses are less explanatorily powerful than our best scientific theories. Consider the simulation hypothesis. Such a hypothesis has the potential to explain not only the robust patterns currently explained by science, but also those phenomena that our best scientific theories take to be genuine coincidences—such coincidences could be given a straightforward causal explanation in terms of the simulation.<sup>18</sup>

Here is the upshot of the discussion so far: the only *unified* explanation of why the radical metaphysical hypotheses conflict with our best scientific theories is an explanation that appeals to the principle of minimal divergence.<sup>19</sup>

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<sup>17</sup> Suppose, for instance, that the Boltzmann Brain is the result of a random fluctuation that occurs in a universe that spends most of its history very close to thermal equilibrium.

<sup>18</sup> A similar point is that the simulation hypothesis (and similar radical metaphysical hypotheses) might be able to give far better explanations for the correlations observed in so-called EPR experiments than any of our best theories of non-relativistic quantum mechanics. An important follow-up question here is: does the simulation give rise to further explananda? It depends on how the hypothesis is spelled out. But insofar as one thinks that the simulation is carried out in a world that is similar in kind to ours (as in Bostrom 2003), then it need not do so.

<sup>19</sup> In conversation I sometimes have people claim that we can rule out the radical metaphysical hypotheses in a unified way because they are, in general, less scientifically fruitful than the our best scientific theories. (This view might be especially attractive to those who have a pragmatic understanding of scientific theories. Note that I say more about how this kind of attitude toward science impacts my argument for premise 2 in section 4.) My response to this alternative explanation in terms of fruitfulness depends on how the explanation is spelled out. On the one hand, the claim might be that the radical metaphysical hypotheses don't generate as many interesting and testable predictions as our best scientific theories do. I think this claim is false. An empirically and explanatorily adequate version of the simulation hypothesis will generate just as many interesting and testable predictions, they will just be understood as predictions *about how the simulation is programmed*. On the other hand, the claim might be that the shift from our best scientific theories to one of the radical metaphysical hypotheses doesn't generate any novel predictions. I agree with this claim, but then I think there is still something to be explained, which is why we have accepted our best scientific theories instead of the radical metaphysical hypotheses to begin with. Thanks to an

Might there be an alternative, non-unified explanation of why the radical metaphysical hypotheses conflict with our best scientific theories—an explanation that goes through the list of such hypotheses one by one, identifying something that disqualifies each of them? We would have to see exactly how such an explanation goes in order to evaluate it fully, but here are a few important reasons for thinking that this way of proceeding is unpromising at best.

First, notice that the list above can be expanded in various ways. The radical metaphysical hypotheses listed above are merely exemplars of a more general category. Any non-unified explanation will need to deal not only with that list, but also with the threat of novel radical metaphysical hypotheses which might be designed expressly to avoid the issues identified with each of existing hypotheses. The constraints on such hypotheses, after all, are quite limited—any hypothesis which is explanatorily or empirically adequate, which conflicts with our best scientific theories, and which diverges more from the manifest image than those theories, will do.

Second, notice that, as suggested above, the obvious weaknesses of many radical metaphysical hypotheses turn out to be strengths of other hypotheses on the list. One might think, for instance, that the problem with the evil demon hypothesis is that it is unnecessarily complicated relative to our best scientific theories. But note that relative to solipsistic idealism, many of our best scientific theories themselves appear to be unnecessarily complicated.

Third, notice that, in general, we take unified explanations to be better than non-unified explanations, and that in this case there may be a special reason for doing so. In this case, a unified explanation makes it easier to understand the widespread agreement among scientists on the inadequacy of the radical metaphysical hypotheses, even though they receive little or no

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anonymous referee for pushing me on this point.

explicit training when it comes to extra-empirical theory choice.<sup>20</sup>

Taken together, these considerations suggest that at the very least, the default view ought to be that the principle of minimal divergence is a commitment of standard scientific practice. It is up to those who want to reject premise 1 not only to come up with a plausible alternative explanation for the fact that the radical metaphysical hypotheses conflict with our best scientific theories but to argue that that explanation is *better* than the unified explanation provided by the principle of minimal divergence. Until they do so, we ought to accept the first premise of the minimal divergence argument.

And note that these considerations also suggest that the principle of minimal divergence is not just one among many extra-empirical considerations of roughly equal weight. After all, most of the other familiar extra-empirical considerations that are purported to play a role in standard scientific practice are exemplified by one or another of the radical metaphysical hypotheses. (Solipsism is simple, for instance, and the Boltzmann brain hypothesis is more likely than alternatives.) If the principle of minimal divergence did not trump those other extra-empirical considerations, then it would not in fact rule out those radical metaphysical hypotheses, and we would be back to the question that motivated the discussion above: why are those hypotheses incompatible with our best scientific theories?

#### **4 From physics to metaphysics**

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<sup>20</sup> Note that what I mean by there being “widespread agreement among scientists on the inadequacy of the radical metaphysical hypotheses” is just that there is widespread agreement among scientists in endorsing theories that conflict with the radical metaphysical hypotheses.

Note also that this is not to suggest that people cannot internalize fairly complicated rules without explicit instruction in such rules—a good counterexample to such a



The second premise of my argument is a claim about how the commitments of scientific practice should guide theory choice in metaphysics. In particular, I claim that if a principle of theory choice is a commitment of standard scientific practice, and that principle favors metaphysical theory A over competing metaphysical theory B, then we ought to adopt metaphysical theory A.

It will be helpful here to distinguish between two distinct ways in which science might guide theory choice in metaphysics. On the one hand, our best scientific theories themselves might entail propositions which have further implications for various metaphysical debates. On the other hand, standard scientific practice might turn on principles which have further implications for various metaphysical debates. In the first case, it is the *content* of scientific theories that guides theory choice in metaphysics; in the second case, it is scientific *practice*.

I take it to be widespread consensus among metaphysicians that the content of our best scientific theories ought to constrain theory choice in metaphysics. Insofar as a metaphysical theory directly conflicts with some proposition entailed by our best scientific theories, we ought not adopt that metaphysical theory.<sup>21</sup>

Is it also the case that the principles that play an important role in standard scientific practice ought to constrain theory choice in metaphysics? Although it seems to be less widely recognized, I think the answer here should also be ‘yes’. Surely one can have no good reason for thinking that the content of our best scientific theories should constrain theory choice in

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suggestion would be grammatical rules. But generally speaking, cases in which we are successful in such internalization involve exposure to an enormous amount of data. It is not at all clear that scientists in training are exposed to an enormous amount of data regarding extra-empirical scientific theory choice.

<sup>21</sup> One debate where this sort of conflict threatens is the debate over the ontology of time. Presentism—the view that only presently existing things exist—appears to require a privileged reference frame, which conflicts with the theory of special relativity. Most philosophers of time take this apparent conflict to be decisive (e.g. Sider 2001). And even those who do not usually try to find some way of softening the apparent conflict between metaphysics and science that their position involves. Consider, for instance Markosian (2004), who suggests that since one can have a theory that is empirically equivalent to special relativity and does contain a privileged reference frame, the part of special relativity that conflicts with presentism is really a sort of philosophical add-on to the scientific theory, not a part of

metaphysics if one does not also think that standard scientific practice constrains theory choice in metaphysics—after all, our best scientific theories are produced using standard scientific practice. If standard scientific practice is not relevant to producing good metaphysical theories, then why would we let the content of the theories that are produced using standard scientific practice impact metaphysical theorizing at all?

To put the point a different way, here is an attractive, and indeed relatively natural (if rarely explicitly stated) way of thinking about the relationship between science and metaphysics: there is just one sort of inquiry into what the world is like, which subsumes both science and metaphysics, and for which there is a single set of reliable investigative tools. What distinguishes the two fields is the extent to which they rely on different tools within that set. In particular, questions that are the focus of scientific inquiry tend to be ones that we expect to be settled on empirical grounds. Questions that are the focus of metaphysical inquiry, by contrast, tend to be ones that we expect to be settled on extra-empirical grounds—where the empirical data that are relevant are all widely agreed upon. But both types of inquiry rely on both types of criteria, just to a different degree.

Why think this view is attractive? In part because it makes clear why, although there are paradigm cases of scientific inquiry for which it would seem strange if not wholly inappropriate to consult a metaphysician (e.g. does the Higgs boson exist?) and paradigm cases of metaphysical inquiry for which it would seem strange if not wholly inappropriate to consult a scientist (e.g. is the person who steps into a teletransporter the same person as the person who steps out?), there are also nebulous border regions between the two fields in which the questions that arise are not clearly within the purview of one field to the exclusion of the other (e.g. what is the nature of space and time?).

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the scientific theory itself.

But note also that this background view about the relationship between science and metaphysics is perhaps the best hope that we have for providing a plausible justification for the latter. While scientific inquiry is widely touted as a highly successful way of investigating what the world is like, metaphysics is frequently subject to suspicion and scrutiny. Insofar as the metaphysician can characterize what she is doing as continuous with, if still distinct from, science, she is on as firm a footing as she is likely to find. (In this way, one is welcome to think of the view I am suggesting here as prescriptive, as opposed to descriptive. That is, even if one does not think that the view I am putting forward is an accurate description of metaphysics as practiced by contemporary philosophers, one might still think that this is what metaphysics *should* be. The latter, prescriptive understanding of my claims above would be sufficient to support premise 2.)

And of course, given this sort of background view about the relationship between science and metaphysics, we have a straightforward justification for premise 2. There is just one sort of inquiry: inquiry into what the world is like. To the extent that some extra-empirical principle plays an important role in aspects of that inquiry that are usually investigated in the scientific laboratory, surely it should also play an important role in those aspects that fall within the scope of metaphysics.<sup>22</sup>

All of that is at a fairly high-level of abstraction, however, and a full defense of this way of thinking about the relationship between metaphysics and science would take far more space than I have available here. So let me be clear that I take the main claim of this section to be a conditional: if one thinks that metaphysicians should respect the content of our best scientific theories when choosing metaphysical theories, then one should also think that metaphysicians

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<sup>22</sup> One must of course be careful in figuring exactly what the extra-empirical principle in question is, and in making sure that it is being applied uniformly. See, e.g., Willard 2014 for worries about the justification of simplicity in

should respect the principle of standard scientific practice, and thus should accept premise 2. It is of course possible for someone to respond by denying the antecedent of this conditional, but I take it that this would have significant and surprising results for the way in which we practice metaphysics and that it certainly won't be an attractive option for anyone who thinks of themselves as a naturalist.<sup>23</sup>

## 5 Objections and replies

The last two sections presented my defense of each of the premises of the minimal divergence argument for Mooreanism in metaphysics. Taken together these premises establish the following claim:

*Minimal divergence in metaphysics.* If the principle of minimal divergence favors metaphysical theory A over competing metaphysical theory B, we ought to adopt

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metaphysics from simplicity in physics along these lines, and Brenner 2017 for a response.

<sup>23</sup> Perhaps the best reason I have encountered for denying the antecedent of this conditional is there is a significant mismatch between what one takes the goals of science and metaphysics to be—if, for instance, one thinks that the goal of metaphysics is to produce true theories while the goal of science is merely to produce useful theories—or, relatedly, if there is a significant mismatch between the attitude that one thinks scientists and metaphysicians take toward their best theories—if, for instance, one thinks that metaphysicians believe their theories while scientists just think they are useful. I haven't said anything that amounts to an argument against this kind of mismatch view in this section, but note both that this kind of view is not obviously compatible with the attractive background view of the relationship between metaphysics and science that I described above, and also that accepting this kind of mismatch would warrant metaphysicians ignoring our best scientific theories whenever those theories conflicted with their favored metaphysical view. ("Why should I care about conflicts with special relativity," you can imagine a presentist saying, for instance. "Physicists chose special relativity because it was the most useful theory, but I'm after the truth!") Therefore, this kind of mismatch view would presumably not be very attractive to anyone who considers themselves a naturalist.

It's worth emphasizing that if one has a pragmatic attitude toward *both* metaphysics and physics, then it would still make sense to take metaphysics to be constrained by the content of science and to accept premise 2. One would just think that premise 2 is true because the principles that play a key role in standard scientific practice are a good guide to useful theories, which is what we are after in metaphysics as well. Thanks to an anonymous referee for pushing me on this point.

metaphysical theory A.

In the next section I will show how this conclusion impacts a specific debate in first-order metaphysics. But first let me consider some objections and replies to the argument as presented above.

**Objection 1:** Many of our scientific theories diverge radically from the manifest image. Therefore, the principle of minimal divergence does not govern theory choice in science.

**Reply:** The principle of *minimal* divergence, is not the same as the principle of *no* divergence.

*The principle of no divergence.* Insofar as you have two or more candidate theories, you ought to choose the theory that diverges least from the manifest image.

The principle of *no* divergence says that we must always choose the theory that diverges least from the manifest image. The principle of *minimal* divergence says that we should sometimes choose theories that diverge significantly from the manifest image—as long as that divergence is required in order to establish empirical or explanatory adequacy. So it is entirely compatible with minimal divergence that the surface of the earth is curved, for instance, or that apparently solid objects are made up of mostly empty space—one just needs to maintain that there are no empirically and explanatorily adequate rivals to these theories. Note also that the principle of minimal divergence is perfectly compatible with scientific theories making claims about what the

fundamental level is like that don't conflict with the manifest image but simply go beyond it. So, for instance, neither the claim that there are black holes, nor the claim that at the fundamental level all there are are quantum fields, conflict with the manifest image.

**Objection 2:** The way the world appears to be is sensitive to variation between individuals and cultures. But something that is so sensitive cannot play a role in metaphysical theory choice.

**Reply:** The reader who is worried about this objection should take note of my response to what I call “nuanced nihilism” in section 6, but as a quick initial response let me note that I am open to the idea that there are many questions about the way the world appears to be that have no definitive answer. (Examples: “Is the dress blue and black or white and gold?” “Is the ski run scary?”) That is no impediment to my argument. We can simply say that in such cases the minimal divergence norm has no bearing on which theory we ought to accept.

What is important for my argument is that there are also cases in which there are definitive answers to questions about the way the world appears to be. It is in those cases that the principle of minimal divergence applies. As an example of the latter sort of case, consider the fact that the world appears to contain three spatial dimensions. There is (I assume!) little or no cultural or individual disagreement about that fact. So insofar as a theory says that the world contains far more than three spatial dimensions, that theory diverges from the way the world appears to be. And insofar as there is an alternative, empirically and explanatorily adequate theory that does not diverge as significantly, we ought to accept that alternative theory instead.

Someone might protest: “Sure, there is not in fact any cultural or individual disagreement about whether the world contains three spatial dimensions. But there could be!” But I think we

should take care, here. Certainly there could be creatures in a world just like ours who *say* that the world appears to contain far more than three dimensions. But could there be creatures in world just like ours for whom the world actually *appears* to contain far more than three dimensions? Without first deciding what our world is like, I don't think that we have any evidence in support of this claim.

**Objection 3:** There are examples from the history of science that violate the principle of minimal divergence. Therefore, the principle of minimal divergence does not govern theory choice in science.

**Reply:** A full reply to such examples will have to proceed on a case-by-case basis. But let me work through a particular example with which I am often presented in conversation, in order to illustrate the various philosophical moves that are available in response to objections like this.

To this purpose, consider the shift from Ptolemaic astronomy to a heliocentric model.<sup>24</sup> Let's grant that the sun and stars appear to revolve around the earth. So heliocentric astronomy diverges substantially from the manifest image. Plausibly it diverges more than Ptolemaic astronomy. How then, did it come to gain widespread acceptance among physicists when it did? And isn't the fact that it did gain such acceptance a clear counterexample to the claim that the principle of minimal divergence is a commitment of standard scientific practice?

First and foremost, note that this is only a counterexample if Ptolemaic astronomy was still, at the relevant historical moment, considered empirically and explanatorily adequate, and

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<sup>24</sup> By heliocentric astronomy I have in particular the version advocated by Kepler. Copernicus's early version of the heliocentric model actually included more epicycles than Ptolemaic astronomy required. (He added them in in order to preserve the Aristotelean claim that the planetary motion was always uniform circular motion.) So the standard story about the heliocentric model doesn't actually apply to the Copernican view. See Cohen 1985 for discussion.

that in order to determine whether this was so we would need to look carefully at the historical record. But here is the sort of story that is routinely taught in physics classrooms: although the observation of occasional spells of retrograde motion of the planets conflicted with Ptolemy's original theory, an empirically adequate version of Ptolemaic astronomy was still possible. One needed only to add a sufficient number of epicycles in the orbits of the planets in order to account for observations of retrograde motion. The choice between heliocentric and Ptolemaic astronomy, then, is usually framed as a choice between a simpler theory and a more complex one. But notice that one could instead understand this choice as an issue of explanatory adequacy. The Ptolemaic system required a large number of epicycles in the planetary orbits in order to adequately predict the data. But there was no available explanation of why all of the planets had epicycles nor why they were distributed the way that they were. Heliocentric astronomy, by contrast, eliminated this explanatory burden by eliminating the need for epicycles, while providing a satisfactory alternative explanation of the patterns of retrograde motion.<sup>25</sup>

This looks like it is enough to resolve the objection—once one pays close enough attention to issues of empirical and explanatory adequacy, one sees that we do not in fact have a counterexample to the principle of minimal divergence here at all. But a perhaps more important point is also worth stressing. Suppose that in the end we could not find any reasonable explanation for the fact that Copernican astronomy gained widespread acceptance when it did that is compatible with the principle of minimal divergence. Should that convince us that premise 1 is false? I think the answer to this question is clearly 'no'—for the challenge posed by the radical metaphysical hypotheses remains. There must be some explanation for the fact that

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<sup>25</sup> Note that I am not here relying on the claim that theories cannot leave some patterns in the phenomena unexplained. (Though see Emery 2017b for reasons for thinking that this should happen rarely if ever.) Perhaps wholly novel phenomena may resist explanation entirely, or for a time, but the motion of the planets was precisely the phenomenon that Ptolemaic astronomy was supposed to explain.



scientific theory choice rules out those hypotheses. If premise 1 is false, then what is it?

In light of this challenge, we should be open to there being particular cases in which the principle of minimal divergence is violated—even if the principle of minimal divergence is a commitment of standard scientific practice. These particular cases are cases in which an instance of scientific theory choice itself did not conform to standard scientific practice. (Surely a principle can be a part of standard scientific practice without being such that it is correctly employed in every case of scientific theory choice.) For my own part, I have yet to be convinced that there are clear cases in the history of science in which the principle of minimal divergence is violated.<sup>26</sup> But it is important to keep in mind that, even if there are, that does not straightforwardly undermine premise 1.

**Objection 4:** The argument in section 3 turns on the assumption that the radical metaphysical hypotheses are false. But those hypotheses have long been used to motivate various skeptical arguments. And those skeptical arguments are taken seriously by philosophers. So the argument in section 3 turns on an unfair assumption.

**Reply:** The minimal divergence argument does not rely on the assumption that the radical metaphysical hypotheses are false. Instead it relies on the claim that the radical metaphysical hypotheses listed in section 3 conflict with our best scientific theories—a claim that I provided

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<sup>26</sup> The other most common examples that I am presented with in conversation are (i) the choice of configuration space realist views in quantum ontology over so-called primitive ontology views, and (ii) the choice of special relativity theory over the view that there is a privileged reference frame but it is empirically impossible to determine which it is. With respect to (i), note first that configuration space realism only diverges from the manifest image in the sense that is relevant here if you construe it as the view that there is no three-dimensional space, but virtually all philosophers of physics who are inclined toward configuration space realism these days prefer a version of configuration space realism that says merely that three-dimensional space is not fundamental. I am less certain how to proceed with respect to (ii), though one possibility is to try to appeal to the kinds of considerations found in Hofweber and Lange 2017 as a reason for thinking that theories that include a privileged reference frame are not in

some argument for by pointing to aspects of the latter that are false according to the latter. Insofar as any of the radical metaphysical hypotheses turned out to be true, our best scientific theories would have turned out to be false.

Does the claim that the radical metaphysical hypotheses conflict with our best scientific theories undermine traditional skeptical arguments? It depends on the details of those arguments, and I do not have space to go into the substantial literature on this topic here. But consider the following three claims:

- (1) It is possible that we are brains in a vat.
- (2) It is compatible with all of the empirical evidence that we have collected that we are brains in a vat.
- (3) We are not justified in thinking that we aren't brains in a vat.

It follows from my claim that the radical metaphysical hypotheses conflict with our best scientific theories, anyone who asserts (1) is committed to (1\*), anyone who asserts (2) is committed to (2\*), and anyone who asserts (3) is committed to (3\*):

- (1\*) It is possible that our best scientific theories are false.
- (2\*) It is compatible with all of the empirical evidence that we have collected that our best scientific theories are false.

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fact explanatorily adequate.

(3\*) We are not justified in thinking that our best scientific theories are true.

Of these three claims, the first two are entirely plausible. It is of course possible that our best scientific theories are false. And our best scientific theories are in general underdetermined by the empirical evidence we have collected. We arrive at those theories by deploying various extra-empirical criteria alongside that empirical evidence.

(3\*), however, is not plausible. Or at least, (3\*) is not at all plausible insofar as one takes a naturalized approach to metaphysics. Insofar as one takes a naturalized approach, one should think that we are justified in thinking that our best scientific theories are true. Perhaps there is a certain sort of dialectical context—the context in which epistemologists are operating when they consider various skeptical scenarios—in which it is appropriate to consider (3\*), but this is surely not the appropriate context in which to do naturalized metaphysics. If it were, there would be no reason to have our metaphysics theories constrained by the content of our best scientific theories. So insofar as epistemologists take seriously (3\*), or some argument that leads them to (3\*), we ought not—as naturalized metaphysicians—follow their lead.

Here is the upshot: insofar as skeptical arguments merely involve commitment to (1) or (2), the claim that the radical metaphysical hypotheses conflict with standard science does not threaten them. Insofar as skeptical arguments involve commitment to (3), then those who take such arguments seriously must either reject the sort of naturalism that is commonly thought to be an important part of philosophical inquiry into what the world is like or insist that they are operating in a specific kind of dialectical context in which that sort of naturalism can be set aside—perhaps because we are trying to find a justification for that sort of naturalism.

**Objection 5:** The principle of minimal divergence bears some kinship to various types of “phenomenal conservatism” in epistemology, according to which if it appears that p that provides at least some justification for believing that p. (See for instance Pryor 2000 and Huemer 2001.) And phenomenal conservatism faces serious objections. So we ought not accept the principle of minimal divergence.

**Reply:** It is entirely compatible with the argument above that the principle of minimal divergence follows from some more general epistemic norm—or that it does not. Insofar as it does, two plausible candidates are found in Pryor and Huemer. A significant amount of further work would need to be done, however, to establish that this is the case, or that the principle of minimal divergence inherits any objections to Pryor or Huemer’s views. Note in particular the discussion in response to the previous objection about the possibility of an important difference in dialectical context in which naturalistically-inclined metaphysicians, on the one hand, and epistemologists, on the other, are operating. Whereas the former are functioning under the assumption that scientific inquiry is, in general, a good form of inquiry into what the world is like—and thus it is sufficient to establish that a principle like the principle of minimal divergence is operative in standard scientific practice—the latter may be looking for a justification for that assumption. It would not be surprising, then, if objections to the latter are not in general inherited by the former.

**Objection 6:** The second premise of the minimal divergence argument says that when scientists

use a certain extra-empirical principle (like the principle of minimal divergence) metaphysicians are justified in using that extra-empirical principle as well. But when scientists use a certain extra-empirical principle they do so only after collecting a great deal of empirical evidence—scientific theories are, so to speak, “empirically vetted” before extra-empirical principles are applied. In metaphysics, theory choice involves little if any empirical evidence. So metaphysical theories are not empirically vetted in the same way. And the use of extra-empirical principles in metaphysics is therefore suspect. So the fact that the principle of minimal divergence plays an important role in scientific theory choice does not give us good reason to think that the same principle should play an important role in metaphysics as well.

**Reply:** Note first that in order to be sure that there really is an objection here, we need to have a way of quantifying the amount of empirical evidence that is relevant to a certain instance of theory choice and of being sure that the amount of empirical evidence that is relevant to theory choice in metaphysics is really less than the amount of empirical evidence that is relevant to theory choice in science. Certainly the empirical evidence that is relevant to theory choice in science is more difficult to acquire—but is there really *more* of it?

But in addition, I think that it is sufficiently unclear where the burden of proof lies here, and thus that the objection, as it stands, is not very moving. We assume that extra-empirical criteria are truth-tracking in some types of inquiry into what the world is like (i.e. when they play a role in scientific theory choice). So which is more plausible: that those criteria are truth-tracking in all such types of inquiry or than they are only truth-tracking after a certain amount of empirical evidence has been collected? At least to me, it seems that the default position should be the former, if only because it is simpler. Note that this isn't to say that one might not

ultimately be able to find a way of avoiding the argument along the lines of this objection, only that more philosophical work needs to be done before the objection is convincing.

## 6 Minimal divergence and nihilism about composite objects

Let's turn now to a discussion of the implications that the conclusion of the minimal divergence argument has for a particular debate in first-order metaphysics. Consider *nihilism about composite objects*—the view that there are no objects that have proper parts.<sup>27</sup> According to the nihilist, there are no tables or school buses or sidewalks. There are only simples—fundamental particles or the like—arranged table-wise or school bus-wise or sidewalk-wise.<sup>28</sup>

The debate over whether or not we ought to be nihilists is often supposed to be a paradigm case of a metaphysical debate that is largely independent of scientific considerations.<sup>29</sup> But this attitude, I will argue, is a mistake. Considerations from scientific practice do in fact bear on this debate. The conclusion of the minimal divergence argument suggests that we should not be nihilists.<sup>30</sup>

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<sup>27</sup> Note that nihilism, as it is described here is importantly different from the view that there are composite objects but those objects are not fundamental. Defenses of nihilism include Dorr 2005 and Sider 2013. Discussions of the composition debate in general include van Inwagen 1990, Merricks 2001, Bennett 2009, van Cleve 2008, and Korman 2015.

<sup>28</sup> Note that I am assuming, for the nihilist's sake, that we can understand our best scientific theories as being neutral between saying that there are brains and saying that there are atoms arranged brain-wise. If this is false, then there is an even more straightforward argument against nihilism, one that turns not on a conflict between nihilism and standard scientific practice but on a conflict between nihilism and the content of our best scientific theories. One might ask why we aren't willing to give the radical metaphysical hypotheses in section 3 the same treatment. Why not say that our best scientific theories are neutral between us having bodies and between us having the experience of having bodies that is caused by a simulation. I don't have a lot to say here except that it seems like a far more substantial stretch of the content of the best scientific theories to claim that that content is compatible with the radical metaphysical hypotheses than it is to claim that that content is compatible with nihilism.

<sup>29</sup> See, for instance, Ladyman 2012, 39.

<sup>30</sup> Does it also suggest that we should not be universalists about composition (that we should not think that any two or more things compose a third thing)? Maybe. But is difficult to say whether universalism *conflicts* with the

More carefully, I will argue that the conclusion of the minimal divergence argument suggests that we should not be nihilists but also that the reason why it suggests as much depends on what sort of nihilism one adopts. In particular it depends on whether the nihilist is willing to allow that the world appears (mistakenly, on her view) to contain tables and chairs and school buses and other everyday composite objects, or if she instead insists that the way the world appears to be is neutral between there being tables and school buses and there merely being simples arranged like tables and school buses. Let us call the version of nihilism that says that the world does appear to contain tables and the like—despite the fact that, on her view, those appearances are seriously misleading—*radical nihilism*. And let us call the version of nihilism that says that in fact the way the world appears to be is neutral between there being everyday composite objects and there merely being simples arranged like such objects *nuanced nihilism*. According to nuanced nihilism, the way the world appears to be is "theory laden" in the sense that the way the world appears will depend on the theory that we implicitly or explicitly endorse. It is only because we aren't nihilists that we think the world appears to contain tables and chairs. Were we to fully internalize the nihilist position, we would not see school buses, only atoms arranged school bus-wise

## 6.1 The minimal divergence argument against radical nihilism

The argument above applies to radical nihilism in a relatively straightforward way. As a first step, notice that radical nihilism diverges significantly from the manifest image. For many propositions that are part of the manifest image—that there is a desk before me, that there is a school bus on the road outside my window, and so on—radical nihilism contradicts these

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manifest image, or if it merely *goes beyond* the manifest image in the sense described in section 2, so a version of the principle of minimal divergence that tells against universalism may be slightly different than the one under

propositions.

That is only a first step, however. In order for the principle of minimal divergence to have any bearing on radical nihilism we need also to establish that there is an empirically and explanatorily equivalent alternative theory that diverges less from the manifest image. The most obvious candidate for such a theory would be some sort of *conservatism* about composition. According to conservatism, what we think of as ordinary composite objects, like chairs and school buses, do in fact exist, but surprising composites of ordinary objects and their parts, like an object that is composed out of the chair I am sitting in and the school-bus passing by outside my window, do not. (Conservatism is distinct, therefore, from both nihilism, which says that no composite objects exist, and *universalism*, which says that for any two or more objects those objects compose a further object.<sup>31</sup>)

But—and this is important—not just any sort of conservatism will do. Consider, for instance, *brute* conservatism: the view that those composite objects that appear to exist (like chairs and school buses) in fact exist and those composite objects that appear not to exist (like chair-buses) do not in fact exist *and there is no further reason why some composite objects exist and some do not*.<sup>32</sup> Brute conservatism clearly diverges less from the manifest image than nihilism. But it is not explanatorily adequate. To put forward such a view is to leave an important pattern unexplained—some groups of objects compose further objects and some do not, and there is no further reason why the former do and the latter do not.

The kind of alternative that the principle of minimal divergence will most obviously favor over nihilism, then, will be a theory that is both *conservative*—in the sense that it says that

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consideration here.

<sup>31</sup> Again, I will not say anything here about how the principle of minimal divergence bears on universalism. This is a more complicated question than it first appears. See footnote 22 above. For a discussion of how some sort of Mooreanism might actually favor of universalism over conservatism, see Fairchild and Hawthorne 2018.



ordinary composite objects do in fact exist—and *principled*—in the sense that it provides some explanation for why some composite objects exist and some do not. Are there viable ways of constructing a *principled conservativist* theory of composition? I can neither fully survey the options for such a theory nor adequately defend any of those options here, but let me say a bit about two types of objections to such theories and how those objections are affected by the minimal divergence argument.<sup>33</sup>

The first group of objections to principled conservatism are objections by counterexample. Consider the view that some things compose a further thing if and only if the things are dynamically integrated—they all tend to move together. Call this view *dynamical conservatism*. Dynamical conservatism coheres nicely with quite a bit of the manifest image. It says there are chairs and school buses but no chair-buses. But it may also yield some surprising results. Consider the complaint that dynamical conservatism will count a newborn calf and its mother as composing a further object—a *cowf*—since they tend to move together.<sup>34</sup>

Is dynamical conservatism really committed to the existence of cowfs? Insofar as it is, does that mean that dynamical conservatism contradicts the manifest image in the way that is relevant to the principle of minimal divergence? Both of these are difficult questions to answer with any precision. But happily, we can set both questions aside. For the key thing to notice here is that even if the answer to both questions is ‘yes’, that does not mean that the principle of minimal divergence rules out dynamical conservatism. The principle of minimal divergence, remember, does not say that we ought not accept any theory that diverges from the manifest image. It says that of two (empirically and explanatorily adequate) candidate theories, we ought

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<sup>32</sup> See Markosian 1998. (Though note that this is no longer Markosian’s view of composition. See Markosian 2014.)

<sup>33</sup> Defenses of particular versions of principled conservatism about composition include Carmichael 2015 and Korman 2015.

<sup>34</sup> This objection is inspired by Markosian 1998, see p. 226. Obviously whether or not dynamical conservatism is so

to accept the one that diverges *least*. And even if dynamical conservatism diverges somewhat from the manifest image in positing cowfs, it hardly diverges as much as nihilism does. For *every* case in which there appears to be a composite object, nihilism says that there is no such thing.

The point here is just that looking for an empirically and explanatorily adequate alternative that diverges less from the manifest image than nihilism does is not the same thing as looking for a theory of composition that perfectly tracks which composite objects appear to exist and which do not. It is plausible that there are candidate theories—perhaps dynamical conservatism is one—that accomplish the former task even though they do not accomplish the latter.

The other group of objections to principled conservative theories of composition are what we might call objections by philosophical principle. Philosophers have argued that any principled conservative theory will face worries about vagueness, for instance, or arbitrariness or overdetermination. If these sorts of considerations can be said to trump considerations to do with the principle of minimal divergence, then perhaps we ought to be nihilists after all. Of course, these arguments are contentious,<sup>35</sup> I don't have space to go into the details of each of these arguments here, but let me make two points about how they will be affected by the minimal divergence argument.

First, once the minimal divergence argument is on the table, one must be careful to make sure that similar objections by philosophical principle do not support any of the radical metaphysical hypotheses listed in section 3 over our best scientific theories—if they did so, a modified version of the principle of minimal divergence that respected such arguments would no longer explain why standard scientific practice consistently chooses theories that conflict with those hypotheses.

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committed depends on how you understand the phrase, “tend to move together”.

<sup>35</sup> For a survey of and detailed discussions of these sorts of objections see Korman 2015. See Rettler 2018 for a

Consider, for instance, the view put forward in Sider 2013. Sider notes that a potential objection to nihilism is that we have perceptual evidence for composite objects but he thinks that even if such evidence provides some initial justification for the view that there are composite objects, that initial justification “vanishes” once further evidence is collected.<sup>36</sup> This, he argues, is how perceptual evidence works with respect to conflicting scientific evidence: it appears to us that tables are solid, for instance, and that provides some initial justification for the view that tables are solid, but as soon as we collect the scientific evidence that supports atomic theory, that initial justification is not just outweighed, it no longer counts for anything at all. The same goes, he contends, for the evidence that supports nihilism—once we recognize some further evidence, the perceptual evidence that supports the view that ordinary composite objects exist is no longer relevant.

In response to this argument note first that the principle of minimal divergence is wholly compatible with the view that evidence that calls into question a theory’s empirical or explanatory adequacy makes perceptual evidence irrelevant. As such the principle of minimal divergence itself can explain the apparent irrelevance of perceptual evidence to, e.g. the question of whether a table is solid, once the evidence for atomic theory is recognized.<sup>37</sup>

What about the further evidence that Sider thinks (i) supports nihilism and (ii) is also capable of making perceptual evidence irrelevant? Sider’s own argument for nihilism is based on the ideological parsimony of that view—where a theory is ideologically parsimonious to the extent that it does not rely on undefined notions. Since nihilism does not rely on the notion of a *part*, and alternative approaches to the debate over composition do, nihilism is ideologically simpler than its rivals. Presumably, then, Sider’s thought is that when some candidate theory T is more

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strategy for dismissing them wholesale.

<sup>36</sup> Sider 2013, pp 20-23.

ideological parsimonious than its rivals, that is sufficient to make any perceptual evidence in favor of T's rivals irrelevant.

But once the minimal divergence argument is on the table, this claim is problematic. For some of the radical metaphysical hypotheses themselves are more ideologically parsimonious than our best scientific theories (most obviously solipsistic idealism and the Boltzmann Brain hypotheses, though others, like the brain-in-a-vat or evil demon hypotheses can also be constructed so as to be ideologically parsimonious).<sup>38</sup> So if Sider is correct that ideological parsimony makes perceptual evidence irrelevant, the principle of minimal divergence would not provide a satisfactory explanation of the fact that our best scientific theories conflict with the radical metaphysical hypotheses. And, as discussed, in section 3, we have no good alternative explanation of the fact that our best scientific theories do so conflict. So we ought not accept Sider's objection to principled conservatism. Until we have some plausible alternative on the table, we cannot simply jettison the principle of minimal divergence, or reinterpret it in such a way that it no longer does the work for which it was designed, no matter how tempted we might be to do so in defense of our favored philosophical views.

Here is a second, more general point about how the minimal divergence argument should change the dialectic around these sorts of arguments against conservatism. Previously one might have thought that all that various versions of principled conservatism had going for them was that they cohered nicely with the manifest image, and assumed that such coherence, if it was a consideration at all, counted for little. So as soon as it is pointed out that in order to maintain principled conservatism one must find a way of avoiding these various objections by

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<sup>37</sup> It is also sufficient to capture the other three examples that Sider discusses on pages 22-23.

<sup>38</sup> Just as an example, suppose that the world is actually Newtonian, but our envatted brains are being stimulated with data that suggests all the complexity of post-Newtonian physics. Surely this theory is more ideologically parsimonious than our best scientific theories.

philosophical principle, and that that avoidance comes with at least some cost, one ought to retreat happily to nihilism. But the minimal divergence argument above shows that this way of thinking about the potential costs and benefits of principled conservatism is mistaken. It is a significant and serious count against a theory to diverge more than empirically and explanatorily adequate rivals from the manifest image. Such divergence trumps other sorts of extra-empirical criteria that play a central role in scientific theory choice. Perhaps at the end of the day we will be forced to accept such divergence in order to maintain highly important philosophical principles. But the bar is set very high for anyone who wants to argue this much. Principled conservatism ought to be the default position<sup>39</sup> not just in the sense that it is familiar from ordinary language and thought, but in the sense that there are weighty considerations from standard scientific practice that pull in its favor.

## **6.2 The minimal divergence argument against nuanced nihilism**

So much for radical nihilism. What about nuanced nihilism? The conclusion of the minimal divergence argument also suggests that we ought not be nuanced nihilists, but for somewhat different reasons. After all, nuanced nihilism does not diverge substantially from the manifest image. According to the nuanced nihilist, the way the world appears to be is neutral between her theory and her competitor's—the way the world appears to be is neutral between it containing tables and school buses and it containing particles arranged table-wise and particles arranged school bus-wise. Because few of us are nihilists, we talk and act in a way that suggests that the world appears to contain tables and chairs and schoolbuses, but this is just a result of the fact (according to the nuanced nihilist) that the way the world appears to be is influenced by the

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<sup>39</sup> At least insofar as it is being compared with nihilism. Again, I make no commitments here regarding how the argument extends to universalism.

theory we have implicitly or explicitly adopted.

But once the minimal divergence argument is on the table, it would be a serious mistake for the nihilist to insist on this kind of neutral interpretation of the way the world appears to be. For if we take appearances to be neutral in this way, we undermine the extent to which minimal divergence can provide a good explanation for the fact that our best scientific theories conflict with the radical metaphysical hypotheses. If we were allowed to play the nuanced card, so to speak, then we would no longer have an explanation for why the radical metaphysical hypotheses conflict with our best scientific theories.

Here is why. Above, I assumed that we should take it as uncontroversial that all of the radical metaphysical hypotheses listed diverge significantly from the manifest image. But if the nuanced nihilist is allowed to claim that her theory does not in fact conflict with the way the world appears to be, then surely she should presumably *also* be willing to allow that the radical metaphysical hypotheses do not conflict with the way the world appears to be. The world does not in fact appear to contain school buses, instead it appears to be such that either it contains school buses or it contains atoms arranged school bus-wise *or* it contains a simulation of a school bus. And the principle of minimal divergence would no longer provide any explanation at all for the fact that our best scientific theories conflict with the radical metaphysical hypotheses.

So the argument above also gives us reason not to be a nuanced nihilist. If we were to allow appearances to be theory-laden in the way that the nuanced nihilist does we would have to give up the first premise of the minimal divergence argument. And we shouldn't give up the first premise; it was the best and perhaps only explanation for a robust pattern in standard scientific practice.<sup>40</sup>

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<sup>40</sup> Note that this is not a story about what exactly is wrong with the nuanced nihilist's story; instead it is an argument that something must be wrong with it.

## 7 Conclusion

I have presented and defended the minimal divergence argument for Mooreanism in metaphysics and shown how that argument impacts a particular first-order debate in metaphysics—the debate over whether there are composite objects. The goal has thus been to convince the reader not only that the argument is sound, but also that it is impactful. Much work is left to be done in making the principle of minimal divergence precise and in investigating whether and how the minimal divergence argument impacts other metaphysical debates. But in the meantime, naturalistically-inclined philosophers should not be so quick to disparage metaphysics in general on the grounds that it involves appeals to Moorean principles. For at least one type of Mooreanism plays an important role in standard scientific practice as well. Nor should they be so quick to disparage particular first-order debates in metaphysics as pointless because the content of our best scientific theories is silent with respect to those debates. For standard scientific practice may still have important consequences for those debates via the extra-empirical principles that play an important role in that practice, like the principle of minimal divergence.<sup>41</sup>

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