



Replies to critics

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Abstract

In this essay, I reply to the critics who contributed to this symposium.

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Cutter, Hofweber, Jackson, and Robinson pose a variety of important challenges to the theory I advance in *Phenomenalism*. Some relate to the theory's internal workings, while others relate to how the theory compares to its competitors. I welcome this opportunity to take up these challenges. Whether or not you find my efforts convincing, I hope they make it clear what resources are available to phenomenologists in defending their position.

1 Reply to cutter

Cutter raises four objections to phenomenism. The first is that except in the allegedly unlikely event that our world's possibilities of sensation have no categorical basis, or a categorical basis radically different from what actual experience suggests, we should identify physical things with what categorically grounds possibilities of sensation, rather than with the possibilities themselves. The second is that phenomenism does not have the resources to accommodate nomically unobservable physical entities, like atoms. The third is that the version of phenomenism I defend falls foul of various ostensible indeterminacies in the possibilities of sensation that characterize our world. The fourth is that phenomenism compares unfavorably to alternative theories of the physical by the important measure of nomological parsimony. I address these objections in order, starting with the first.

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1.1 Categorical grounds

One distinctive feature of phenomenalism is its identification of physical things with non-categorical entities: possibilities of sensation, understood in my version of phenomenalism as conditional probabilities for various experiential states of affairs to exist, given the existence of other experiential states of affairs. Identifying physical things with possibilities of sensation does not commit us to denying that the possibilities have a basis in something categorical: phenomenalism is neutral on this question. But if the possibilities do have a categorical basis, phenomenologists are committed to holding that it is the possibilities, and not their categorical bases, that are the world's physical contents.

Cutter raises the following objection. Consider a scenario where the possibilities of sensation that exist in our world have a basis in entities with categorical properties that resemble the physical properties that our perceptual experiences suggest things have (perceived properties, as I will call them). When we look at a ripe tomato in this scenario, our experiences realize possibilities of sensation grounded in a categorically bulgy and categorically red object whose categorical redness and bulginess underlie or sustain possibilities for phenomenally bulgy and phenomenally red experiences. Cutter says that in this scenario, it makes more sense to identify the shape and color of the tomato with the categorical properties that ground the relevant possibilities of sensation, rather than with the possibilities of sensation themselves.¹

I have two replies to this. The first tries to loosen the grip of the intuition, which I am sure Cutter is not alone in having, that in the scenario described, we should look beyond the possibilities of sensation to identify physical phenomena with the possibilities' underlying categorical basis. The second reply goes deeper, challenging the intelligibility of the scenario Cutter describes.

My first reply simply repeats an argument I give in the book, which I call the shifting basis argument (pp. 68–71: all page references are to *Phenomenalism: A Metaphysics of Chance and Experience*, unless otherwise indicated).² I describe a case where our world's possibilities of sensation, understood as conditional probabilities related to experience, have a basis that constantly changes, but in a way that has no effect on the possibilities themselves. I imagine the basis changing from a Berkeleyan God to a population of Leibnizian monads to an assemblage of entities with categorical features such as metaphysical realists suppose to ground our world's possibilities of sensation. To relate this to Cutter's case, we can suppose that the basis changes from moment to moment from one assemblage of realist categorical entities to another, and that at one moment, and one moment only, it is an assemblage of entities with categorical properties resembling the shapes, colors, etc. that we apprehend through veridical experiences of things like ripe tomatoes.

¹ If correct, this would already spell trouble for my theory, even without the additional claim, which Cutter also makes, that the scenario he describes is more likely than alternative scenarios to be the one that actually holds.

² (Pelczar, 2023)

If we identify a physical phenomenon with the assumed categorical basis of its associated possibilities of sensation, rather than with the possibilities themselves, we have to say that in the case described, no physical object exists for more than a moment, so that, for example, the tomato you brought in from the garden is different from the one you sliced up in the kitchen, which was different again from the one you incorporated into your BLT. I think that this is not what we would or should say in the imagined scenario. If we somehow learned that our world's possibilities of sensation had a protean basis such as described, we would not conclude that a BLT never contained a tomato that was once attached to a plant. Nor, I think, would we conclude that there was only one moment when there existed tomatoes, namely the moment at which our world's possibilities of sensation were grounded in the sort of categorical entities that exist in Cutter's imagined "good" case. We would, and should, conclude that the distribution of tomatoes in time and space is much as we always supposed, but that this fact has an unexpected metaphysical explanation.³

I am not very optimistic that Cutter will be persuaded by this: it seems likely that what we've got here is a clash of basic intuitions. However, I think there is a more fundamental problem with Cutter's objection, which brings me to my second reply.

Cutter asks us to consider a scenario where "there are things with categorical shapes," and "the explanation for why you and I have cohering experiences as of a tomato on a wooden table is that there is a categorically round/lumpy object atop a categorically rectangular surface with a woody-textured categorical micro-geometry, propped up by four categorically cylindrical/leg-shaped objects." He says that in this scenario, it is obvious that the tomato is the categorically round/lumpy thing, and not the possibilities of sensation that this thing underlies.

But how are we to conceive of these various things with their ostensibly categorical shapes, textures, etc.? What is the request for us to conceive of such things a request for us to do?

When I conceive of a red, bulgy object, I do it by conceiving of something that has the power to cause, or that grounds possibilities for, certain kinds of experiences: the kinds I typically have when perceiving a red, bulgy object. (If I conceive of an object as having "Edenic" redness or bulginess, I conceive of it as having the power to cause, or as grounding possibilities for, phenomenally red and phenomenally bulgy experiences, but as neither having the power to cause nor grounding possibilities for experiences as of microphysical features.) When I conceive of discovering that some phenomenally red, phenomenally bulgy experiences are caused by red, bulgy physical objects, I again do it by conceiving of having various experiences: the sort of experiences people typically have when making observations that verify the hypothesis that an apparently red and bulgy object really is red and bulgy (rather than, e.g., a non-red, non-bulgy object that deceptively appears red and bulgy).

I believe that I am not unique in this. I presume that when Cutter conceives of red, bulgy objects, he does it the same way. We just cannot conceive of physical

³ This diagnosis has obvious affinities with David Chalmers's take on various Matrix-style scenarios in Chalmers (2010).

redness or bulginess—categorical or otherwise—except in relation to the possibility for relevant types of experience.⁴

That this is how we conceive of red, bulgy objects is not an argument against metaphysical realism. Maybe, as realists suppose, red, bulgy objects are entities with non-mental categorical properties that dispose the entities to give us the sort of experiences we typically have when perceiving ripe tomatoes. But it is a serious impediment to conceiving of entities with non-mental categorical properties that resemble perceived redness and bulginess more so than other non-mental categorical properties. It means that among categorical properties that ostensibly ground powers to cause, or possibilities for, phenomenally red and phenomenally bulgy experiences, there is no room for a distinction between those that resemble perceived redness and bulginess to a greater extent, and those that do so to a lesser extent. If two non-mental categorical properties ground suitable powers or possibilities for bulgy experience, then both properties are as similar to perceived bulginess as any non-mental categorical property can conceivably be.

If this is right, we cannot even conceive of a scenario where our world's possibilities of sensation are grounded in categorical properties that more closely resemble perceived properties than do the categorical properties that ground the same possibilities of sensation in other scenarios. Since we cannot conceive of such a scenario, we cannot conceive of phenomenalism giving the wrong verdict on it.

1.2 Unobservables

Cutter's second objection concerns my theory's handling of physical phenomena that the laws of nature prevent anyone from perceiving: nomically imperceptible phenomena, as I will call them.

In my view, nomically imperceptible phenomena (assuming such to exist: more on this below) are possibilities for nomically impossible experiences. More precisely, the existence of a nomically imperceptible phenomenon—an atom, say—reduces to the truth of various propositions of the form, “The probability of experiential state of affairs P , given experiential state of affairs $Q=x$,” where P is a state of affairs involving nomically impossible experiences (e.g., experiences of individual atoms, or the interiors of black holes, or whatever). Cutter's objection is that since the unconditional probability of a nomically impossible experience is zero or infinitesimal, phenomenal probabilities that conditionalize on nomically impossible experiences are either undefined or zero-valued, making them useless as a reduction base for truths about things like atoms.

Once again, I have two replies. The first pushes back against Cutter's claim about conditionalizing on states of affairs with zero or infinitesimal probability; the issue here is essentially a technical one. The second, deeper, reply is that if it turns out that Cutter is right about the relevant probabilities, that is a reason to doubt the existence of nomically imperceptible phenomena, rather than a reason to doubt my theory.

⁴ Maybe we can conceive of an abstract geometric structure in terms that are wholly divorced from experience (e.g., in purely set-theoretic terms), but in order to conceive of some physical thing *having* the structure, experience has to come into the picture somehow.

It is true that traditional probability theory assigns no value to a conditional probability statement when the proposition conditionalized on (the B in $P(A|B)$) has an unconditional probability of zero. But, intuitively, it should be possible to conditionalize on such propositions; for example, it should be possible to assign a value to the probability of a certain possible past event, conditional on the occurrence of another possible past event, even in a case where the latter event did not actually occur. It should also be possible, intuitively, to make sense of the probability of winning a fair lottery, conditional on holding a ticket, even if the lottery has an infinite number of tickets, so that each ticket has only an infinitesimal chance of winning; standard probability theory also fails to deliver a conditional probability in this case. Neither does it assign a value to the probability of an event's making headlines, given that it involves a publicly witnessed violation of the law of gravity, since the latter event has zero or infinitesimal probability; yet, intuitively, it should also be possible to assign a conditional probability here.

It was to make up for these shortcomings of traditional probability theory that Karl Popper developed an alternative to it in the late 1950s, based on so-called Popper functions. Since then, others have introduced different, more or less equivalent alternatives to Popper's theory that also allow us to conditionalize on states of affairs having zero or infinitesimal probabilities.⁵

Non-traditional probability theories were not designed with phenomenism in mind, but they are well-suited to phenomenists' purposes. Not only do they allow us to conditionalize on nomically impossible experiential states of affairs; they also allow us (as traditional probability theory does not) to conditionalize on nomically possible experiential states of affairs that simply happen never to exist. The possibility of conditionalizing on such states of affairs is what allows us to replace traditional phenomenists' counterfactual conditionals with conditional probabilities.

There is another reply to Cutter that I think goes more to the heart of the matter.

So far, I have followed Cutter in assuming that there are, in fact, nomically imperceptible physical phenomena. The alternative is to say that our talk about atoms and such is a useful kind of fictional discourse, or at least a kind of discourse whose utility does not depend on its terms referring to things (e.g., atoms) that actually exist. This alternative view is, of course, scientific antirealism ("scientific agnosticism" would be a more fitting name for it).

Cutter seems inclined to reject scientific antirealism in favor of the view that there really are nomically imperceptible things like atoms, and I am tentatively inclined to do the same. But—and this is the key point—I am thus inclined only because, and only to the extent that, I think that there is some more-than-merely-metaphysical possibility of perceiving atoms and the like. If I doubted this, I would doubt that there were atoms as opposed to useful but non-referring atom-talk.

⁵ For Popper's approach, see (Popper, 1959, 133–208). Other non-traditional probability theories include ones that use non-Archimedean probability functions (e.g., Benci et al. (2013) and Wenmackers and Horsten (2013)) and lexicographic probability functions (e.g., Blume et al. (1991)). Brickhill and Horsten (2018) discuss the relationships among these theories.

One way to press this point is by reference to the two leading arguments in the debate between scientific realists and scientific antirealists: the “no-miracles” argument and the “pessimistic meta-induction” (see pp. 59–62). Neither argument has given either party to the debate the upper hand. Whether this is because the arguments are equally plausible, or (as I suspect) equally flawed is beside the point. Either way, the arguments cancel out in the calculus of reflective equilibrium. As far as I can tell, this means that the debate between scientific realists and antirealists comes down to whether talk of atoms refers to entities that, like ordinary macroscopic things, are liable to be perceived, if only by beings whose perceptual powers are not constrained by the laws of physics. If so, we should believe that atoms exist; if not, not.⁶

To bring this back to Cutter’s objection: if, as I contend, we have only as much reason to think there are atoms as we have to believe there are possibilities for experiences of atoms, and if, as I also contend, such possibilities are best understood as relevant conditional probabilities, then any reason to doubt that the relevant conditional probabilities have meaningful non-zero values is equally a reason to doubt that there are atoms. In other words, a phenomenalist account of atoms can fail only if there is no compelling reason to think that there are any atoms to account for.

1.3 Indeterminacies

Before addressing Cutter’s third objection, let me summarize my basic position in a little more detail.

In my view, the physical facts of our world reduce to probabilities for certain purely experiential states of affairs to exist, conditional on the existence of other purely experiential states of affairs. (These are what I call phenomenal probabilities.) More precisely, the fact that our world is the way it is, physically, reduces to the fact that there is a particular logically possible ideal world that, among all ideal worlds, has the highest probability of existing, conditional on there existing an ideal world that includes my actual experiences.⁷

In the book, I say “our” instead of “my” experiences. That is because I assume that the ideal world most likely to exist conditional on there being an ideal world with all my actual experiences = the ideal world most likely to exist conditional on there being an ideal world with all *your* actual experiences. But, strictly speaking, the first-person formulation of the theory is the correct one.

In effect, I am proposing to use the phrase “the physical world” a certain way, and inviting you to use it the same way, in the defeasible but (I think) reasonable expectation that if you do, we will both be using “the physical world”

⁶ For reasons to be skeptical about the no-miracles argument and the pessimistic meta-induction, see Magnus and Callender (2004). I tentatively prefer scientific realism because it lets us take scientific talk about atoms and so forth at face value, which is, I think, a good thing, other things being equal—at least, good enough to make realism the natural default position.

⁷ An ideal world is a hypothetical totality of experiences of the sort that exists in a scenario where every physical feature of some physical universe is perceived by sentient observers: see pp. 3, 90–95.

to refer to the same thing. (Or close enough: there might be small divergences due to marginal differences in our concepts of a physical thing, as discussed on pp. 137–38.) It is like inviting you to use “human being” interchangeably with “the species I belong to,” in the expectation that if you do, we will refer to the same thing by “human being” (or close enough: there might be small divergences due to marginal differences in our concepts of a species).⁸

Now let me address Cutter’s indeterminacy objection. These are actually several related objections, but the common thread is that we have no good reason to think that there is a unique ideal world satisfying the conditional probability whose satisfaction I identify with the existence of our physical universe.⁹

My replies to these objections all take the same form: whether or not Cutter is right that we have no good reasons to think there is a unique ideal world satisfying the relevant conditional probability, our reasons for thinking that there is such an ideal world are identical to our reasons for thinking that there is a physical universe—for thinking that we successfully refer to something by “the physical world.” More generally, any reason to doubt that there is an ideal world satisfying the conditional probabilities that I identify with various physical states of affairs is equally a reason to doubt the existence of those states of affairs. My own opinion is that we have very good reasons to believe that there is a physical universe having various physical features; e.g., that there are tables, chairs, shrubs, clouds, stars, galaxies, etc. Ultimately, our reasons for believing these things exist are that their existence is the best explanation for various regularities in our experience. Sceptics of a certain stripe will consider my view over-optimistic; this is a disagreement that I am obviously not going to adjudicate here. The point I want to make is just that we have no *more* reason to doubt that there are the phenomenal probabilities I identify with physical things than we independently have to doubt that there are physical things. Any such doubt must have its source external to phenomenalist metaphysics.

On to Cutter’s cases: there are three to consider, two involving the possibility that there are multiple ideal worlds tied for being the most likely to exist conditional on my experience belonging to an ideal world and one involving the possibility that for every ideal world, there is another ideal world more likely than it to be the one that exists, given that my experience belongs to an ideal world.

Let us start with a case where there are two ideal worlds¹⁰ tied for being the most likely to exist conditional on my experience belonging to an ideal world. The Harry Potter novels provide a convenient illustration.

⁸ None of this commits us to a mind-dependent account of physical reality. I refer to my actual experiences to fix the reference of “the nearest ideal world,” but it does not follow that “the nearest ideal world” refers to something that cannot exist unless I actually have experiences. I would commit myself to a mind-dependent account of, e.g., rocks, if I said, “rocks exist $\rightarrow (\exists x)(\exists y)(x = \text{my experience and } y = \text{the nearest logically possible ideal world containing } x \text{ \& coherent thinglike experiences of rocks occur in } y).$ ” But I do not say that. Rather, I say, “ $(\exists x)(\exists y)(x = \text{my experience \& } y = \text{the nearest logically possible ideal world containing } x \text{ and (rocks exist } \rightarrow \text{ coherent thinglike experiences of rocks occur in } y).$,” which does not imply that my mind or any other must actually exist in order for there to be rocks.

⁹ One of the objections Cutter raises in this part of his article is that the phenomenal probabilities I require, or many of them, might be undefined. Since I addressed this above (by invoking updated versions of traditional probability theory), I will not go over it again here.

¹⁰ That is, logically possible ideal worlds: a qualification I henceforth omit for brevity’s sake.

Suppose I am Harry Potter, after he's been enrolled at Hogwarts for a while. Plausibly, given the background provided by the novels, there is an ideal world I_{Muggle} such that (1) I_{Muggle} includes coherent thinglike experiences of travelling the length and breadth of Scotland without perceiving anything like Hogwarts; coherent thinglike experiences of exploring all of London without perceiving anything like Diagon Alley, the Ministry of Magic, or Platform 9 3/4 at King's Cross Station; etc., and, (2) there is a proper subset of my experiences (those that tally with Muggles' experiences) such that I_{Muggle} is the ideal world most likely to exist, conditional on there being an ideal world that contains the experiences in that subset.

In addition, and again plausibly given the background provided by the novels, there is an ideal world I_{Wizard} such that (1) I_{Wizard} includes coherent thinglike experiences of Hogwarts, as well as coherent thinglike experiences of Diagon Alley, the Ministry of Magic, and Platform 9 3/4, and, (2) there is a proper subset of my experiences (those that tally with other wizards' experiences) such that I_{Wizard} is the ideal world most likely to exist, conditional on there being an ideal world that contains the experiences in that subset.

However, there is plausibly no ideal world that is the most likely to exist given that *all* of my experiences in the imagined scenario belong to an ideal world: I_{Muggle} and I_{Wizard} are tied for this.

My verdict on this case is that in it, there is nothing for me to refer to by "the physical world." I can speak of the physical world relative to this or that subset of my experiences—the Muggle world, or the Wizarding world—but not of the physical world without qualification. It is a situation where the only sense in which a physical world can be said to exist is relative to one or another possible experiential regime.

Is this a strange verdict? Maybe; but then it is a strange case, so that is only to be expected. It is also a case that I think we have little reason to believe actually holds. More generally, I do not think we have any good reason to think that my actual experience admits of multiple equiprobable worldlike extensions (like Harry's). But if I am wrong about that and it does, it seems like the proposed relativism is the right way to describe my situation.¹¹

A second case Cutter considers is similar to the first, except that there are infinitely many ideal worlds tied for the most likely to exist, conditional on my actual experiences belonging to an ideal world.

If this is just a version of the Potter scenario featuring a Harry with infinitely extensive and varied experience, we can treat it as above.

Alternatively, we can imagine that I am living in a computer simulation running on a machine that does not have the power to generate enough experience to constitute an ideal world. (Maybe the computer only has enough power to generate experiences as of things viewed at a limited number of times and places and from a limited number of distances and angles, and controls the virtual movements of people in the simulation so that nobody ever has any experiences except for these.) We can imagine that there are infinitely many ways the limited experiences the

¹¹ Maybe a relativist account of physical reality is appropriate, if a multiverse interpretation of quantum theory is correct.

computer has the power to generate could be supplemented so as to result in an ideal world, and that the likelihood of any particular worldlike supplementation is infinitesimal. (Alternatively, we could imagine that God decides among infinitely many worldlike extensions of actual experience by randomly choosing among infinitely many ideal worlds each of which includes all actual experience.)

Once again, I do not think we have any good reason to think that this is how things actually are, but if it *is* how things actually are, I think the right conclusion to draw is that there is no physical world. The hypothesis that my experience occurs as part of a limited, piecemeal computer simulation is a skeptical rather than a metaphysical hypothesis: a claim that, if true, implies that most or all of my beliefs about the physical world are false, rather than a claim that implies an unexpected explanation for the physical facts of the world without casting doubt on those facts.¹²

In the last case that Cutter considers, there is, for each ideal world, an ideal world that is more likely than it to exist given that my actual experiences belong to an ideal world. There are two sub-cases to consider.

In the first sub-case, as the probabilities increase, they converge on a particular ideal world W . In other words, letting i ($0 < i \leq 1$) be the probability that we get arbitrarily closer to as we consider successive ideal worlds, W is the ideal world we get arbitrarily closer to the closer we get to a world whose probability of existing (conditional on there being an ideal world that includes all my actual experience) = i . (The approach to W need not be monotonic.)

For this to make sense, there must be some feature by which we can order ideal worlds, such that worlds tend to have more of that feature, the closer their conditional probability is to i . The natural feature to choose here is phenomenal similarity to a given ideal world, namely the one that we reach in the limit as we consider ideal worlds successively more probable (conditional on there being an ideal world with all my actual experience).

If there is an ideal world W such that as we consider worlds with likelihoods closer and closer to i , the worlds we consider are more and more phenomenally similar to W , then I say that the existence of the physical world I inhabit reduces to this fact. At any rate, this is the natural thing for me to say, given what I say about the case in which there is an ideal world that satisfies my criteria in a non-asymptotic way. If there is something wrong about my verdict in the asymptotic case, the mistake must trace back to something unrelated to indeterminacies in the relevant conditional probabilities.

In the second sub-case, there is no ideal world on which the series of ideal worlds converges as the worlds' conditional probabilities approach the given limit (i). Perhaps as we move up the probability gradient, we encounter ideal worlds that differ from each other phenomenally in more or less random ways that form no pattern of convergence on a given phenomenal profile, or perhaps we get to a point where successive worlds flip back and forth from worlds with a certain phenomenal profile to worlds with a totally different phenomenal profile, analogous to zooming in on the boundary of a fractal (pp. 140–41).

Either way, if there is no asymptotic approach to a certain ideal world as we consider ever more likely ideal worlds (that is, ideal worlds successively more likely

¹² For the skeptical/metaphysical distinction, see (Chalmers, 2010, 457–59).

to exist, conditional on there being an ideal world that includes all my actual experience), the right thing to conclude, I think, is that there is no physical reality. In the no-convergence scenario, my experiences are more aptly described as a dream within a dream within a dream ad infinitum than as veridical perceptions of a physical world. Again, I do not think we have any good reason to think that this is the actual situation, but if it is, this seems to me to be the right way to understand it.

1.4 Nomological parsimony

An important virtue of any metaphysical theory is how economically or parsimoniously it achieves its aims. One kind of parsimony concerns how many fundamental kinds a theory requires. In this respect, phenomenalism does very well, as Cutter acknowledges: besides fundamental kinds that all analyses of matter require (like abstract mathematical kinds), the theory I defend requires only two fundamental kinds of thing: conscious experiences, and conditional probabilities.

Another kind of parsimony is nomological parsimony, that is, parsimony with respect to the fundamental laws that a theory requires to achieve whatever it aims to accomplish. This is where Cutter thinks phenomenalism falls short.

When assessing a theory's nomological parsimoniousness, it is important not to lose sight of the theory's aims. Consider philosophical theories of psychological phenomena like belief and desire. The aim of such theories is to provide an analysis of such phenomena. This is different from the aim of psychology, which is to explain human behavior in terms of psychological phenomena like belief and desire. Psychology's aim is to explain human behavior in psychological terms; the aim of philosophical theories of the psychological is to improve our understanding of those terms by providing a cogent analysis of belief, desire, etc.

If psychologists explain human behavior by invoking a law according to which people tend to behave in ways that they believe will satisfy their desires, philosophers of psychology can accept this explanation. What the philosophers bring to the table is an analysis of the terms of the psychologists' explanation, not an alternative to the psychologists' explanation.

The philosophical analysis is likely to be quite complex. For example, if it is a functionalist analysis, it is likely to involve extremely large Ramsey sentences intended to capture the complicated causal interrelations among various mental states and forms of behavior. If it is a neuroscientific analysis, it is likely to involve complex patterns of neural processing. Consequently, if we were to translate psychological explanations of human behavior into statements in which the terms "belief" and "desire" were replaced by their functional or neuroscientific analyses, the resulting translations would be extremely complex, compared to the original psychological explanations they translated. But that would not mean that the functional or neuroscientific analyses were somehow deficient. To criticize philosophical analyses of belief and desire for introducing complexities additional to what psychologists require to account for human behavior would be to lose sight of the philosophical analyses' aims. It would be like criticizing chemists for giving complicated analyses of substances that ordinary folks talk about with simple terms like "flour," "butter," "salt," and "sugar."

Phenomenalism is a theory of the nature of the physical: its aim is to provide an analysis of physical phenomena. This is different from the aim of physics, which is to explain the behavior of natural phenomena in physical terms. Physics' aim is to provide physical explanations of the behavior of natural phenomena; the aim of philosophical theories of the physical is to improve our understanding of the physicist's terms by providing a cogent analysis of them.

Just as a philosopher of mind who proposes an analysis of psychological phenomena can happily accept a psychologist's explanations of human behavior, a phenomenalist who proposes an analysis of physical phenomena can happily accept a physicist's explanation of the behavior of natural phenomena. What the phenomenalist brings to the table is an analysis of the terms physicists and others use to describe the physical world. As Cutter rightly observes, the analysis is likely to be quite complex, involving large (possibly infinite) conjunctions of conditional probability statements. But the analysis will also be complex in alternative analyses of matter. For example, if it is a Kantian analysis, it will involve large (possibly infinite) assemblages of experience-causing powers, and if it is a structural realist analysis, it will involve complex Ramsey sentences intended to capture the causal and mathematical interrelations among the world's various physical constituents. If we were to translate a physicist's explanation of some natural phenomenon (e.g., the motion of some celestial body) into a statement in which all terms for physical phenomena were replaced by their phenomenalist, Kantian, or structuralist analyses, the resulting translations would be extremely complex, compared to the physicist's original untranslated explanation. But that would not mean that the phenomenalist, Kantian, or structuralist analyses were somehow deficient. To criticize the philosophical analyses of matter for introducing complexities additional to what physicists require to account for the behavior of natural phenomena would be to lose sight of the analyses' aims.¹³

This, I believe, is the mistake that Cutter makes. When it comes to nomological parsimony, the relevant question is not: "How parsimonious is phenomenalism compared to physics?" but: "How parsimonious is phenomenalism compared to other analyses of matter?" What makes this easy to overlook is the predominance of the view that there is no viable analysis of matter. The default assumption in contemporary metaphysics is that the physical is irreducible: that is why so much more ink gets spilled over the question of whether mental phenomena reduce to physical phenomena than vice versa. In this intellectual setting, theories like structuralism, Kantianism, and phenomenalism can easily come across as overcomplicated. But anti-reductionists about the physical avoid such complications only by not attempting what phenomenologists and other reductionists about the physical set out to achieve, namely a reductive analysis of physical phenomena. If reductionists have to use more words than anti-reductionists, it is only because they have more to say.

¹³ Classical idealists have a relatively simple analysis that just identifies physical things with complexes of experiences, but this simplicity comes at the prohibitively high cost of implying that physical things depend on minds for their existence. (Panpsychist accounts of the physical have the same problem: see p. 162 and (Pelczar, 2022, 16–19).)

Cutter suggests that phenomenalism is nomologically extravagant for a reason that the foregoing response does not address, namely, that it has to posit extra laws to account for the relationship between things' micro- and macro-physical features.

For present purposes, we can identify macrophysical features (parts, properties, states, etc.) as physical features of the sort that ordinary human beings can perceive without technological assistance (from microscopes, Geiger counters, etc.), and microphysical features as humanly unobservable physical features. Redness is an example of a macrophysical feature; an example of a microphysical feature is the submicroscopic surface geometry of a red object.

There are three takes on how macrophysical features relate to microphysical features: *reductionism*, according to which macrophysical features just are microphysical features or combinations thereof; antireductionist *emergentism*, according to which macrophysical features are distinct from microphysical features, but nomically supervene on microphysical features via suitable natural laws; and *antirealism*, according to which physical things do not have macrophysical features, but only microphysical features that give us illusory impressions of macrophysical features.¹⁴

Cutter thinks that phenomenalism commits its proponents to emergentism. If correct, this would make phenomenalism nomologically less parsimonious than reductionist theories, since emergentism about the relationship between micro- and macro-physical phenomena requires special natural laws to account for why physical things have certain macrophysical features when and only when they have corresponding microphysical features.

But phenomenalism does not commit us to emergentism: phenomenalism is *compatible* with emergentism, but it is also compatible with reductionism (and antirealism).¹⁵

In my view, the existence of a physical object reduces to the truth of various propositions about the probability of certain experiential states of affairs conditional on the existence of various other experiential states of affairs. The probabilities to which the existence of a physical object reduces include probabilities related to a large (perhaps infinite) variety of metaphysically possible experiences. The relevant probabilities include (a) probabilities for various experiences of the sort we can have, given the occurrence of other such experiences, (b) probabilities for various experiences that we cannot have but that beings with greater perceptual powers than us could have, given the occurrence of other such experiences, (c) probabilities for various experiences beings like us can have, given the occurrence of various experiences that we cannot have but that beings with greater perceptual powers than us could, and (d) probabilities for various experiences that we cannot have but that beings with greater perceptual powers than us could, given the occurrence of experiences of the sort we can have.

¹⁴ A fourth option is to say that things do not have microphysical features, but only macrophysical features; we've already discussed this option in connection with scientific antirealism.

¹⁵ From this point onward, I set aside antirealism, which I believe owes its (meagre) prima facie plausibility to a failure to distinguish it from reductionism.

Let us call the kind of experience ordinary humans can have “low-resolution experience” and the kind that beings with greater perceptual powers than ours can have “high-resolution experience.” In my view, ordinary physical objects are what I call phenomenal hypertexts, consisting of possibilities for experiences at different resolutions (pp. 5, 135–41). For example, a red apple is a phenomenal hypertext that includes possibilities for low-resolution phenomenally red experiences (like those we have when we look at a red apple), and also possibilities for high-resolution experiences of a network of individual plant cells. The high- and low-resolution experiences (or possibilities for them) stand in a relation of asymmetric dependence: any difference or change in low-resolution experience is accompanied by a difference or change in high-resolution experience, but not vice versa. For example, if a human being sees someone take a bite out of the apple, a being who perceives the apple in cellular detail sees a bunch of cells get removed from the apple, but if the latter being sees the apple shed a single cell, there is no corresponding change in the ordinary human’s experience.

Identifying physical things with phenomenal hypertexts does not commit us to emergentism. True, if we identify macrophysical properties with possibilities for suitable low-resolution experiences, and microphysical properties with possibilities for suitable high-resolution experiences, then we would have to be emergentists, since possibilities for low-resolution experiences are different from and logically independent of possibilities for high-resolution experiences. But we can identify physical things with phenomenal hypertexts without identifying macrophysical properties with possibilities for suitable low-resolution experiences.

For example, we can say that we (ordinary humans) perceive a red object’s microphysical surface properties by having low-resolution experiences that stand in a suitable relation of asymmetric dependence to possible high-resolution experiences of certain microphysical surface properties (as described above), and we can identify the relevant microphysical properties with the possibility for those high-resolution experiences. This is consistent with saying that our (ordinary human) experiences of an object’s color are veridical. They can be veridical by standing in the aforementioned dependence relations to the possibilities of sensation that are the object’s microphysical surface properties, a.k.a. (in this view) the object’s color (pp. 174–78).

So phenomenalism is compatible with reductionism about macrophysical phenomena. As we have seen, it is also compatible with emergentism, which is the view we arrive at if we identify macrophysical properties with possibilities for low-resolution experiences.

Cutter’s remarks suggest that he favors reductionism over emergentism. Personally, I am torn between the two, for reasons I will explain in a moment. The point I want to emphasize here is that whichever view we should prefer, our reasons for preferring it must come from considerations that are independent of phenomenalism. Again: phenomenalism is consistent with both views (and even the Quixotic view that things have no macrophysical features). Any pressure to take one view over the other must come from something external to phenomenalist metaphysics.

What reasons are there to favor reductionism over emergentism, or vice versa? The main reason to favor reductionism is that it is more nomologically parsimonious than emergentism. The main reason to favor emergentism is that it better respects intuitions about worlds that have the same possibilities for low-resolution experience as our world, but different possibilities for high-resolution experience, or (as in so-called “Edenic” worlds), no possibilities for high-resolution experience. Intuitively, a world where objects have no microphysical properties, but are apt to be experienced as having various macrophysical properties (shapes, colors, temperatures, etc.) does have those macrophysical properties. At least, this is what I am inclined to say about such worlds.

This is not the place to settle the debate between reductionists and emergentists about macrophysical properties. The important point is that phenomenalism does not force the issue either way. As a corollary to this, phenomenalism does not commit its proponents to a nomically unparsimonious account of the relationship between the world’s macro- and micro-physical features.

Cutter also worries that my theory might fail to capture the necessity and apriority of certain necessary, a priori truths, such as that n equal sized cubical objects compactly arranged cubewise constitute a larger cubical object. The worry arises from the possibility of a case where the n objects are sub-microscopic, and high-resolution experiences of the n objects arranged cubewise are deeper levels of phenomenal hypertexts whose higher-up levels are not low-resolution experiences of a cubical object, but (say) experiences as of a tiny roundish object. This possibility shows that it is neither necessary nor a priori that if it is possible to perceive some cubical objects compactly arranged cubewise, then it is possible for anyone who perceives the cubes to perceive them as constituting a cubical object.

Before proceeding any farther, let us distinguish what’s necessary and a priori in this vicinity from what’s not. It is necessary and a priori that if a bushel basket contains two pairs of apples, it contains four apples; it is neither necessary nor a priori that if you put two apples into a bushel basket that already contains two apples, the bushel basket will contain four apples (it is possible, and, for all we know a priori, true, that apples spontaneously generate or annihilate in ways that prevent any bushel from containing four apples). It is necessary and a priori that if a billion cubical objects each one cubic femtometer in size are compactly arranged in a thousand square layers each containing a million femtocubes, they form a cubical object with a volume of one tenth of a cubic millimeter; it is neither necessary nor a priori that successively stacking square layers of femtometer-sized cubes eventually results in a decimillimeter-sized cube (it is possible, and, for all we know a priori, true, that femtometric objects spontaneously change shape when combined in certain ways, so that it is nomically impossible to combine a billion femtocubes into a cubical object).

Cutter suggests that phenomenalism cannot accommodate the necessity and apriority of the fact that a billion femtocubes compactly arranged cubewise form a decimillicube. But it can. The relevant experiential possibilities here are for (1) an experience as of a billion femtocubes arranged cubewise and (2) an experience as of a decimillicube. We know a priori that it is impossible to have (1) without having (2).

Indeed, this is our reason for thinking that it is necessary and a priori that a billion femtocubes arranged cubewise constitute a decimillicube.

It is neither necessary nor a priori that if one has an experience as of stacking square layers of femtocubes, one eventually has an experience as of a decimillicube; but, as already noted, neither is it necessary or a priori that successively stacking square layers of femtocubes eventually results in a decimillicube.

Nor is it necessary or a priori that a human being has an experience as of a decimillicube when viewing an object that a being with better vision sees as a cubic assemblage of a billion femtocubes. This conflicts with the necessity and a *priority* of cubewise-arranged femtocubes forming a decimillicube only if both the human and superhuman experiences are veridical. But we have good reason to deny this in a case where there is a mismatch between the two, such that, for example, the superhuman experience is of a compact cubic array of femtocubes, and the human experience is as of a roughly spherical speck of matter.

2 Reply to Hofweber

Hofweber raises two objections to phenomenalism, one related to its alleged explanatory poverty in comparison to alternative theories and the other related to its failure to yield a plausible solution to the hard problem of consciousness. I address these objections below.¹⁶ But first, let me accept Hofweber's invitation to say something about how *Phenomenalism* relates to *Sensorama*, my first book-length discussion of phenomenalism.

2.1 Phenomenalism and Sensorama

There are two main differences between *Phenomenalism* and *Sensorama*: a difference in the details of the theories I defend in them and a difference in argumentative strategy.

In *Sensorama*, I was content to follow tradition by understanding possibilities of sensation in terms of counterfactual conditionals, so that the physical truths about our world ultimately reduce to the truths of various counterfactuals concerning experience (so-called sensation conditionals). I have since come to think that my earlier contentment was unjustified. We use counterfactuals all the time, and people can usually agree on their truth-values in everyday contexts. However, absent an explicit analysis of counterfactuals, this agreement depends on our not using counterfactual conditionals in contexts (far from rare) where their import would be unclear, and not creating such contexts by asking awkward questions. ("If I were seven feet tall, I'd be the tallest person in my department.")

¹⁶ Hofweber also raises an objection to a theory that combines phenomenalism with the view that all possibilities for experience are realized in the form of actual experiences (what I call "panoptic phenomenalism"). The objection is that such a theory fails to improve on traditional idealism. I address this objection in my response to Jackson.

“But if you were seven feet tall, would you have pursued a career in academia?”) Haziness surrounding the truth-conditions of counterfactual conditionals in serious theoretical contexts is what made it possible for Roderick Chisholm to raise a seemingly fatal objection to phenomenalism in the late 1940s (after which enthusiasm for phenomenalism quickly went to zero).¹⁷

In *Phenomenalism*, I decided to put the theory on a firmer foundation. We can still think of possibilities of sensation in terms of sensation conditionals, but only with a clear and explicit understanding of the conditionals’ truth conditions. Here I had an advantage over the classic phenomenologists, in the availability of the analysis of counterfactuals developed by Robert Stalnaker and David Lewis in the 1960s and 1970s.

For reasons explained on pp. 99–102, that analysis is useful to me only if different possible worlds resemble each other to varying degrees in some non-physical and non-phenomenal respect. The natural, and as far as I can tell the only, option here is resemblance with respect to relevant probabilities, namely probabilities for certain experiential states of affairs to exist, conditional on the existence of other experiential states of affairs. Once these probabilities come into view, they take over as the basic terms of the phenomenalist analysis: the sensation conditionals they support become more of a GUI for the theory, rather than the underlying code, which is written in the language of probability.¹⁸

The nature of probability is a challenging philosophical question in its own right. So it’s not like the shift from counterfactuals to probabilities carries us clear of all puzzlement and debate. But probability is something we are stuck with whether we like it or not (try doing modern physics without it), so it seems like a reasonable thing to use as a theoretical foundation.

In *Sensorama*, I argued for phenomenalism as the best view in which conscious experience is logically prior to physical spacetime: a view that Henri Poincaré arrives at in the course of considering how to reconcile the evidence of introspection with a scientific understanding of time (see *Sensorama*, pp. 3–7, 111). In hindsight, deriving a theory that most people find counterintuitive from a premise that they find even more counterintuitive was not a polemical tour de force. In *Phenomenalism*, I argue for phenomenalism along more traditional philosophical lines that are independent of the central argument of *Sensorama*, and do not rely on contentious claims from the philosophy of mind.¹⁹

Let me now address Hofweber’s objections to *Phenomenalism*.

¹⁷ See pp. 48–49.

¹⁸ Probability plays a role in *Sensorama*, but as a supplement to rather than a foundation for sensation conditionals: see *Sensorama: A Phenomenalist Analysis of Spacetime and Its Contents*, pp. 146–55.

¹⁹ The theories developed in *Sensorama* and *Phenomenalism* both depend on its not being the case that so-called phenomenal temporality conceptually or metaphysically entails physical temporality (e.g., that there’s no valid a priori inference from, “I’m having a phenomenally enduring experience of a banana” to “I’m having an experience that is extended in physical time,” any more than from, “I’m having a phenomenally yellow experience of a banana” to “I’m having an experience that is physically yellow”). That there is no such inference I take myself to have established beyond a reasonable doubt in chapters 3–5 of *Sensorama*; see also Pelczar (2010), Pelczar (2014), and Pelczar (2017). For Poincaré’s discussion, see Poincaré (1898).

2.2 Explaining possibilities of sensation

We can frame the first objection as a dilemma that ostensibly arises from the question of how phenomenologists can explain why physical things come with associated possibilities of sensation (which, again, I understand in terms of probabilities for certain experiential circumstances to hold, conditional on other experiential circumstances holding). The dilemma, or alleged dilemma, is that phenomenologists must choose between (1) answering this question in a satisfactory way and (2) having a theory that substantively differs from the standard view (as Hofweber calls it: more on the standard view in a moment). First I will answer the question, and then I will explain why my answer leaves phenomenology a theory substantively distinct from the standard view.

Associated with maple syrup is a possibility of sweet sensations (experiences of the kind one typically has when consuming maple syrup). What explains this fact? As Hofweber points out, to answer this, one might offer a constitutive explanation or a causal explanation. In fact, phenomenologists can offer both.

Here is the constitutive explanation. Maple syrup is a possibility of sensation: for there to be maple syrup is for there to be suitable possibilities for experience, including possibilities for experiences with the property of phenomenal sweetness. Maple syrup is associated with possibilities of sweet sensations because such sensations are part of what maple syrup is. (Analogously, atoms are associated with positively charged particles, because such particles are part of what atoms are.)

Here is a causal explanation. In maple syrup, there are molecules (which are possibilities of sensation) that have the power to bring about various physical states in tongues (which are also possibilities of sensation) that in turn have the power to cause various brain states (yet more possibilities of sensation) that, when they occur, cause sweet flavor sensations.

Hofweber correctly identifies these explanations (or explanations similar to them) as the ones available to phenomenologists. The problem, he argues, is that if this is how phenomenologists explain why maple syrup comes with a possibility of sweet sensations (and likewise for other cases), they leave themselves without an interesting alternative to what Hofweber aptly calls the standard view.

In the standard view, the reason why maple syrup comes with an associated possibility of sweet sensations is that maple syrup has the power to cause such sensations. More exactly, maple syrup contains molecules that are disposed to cause (indirectly) sweet sensations when they come into contact with suitably constituted tongues that are attached in suitable ways to suitably constituted brains.

The standard explanation is the same as the phenomenologist's causal explanation, just without the identification of molecules, tongues, and brains with possibilities of sensation. Someone giving the standard explanation says that various physical things have the power to cause conscious experiences; the phenomenologist also says

this, and goes on to give an account of the nature of the physical things featuring in the explanation.²⁰

Hofweber thinks that by providing a phenomenalist analysis of the physical terms of causal relations, I turn the disagreement between phenomenalism and the standard view into a mere verbal disagreement. To keep the two views separate, says Hofweber, I need to say that “possibilities of experience are [the] basic building blocks of [physical] reality, and these possibilities get actualized in certain ways, leading to experience directly.”

But this is precisely my view.

I hold that possibilities of sensation are *both* the basic building blocks of physical reality, *and* such that they sometimes get realized (in the form of actual experiences) under various circumstances entirely describable in terms of possibilities for sensation. Some possibilities of sensation, such as those that constitute a situation where maple syrup is in contact with an undetached human tongue, have the property of occurring only together with some of the sensations for which the situation is a possibility (e.g., sweet flavor sensations). (See pp. 29–30.)

Is the relationship between the possibilities of sensation and the sweet sensation direct? Well, it does not require the mediation of any additional physical things (which is to say, in my view, any additional possibilities of sensation). It might require the existence of a “bridge law” that dictates that whenever there is a possibility of sensation of the kind described (the syrup-on-tongue kind), there is an actual sweet sensation. Whether it requires such a law depends on whether sweet sensations reduce to something physical, like brain states. Such a reduction is compatible with phenomenalism (p. 6, fn. 3; pp. 157–58), but I do not personally favor it, since I find reductionism about consciousness implausible for independent reasons.²¹ If, as I believe, consciousness does not reduce to something physical, then the relationship between (a) syrup-on-undetached-tongue possibilities of sensation, and (b) the sensations of sweetness that invariably accompany (a) is indirect, in the sense that the possibilities do not logically or metaphysically entail the sensations. But this does not distinguish my preferred version of phenomenalism from any other form of non-reductionism about consciousness.

Here is an analogy to illustrate the relationship that I envision between possibilities of sensation and actual sensations. According to present-day physicists, the basic physical building blocks of the world are quantum systems characterized by quantum states, which are defined in probabilistic terms. Some quantum states are such that when combined, there result determinate states. For example, whenever the quantum system that is a certain piece of lab equipment combines with a quantum system that is a human organism with certain physical features,

²⁰ The causal relation can be the same in both the phenomenalist and the standard account. As I argue (pp. 33–34, 37–38), there’s no reason why possibilities of sensation cannot stand in causal relations, or, more broadly, relations of asymmetric non-logical dependence. It’s enough for the phenomenalist’s purposes that the existence of certain possibilities of sensation can make it the case that certain other possibilities of sensation exist, other than by logically or metaphysically entailing the existence of those other possibilities (though it can also happen that one possibility of sensation logically entails another, as when a possibility for phenomenally yellow experience logically entails a possibility for phenomenally colored experience).

²¹ Mainly those given in Pelczar (2021).

there occurs a determinate state of a needle being observed to point to a certain number on a dial.

Why do determinate states occur whenever certain quantum states coexist? The challenge of answering this question is the so-called “measurement problem” of quantum mechanics, for which people have proposed various solutions. Which, if any, of the proposed solutions is correct is beside the present point. The point is that the relationship that the solutions try to account for parallels the relationship that holds between possibilities of sensation and actual sensations, in the phenomenalist scheme of things.

I have said how phenomenism explains why physical things come with associated possibilities of sensation: constitutively, the association is due to the associated possibilities being part of what the physical things are; causally, the association is due to the experience-causing powers of various physical phenomena (which are themselves possibilities of sensation). Have I avoided the second horn of Hofweber’s dilemma? That is, have I avoided turning phenomenism into a superficial rebranding of the standard view?

Yes. Again, the standard view says nothing about the nature of physical things. Phenomenism reduces physical things to possibilities of sensation. (More exactly, it reduces the physical facts of our world to facts about phenomenal probabilities, i.e., probabilities for various experiential states of affairs to exist, conditional on the existence of other experiential states of affairs.)

Hofweber’s worry seems to be that in proposing this reduction, I merely relabel physical things “possibilities of sensation.” Whether this is so depends on whether we gain anything by identifying physical things with possibilities of sensation (understood as phenomenal probabilities). In the book, I argue that we do gain something. At a minimum, we gain a better understanding of the nature of physical reality; in particular, we gain a better understanding of it than we get from idealists, panpsychists, ontic structural realists, and antireductionists about the physical. We also gain insight into the relationship between everyday experience and scientific descriptions of the physical world (pp. 133–53), an attractive account of perception (pp. 168–79), and a way of fitting chance and consciousness into the grand scheme of things neatly and without assuming that they reduce to something more basic (pp. 6–7, 131–32, 180–83).

Perhaps these gains are illusory, but they are not shown to be so by the mere fact that they are born of a theory that identifies physical things with possibilities of sensation. Otherwise, all identity theories would be doomed from the outset. Berkeley’s identification of physical things with congeries of experiences, ontic structural realists’ identification of physical things with causal-mathematical structures, central-state materialists’ identification of conscious states with brain states, utilitarians’ identification of right acts with acts that maximize utility: are these all just empty relabeling exercises? Is Berkeleyan idealism no more than a decision to call physical things “complexes of experiences,” structuralism no more than a decision to call physical things “causal-mathematical structures,” central-state materialism no more than a decision to call conscious states “brain states,” and utilitarianism no more than a decision to call right acts “utility maximizing”?

No. These theories escape the charge of vacuity by proposing identifications that have interesting and (hopefully) illuminating implications for the phenomena they concern and their relationship to other phenomena. The same goes for phenomenalism.

2.3 Phenomenalism and consciousness

Hofweber's second objection to the phenomenalism I advocate is that it does not do anything to solve the hard problem of consciousness.

My response is that phenomenalism is not meant to solve the hard problem of consciousness, any more than materialism about the mind is meant to solve the problem of determining the nature of physical reality. Phenomenalism is an analysis of matter, not an analysis of mind.

I do devote a chapter of the book to the problem of consciousness. There, my goal is not to solve the problem, but to consider how phenomenalism interacts with what I consider the most defensible proposed solutions: reductionist materialism, dualism, and a moderate form of panpsychism according to which all physical phenomena have associated experiential properties, but only contingently so. My main finding is that phenomenalism is compatible with all these theories; this is significant, since it distinguishes phenomenalism from certain other analyses of matter, such as traditional idealism and the more radical type of panpsychism currently in vogue, both of which conflict with dualism and reductionist materialism. I also argue that a view that combines phenomenalism with moderate panpsychism has a certain appeal (pp. 163–67), though I am inclined to favor a more orthodox combination of phenomenalism and dualism (pp. 156–57).²²

3 Reply to Jackson

I claim that a certain kind of phenomenalism accounts for the nature of physical things better than alternative theories. Jackson argues that the phenomenalism I favor fails to improve on traditional idealist accounts. Here, I explain why I think that Jackson is mistaken.

According to idealists, our world is fundamentally constituted by minds, and the existence of physical things reduces to those minds' experience-having (Leibniz) or experience-causing (Berkeley) properties. In this view, that there are minds with the relevant experience-having or experience-causing properties both explains the regularity of experience, and entails the existence of a physical world with the features our world exhibits. (For Leibniz, the relevant properties are intrinsic dispositions of minds to enter certain perceptual states given their prior perceptual states; for Berkeley, the relevant properties are propensities of a divine Mind to cause other minds to have experiences in orderly and predictable patterns.)

²² Phenomenalism does conflict with what Berkeley calls "materialism," but by "materialism," Berkeley means the view that the physical is irreducible; see (Berkeley, 1901/171, 70–74).

According to phenomenologists, the existence of physical things reduces to an objective tendency for conscious experiences to occur certain ways given that they occur certain other ways. The tendency both explains the regularity of experience and entails the existence of a physical world with the features our world exhibits. Mill, Lewis, and Ayer understand the tendency in terms of counterfactuals of the form, “if such-and-such experiential state of affairs existed, such-and-such other experiential state of affairs would exist”; I understand it in terms of probabilities of the form, “the probability of such-and-such experiential state of affairs, conditional on the existence of such-and-such other experiential state of affairs, is x .”²³

Both idealism and phenomenism are what I call “mind-first” theories of the nature of physical things (mind-first “analyses of matter,” in an older way of speaking). Idealists and phenomenologists agree that physical facts reduce to broadly mental facts. They also agree that the only categorical phenomena that exist in our world (or at least, the only categorical phenomena we have any call to recognize) are mental phenomena: various minds, mental states, etc.

To see how phenomenism *differs* from idealism, let us compare idealism to the version of phenomenism that most closely resembles it, namely panoptic phenomenism (see pp. 163–67).

Like all phenomenologists, panoptic phenomenologists hold that physical things are possibilities for experience (understood either counterfactually or probabilistically), rather than constructions out of actual experiences. But unlike orthodox phenomenologists, panoptic phenomenologists think that for each physical feature of our world, there are actual experiences of that feature. In this, panoptic phenomenologists agree with idealists. Panoptic phenomenologists also agree with idealists (and orthodox phenomenologists—and I might add panpsychists) that our world’s only categorical features, or at least its only known categorical features, are mental.

Idealists *have* to posit actual experiences for every physical thing, since idealists identify physical things with combinations of actual experiences. Panoptic phenomenologists are under no such obligation, since they do not identify physical things with combinations of actual experiences, but with experiential possibilities that are supposed to be capable of existing regardless of whether the possibilities are realized in the form of actual experience.

Why do idealists posit so much experience? They have various metaphysical and theological reasons, but here is one that might be thought to appeal even to a phenomenologist: if our world contains as much experience as idealists suppose, we might use the now-standard analysis of counterfactuals to say that the truth-values of sensation conditionals derive from phenomenal similarities between our (actual) world and other possible worlds. That is, we might say that “experiential state of affairs X would exist if experiential state of affairs Y existed” is true just in case X exists in all the worlds phenomenally most similar to ours, among those worlds in which Y exists. (Historic idealists like Leibniz and Berkeley did not say this, but maybe they would have, if they had known about the modern analysis of counterfactuals.)²⁴

²³ For the counterfactual approach, see (Mill, 1865, 175–209), (Lewis, 1946, 203–53), and Ayer (1947). (Probability plays an important role in Lewis’s account, though not the role it plays in mine.)

²⁴ Actually, it is doubtful that positing so much experience really does secure appropriate truth values for the relevant counterfactuals; I return to this point below.

Despite their similarities, idealism and panoptic phenomenalism are very different theories.

The most important difference is that idealism, but not panoptic phenomenalism, entails that none of our world's actual physical features could exist in the absence of minds or experiences. According to idealists, for a physical state of affairs to exist is for various experiences to occur in various ways due to certain features of minds: no minds or experiences, no physical world. According to phenomenalists (panoptic or otherwise), for a physical state of affairs to exist is for certain sensation conditionals or phenomenal probabilities to hold; given that these can hold even in a scenario where there are no minds or experiences, panoptic phenomenalism is compatible with the claim that the Moon could have existed, even if there had not been any minds or experiences. We can put this by saying that idealism, but not panoptic phenomenalism, entails that physical things are *mind dependent* (pp. 6–7).

This seems to me to be a decisive reason to prefer panoptic phenomenalism to idealism. The idea that the Moon could not have existed in a mindless world is *prima facie* absurd. Berkeley accepted it only because he thought, wrongly, that he had an air-tight proof that physical things cannot exist unperceived. (The situation with Leibniz is harder to assess, due to his idiosyncratic views on possibility and necessity.) Whatever advantages idealism might have over panoptic phenomenalism, they count for nothing when weighed against the disadvantage of idealism's commitment to a mind-dependent account of physical reality.

Idealism and panoptic phenomenalism have the same categorical ontology, but theories with the same categorical ontology can differ in important ways. Classical mechanics and quantum mechanics are very different theories of microphysical reality, despite positing the same categorical phenomena (assuming, for the sake of illustration, that things like particles are categorical phenomena). The theories' shared categorical ontology does not prevent quantum mechanics from being a better theory of the microphysical than classical mechanics. No more does the shared categorical ontology of idealism and panoptic phenomenalism prevent the latter from being a better theory of the physical than the former.

That said, I am not a panoptic phenomenalist, but an orthodox phenomenalist. The difference is that where panoptic phenomenologists posit as much actual experience as idealists (a whole ideal world's worth, as I put it in the book), orthodox phenomenologists posit no more actual experience than we have independent reason to believe exists.

As noted earlier, an ostensible advantage of positing all that extra experience is that it gives panoptic phenomenologists a way to secure appropriate truth values for sensation conditionals. However, I doubt that this ostensible advantage is real, due to an underdetermination of modal facts by categorical facts. Categorically indistinguishable worlds can differ in what probabilities hold in them. In the book (pp. 65–66), I illustrate this with the example of a world W where radon has a very different half-life from what it has in our world, but where rates of radon decay are the same as in our world, due to the fact that in W , radon atoms “beat the odds” in a highly improbable but not impossible way. (This does not require us to abandon the standard analysis of

counterfactuals; we just have to recognize that we cannot carry out the analysis using only *categorical* resemblances among possible worlds: see pp. 64–68.)

A further reason to doubt the usefulness of positing an ideal world's worth of experience is that even if the existence of so much experience does secure suitable truth values for sensation conditionals, we should still be able to say that the physical contents of our world could have existed even if there had not been so much experience (or even any experience). To be able to say that, however, phenomenalists have to say that our world's actual experiential features are not the *only* thing that determines the truth values of sensation conditionals. They must say that there is something else that (also) determines their truth values.

In my view, the "something else" is phenomenal probabilities: conditional probabilities for certain experiential states of affairs to exist, given the existence of certain other experiential states of affairs. Even if, as I believe, there is nowhere near as much actual experience as idealists and panoptic phenomenalists posit, it remains true that our world, and all other possible worlds, are characterized by phenomenal probabilities related to all manner of metaphysically possible experiences, and we can use similarities among worlds with respect to such probabilities to secure suitable truth values for sensation conditionals.

Of course, once we have the phenomenal probabilities, the sensation conditionals become in a sense superfluous: they are just useful ways to refer to the probabilistic facts that do all the real work of determining our world's physical contents. Ultimately, what decides our world's physical contents is facts about the likelihood of various experiential states of affairs given various other experiential states of affairs. Any world indistinguishable from ours with respect to those likelihoods is physically indistinguishable from our world.

I did not have to go this route. Instead of defining physical things in terms of phenomenal probabilities, I could have defined them in terms of unanalyzed sensation conditionals. But the truth conditions of unanalyzed counterfactuals are often unclear, absent some analysis: this was the main impetus behind the development of the modern analysis of counterfactuals. To reject that analysis when it comes to sensation conditionals would therefore be a step backwards, both in terms of our understanding of counterfactuals in general, and in terms of our understanding of the exact import of sensation conditionals in particular.

Jackson suggests that in my view, "[w]hat makes it true that such-and-such conditional probabilities obtain at the actual world is settled by the probabilities of so-and-so non-actual worlds." This is not quite right. My view is that what makes such-and-such *sensation conditionals* obtain at the actual world is settled by the phenomenal probabilities that characterize our world and other possible worlds. These probabilities, or the most basic among them, are unreduced terms of my analysis of matter. (I say "unreduced" rather than "irreducible," since my theory is compatible with there being a reductive analysis of conditional probability, though I think the prospects for such an analysis are poor: see pp. 131–32, 180–82.)

Traditional idealists were on the right track. But details matter, and traditional idealists got the details badly wrong. Mill's main metaphysical aim was to correct the most serious errors of traditional idealism (the "weak and illogical part" of it, as

he says just before the passage quoted on p. 46) without abandoning the mind-first framework. In this, I believe he was largely, though not completely, successful. The task I set myself in the book was to finish the job. Whether or not I have succeeded, I hope these remarks make it clear that I have at least proposed a theory that differs from traditional idealism in deep and consequential ways.

4 Reply to Robinson

Robinson raises a variety of challenges for my theory, including some that I have already taken up in my replies to other contributors to this forum. Here, I focus mainly on Robinson's central concern, which is that phenomenalism is explanatorily impoverished in a way that has no remedy short of abandoning the mind-first approach to metaphysics.

To begin my reply, let me locate phenomenalism on a spectrum of mind-first theories of the nature of the physical world.

Such theories start from the observation that any reason to think that experience occurs totally at random is a reason to doubt that there is a physical world. From here, it is a short step to the further observation that by "the physical world," we intend to refer to something that explains the *prima facie* non-randomness of experience (i.e., in my terminology, the "regularity" of experience).

That the regularity of experience has an explanation is something that we all believe (assuming we all believe there is a physical world). But it would be too fast to conclude that the physical world is whatever explains the regularity of experience. "Whatever" implies uniqueness, and the existence of *an* explanation for the regularity of experience does not exclude the possibility that the regularity of experience has more than one explanation. In particular, it might be that the regularity of experience is explained by something that itself has some explanation, which therefore also indirectly explains the regularity. If there is a chain of explanations like this, the question arises which link in the chain to identify with physical reality, and which to identify with a factor or factors that explain the existence of physical reality. I will return to this question below.

Now let me summarize what I take to be the major mind-first accounts of the physical world.

First, the Berkeleyan picture. In this, physical things are constituted by the sorts of experiences we have when we perceive physical things. (Though Berkeley focuses on human experience, I see no reason to think he must restrict the range of experiences that can constitute physical things to human or humanlike experiences.) Not just any old experience or combination of experiences constitutes a physical thing: only those that occur in suitably orderly patterns that support empirical (inductive or abductive) inferences regarding future experiences, experiences occurring in other minds, and the experiences that would occur under various counterfactual circumstances—that is, to adapt a phrase from John Foster, experiences that occur in "worldlike" ways. What explains why experiences occur in such ways is that God makes it so: He gives created minds experiences that those minds find intelligible, and that they can use to make reliable inferences about further actual and possible

experiences. In Berkeley's view, for there to be a physical world, it is enough that God makes experiences occur in worldlike ways.²⁵

Now for the Kantian picture. This is what you get when you replace Berkeley's God with entities about which all we can know is that they are apt to give sentient minds worldlike experience. As for why there are such entities (the "noumena," as Kant calls them), Kant refuses to say, on the grounds that any attempt to answer that question would be purely speculative. But this does not prevent us from knowing that there is a physical world with various physical features: it is enough for the existence of such a world that the noumena, whatever they may be, are disposed to give sentient beings worldlike experience.²⁶

Berkeley and Kant both see the worldlikeness of experience as a direct consequence of interactions between minds and... something. For Berkeley, the "something" is God; for Kant, the "something" is the noumena. The picture we get from Leibniz is somewhat different. In Leibniz's view, the worldlikeness of experience is due in the first instance to an intrinsic propensity of minds to have orderly and inference-supporting experiences. In effect, different minds (or "monads," as Leibniz calls them) are immaterial computers operating in causal isolation from one another, each running a program that takes experiences of that mind as inputs, and gives further experiences of that mind as outputs. That there is a physical world with specific physical features reduces to the fact that each monad's program generates an orderly stream of consciousness that provides a reliable basis for drawing inferences about that mind's subsequent experiences, as well as the experiences of other minds. What explains why these minds exist and run the various experiential programs they do is that God created them thus.

Let us distinguish two questions, which I will call the *What* and the *Why* questions. The *What* question is: what is the physical world? (Or, more specifically: what is it, for there to be a world with the physical features that our world possesses?) The *Why* question is: why does the physical world exist? (Or, more specifically: why does our world have the physical features that it does, in fact, have?).

Berkeley, Kant, and Leibniz all aim to answer the *What* question, but they do not always clearly distinguish it from the *Why* question, and this makes it hard to be sure exactly how they mean to answer the *What* question.

According to Berkeley, God makes experience occur in worldlike ways. Does this mean that what it is for there to be a physical world is for God to make experience occur in worldlike ways? Or is it rather that for there to be a physical world is for experience to occur in worldlike ways, God being the actual (though not, perhaps, the only possible) explanation of the worldlikeness of experience?

²⁵ To keep the terminology straight: to say that experience is "regular" is to say that it *seems* to occur in non-random ways that support relevant empirical inferences; to say that experience is "worldlike" is to say that it *does in fact* occur in such ways. (Foster speaks of experience as "world-suggestive" or "amenable to physical interpretation": see (Foster, 2008, vii, 108–15).)

²⁶ Metaphysical realism is what you get when you replace Berkeley's God with non-mental entities that are disposed to cause worldlike experience due to having various fundamental structural or "primary" qualities: see pp. 54–56.

According to Leibniz, monads generate worldlike experience by following experiential programs determined by their intrinsic computational architectures. Does this mean that what it is for there to be a physical world is for there to be monads that generate worldlike experience? Or is it rather that for there to be a physical world, it is for experience to occur in worldlike ways, the computational architecture of the monads being the actual (though not, perhaps, the only possible) explanation of the worldlikeness of experience?²⁷

According to Kant, noumena are disposed to give minds worldlike experience. Does this mean that what it is for there to be a physical world is for there to be noumena that are disposed to give minds worldlike experience? Or is it rather that for there to be a physical world is for experience to be disposed to occur in worldlike ways, the experience-causing powers of the noumena being the actual (though not, perhaps, the only possible) explanation of this disposition?²⁸

Faced with these interpretive uncertainties, I opted in the book to read Berkeley, Kant, and Leibniz as giving the more elaborate answers to the *What* question. That is, I interpret Berkeley as equating the existence of physical reality with a state of affairs that necessarily involves God, Leibniz as equating it with a state of affairs that necessarily involves monads, and Kant as equating it with a state of affairs that necessarily involves noumena.

In contrast to Berkeley, Kant, and Leibniz, Mill clearly separates the *What* question from the *Why* question. Indeed, Mill's main insight in this vicinity is that once we separate the questions, the best answer to the *What* question is the phenomenalist answer that for there to be a physical world is just for there to be a tendency for experience to occur in worldlike ways, given that it occurs at all.

Why is this the best answer?

Well, for one thing, it is the most economical. If there is a God apt to make experience occur in worldlike ways, or noumena disposed to cause experience to occur in worldlike ways, or monads configured to have experience in worldlike ways, then there is a tendency for experience to occur in worldlike ways given that it occurs at all; but the reverse is not true. Any scenario with the resources sufficient for a physical world by Berkeleyan, Kantian, Leibnizian (or metaphysical realist) lights is one with the resources sufficient for a physical world by Millian lights, but not vice versa.

For another, the phenomenalist answer best respects our pre-theoretical intuitions about what it takes for there to be a world with our world's physical features. I try to bring this out with the shifting basis argument (pp. 68–71, summarized above in my replies to Cutter). The purpose of this argument is not, as Robinson suggests, to show that the tendency for experience to occur in worldlike ways (if at all) requires no explanation. Its purpose is rather to show that whether or not the tendency has an explanation, the existence of actual physical things reduces to

²⁷ Leibniz does clearly separate one answer to the *Why* question from his answer (whatever exactly it is) to the *What* question: according to him, the reason why there are monads with certain intrinsic features is that God created the monads with those features; thus, at one level, Leibniz's answer to the *Why* question is close to Berkeley's.

²⁸ Kant does clearly separate one *Why* question from the *What* question: according to him, the question why there are noumena with various experience-causing powers is unanswerable.

the existence of the tendency, and not to whatever might explain why the tendency exists. When we hold the tendency fixed—that is, as I see it, when we hold fixed the phenomenal probabilities that characterize our world—but imagine changes in the underlying state of affairs assumed to explain why there is this tendency, our intuition is that nothing changes, physically. When we hold fixed the assumed underlying state of affairs (divine, noumenal, monadic, or whatever) but imagine relevant changes in the experiential tendencies (in my view: changes in relevant phenomenal probabilities), our intuition is that the world’s physical contents change accordingly. As I acknowledge in the book (pp. 68–69), this leaves open the option of identifying physical reality with the disjunction of all possible explanations for our world’s phenomenal probabilities, but since it is the phenomenal probabilities that are common to all scenarios physically identical to ours, it is simpler, and thus preferable, to identify the existence of our physical world with that of the relevant probabilities.

Here I should address some questions Robinson raises about the general ontological status of phenomenal probabilities. He notes that probabilities are best thought of as facts rather than objects. I agree. When I say that physical objects are phenomenal probabilities (my version of Mill’s equation of physical objects with permanent possibilities of sensation), I mean this as a loose way of saying that for there to be a physical object having certain physical features is just for certain phenomenal probabilities to hold. To assert that there is a red pen on a wooden table is just to assert the truth of certain propositions of the form, “The probability of such-and-such experiential state of affairs, conditional on such-and-such other experiential state of affairs, is x .”

Physical objects, and physical phenomena more generally, are phenomenal probabilities, in the sense that the physical facts about our world, including facts about which physical objects exist with which physical features, metaphysically supervene on the facts about which phenomenal probabilities hold in our world (i.e., which propositions of the aforementioned form are true). Once it is settled which phenomenal probabilities hold, it is settled which physical objects exist. In my view, physical-object talk is a convenient way of expressing truths that we can express more exactly, albeit less compendiously, in terms of phenomenal probabilities.

Do the truths expressible purely in terms of phenomenal probabilities include truths about causal relations among physical objects? I do not know: it depends on whether causal facts reduce to probabilistic facts, which, I believe, is an open question. But whatever causation is, I assume it is a relation that can hold between facts or states of affairs, including the states of affairs I call phenomenal probabilities.

Thus I do not share Robinson’s view that causation-talk does not apply to facts. In my view, facts can stand in causal relations, inasmuch as its being the case that p can make it the case (in a non-logically-entailing way) that q . In particular, the fact that a certain phenomenal probability holds can cause it to be the case that a certain other phenomenal probability holds.

The disagreement here might be more verbal than substantive, due to my taking a rather broad view of causation. I use “cause” as shorthand for an appropriate form of non-logical dependence. In the book, I take no stand on exactly what the appropriate form is. Maybe it is some kind of Humean regularity; maybe it is some kind

of counterfactual dependence; maybe it is a probabilistic relation; maybe it is something teleological; maybe it is some combination of these; maybe it is something irreducible to anything more basic. It is whatever the best theory of causation says it is. If I say “phenomenal probability X causes a volcanic eruption,” I just mean that the occurrence of an eruption is the appropriate kind of non-logical consequence of the fact that X holds, whatever the appropriate kind turns out to be.

Robinson raises another worry about my appeal to phenomenal probabilities. He points out that we normally think of probabilities as tightly constrained by relevant background conditions; for example, it is a constraint on there being an approximately 50% chance that this coin lands heads given that I toss it that the coin is fair, i.e. consists of an approximately even distribution of matter in an approximately disc-shaped volume. But what can play such a constraining role when it comes to the probabilities whose values I say determine our world’s physical contents?

There can be only one answer: further phenomenal probabilities. In my view, the existence of a more or less even distribution of matter in an approximately disc-shaped volume reduces to the existence of corresponding phenomenal probabilities, such as (roughly) probabilities of having experiences as of matter distributed more or less evenly, given that one has experiences as of investigating a certain disc-shaped region of space.

I am aware that people are prone to think of the background conditions that constrain probabilities as having a nature unlike the probabilities they constrain. The phenomenalism I advocate marks a conscious departure from this way of thinking. In my view, it is probabilities all the way down, at least as far as the world’s physical nature is concerned.

Robinson finds this picture unsatisfying, and I know that he is not alone in this. There is a long tradition of regarding modalities, whether in the form of probabilities, powers, dispositions, or counterfactuals, as somehow incomplete, like a boundary that cannot exist except as the boundary *of* something that is not itself just a boundary. In the book, I try to loosen the grip of this bias (as I consider it) with examples of common but unjustified skepticism about statistical courtroom evidence and conventionalist theories of money. I realize that there is only so much that these examples can do to bring people around to my point of view. Whether we understand possibilities of sensation probabilistically or, as in Mill’s case, counterfactually, malaise about casting them in a foundational role relative to the physical world is likely to remain a stubborn source of disagreement between phenomenalists and their most deeply engaged opponents.

Separating the *What* question from the *Why* question makes it easier to answer the former, but it does not make the *Why* question go away.

According to all mind-first metaphysics, the *Why* question is a question about experience, actual or possible. It is the question of why experience occurs, or tends to occur, in worldlike ways.

This is, I grant, a more interesting, and, in a way, more important question than the *What* question. Unfortunately, I have to agree with Kant and Mill that it is hard to see how we could ever know the answer to it (or even whether it has an answer: for all we know, nothing ultimately explains why experience tends to occur in worldlike ways). My book is an attempt to answer the question I do think I know how to answer, namely the *What* question.

The history of the relevant metaphysics, from Leibniz and Berkeley, through Kant, to Mill, is partly one of shrinking ambitions. The most satisfying answer to the *Why*

question would be Berkeley's, if only we could be confident that it were true: it is an explanation in the surest and most intuitive sense of the word "explanation." Without God, it is a mystery why the monads or noumena (or, for that matter, the metaphysical realist's "real things") behave the way they do, and, more generally, a mystery why experience has an objective tendency to occur in orderly ways that permit the formation of reliable expectations about further experience. Kant's noumena and Mill's permanent possibilities of sensation are powerless to give the kind of explanation of the worldlikeness of experience that we would most like to have. They are, as it were, the ghosts of departed deities.

All of this may be a very good reason to hope that the theistic explanation of the worldlikeness of experience is true, but I cannot see that it is any reason to *believe* that it is true. Kant and Mill think that we have to satisfy ourselves with the hope, and recognize that justifying the belief is a bridge too far. This is also what I think.²⁹

Let me conclude my response to Robinson with some remarks on anthropocentrism. Robinson finds my position markedly non-anthrocentric, compared to traditional phenomenalism and idealism. In some ways I think this is true; for example, my account of nomically imperceptible phenomena relies heavily on possibilities for humanly impossible experiences, whereas traditional phenomenalists and idealists have little to say about non-humanlike experience.

At a deeper level, though, my position is anthrocentric, and even egocentric. This is a consequence of my decision, discussed in my replies to Cutter, to identify the existence of the physical world with the circumstance that a certain ideal world is the one my actual experiences are most likely to belong to, conditional on their belonging to an ideal world.

This is not the kind of egocentrism that turns the physical world into something whose reality depends on the existence of my mind or any other mind. But it does tie the meaning of "the physical world" to the experience of whoever utters the phrase. In the book, I give the example of a computer running a simulation of a physical world radically unlike the one we inhabit, and similar to the world of Tolkien's *Lord of the Rings* saga. A computerized inhabitant of this simulation speaks truly when he says, "There are mallorn trees," even though I would speak falsely if I uttered the same sentence. This is because the ideal world most likely to exist, conditional on the simulant's experiences belonging to an ideal world, includes thinglike experiences of mallorn trees, whereas the ideal world most likely to exist conditional on my experience's belonging to an ideal world does not include thinglike experiences of mallorn trees.

The kind of egocentrism my theory involves is also compatible with you and I meaning the same thing by "the physical world." This only requires that the ideal world most likely to exist conditional on *my* actual experiences belonging to an ideal world is the same as the ideal world most likely to exist conditional on *your* actual experiences belonging to an ideal world. In the book, I tacitly assume that this requirement is satisfied, which is why I speak of the ideal world most likely to exist conditional on *our* actual experiences—yours and mine—belonging to an ideal world. In this way, phenomenalism can be egocentric without lapsing into solipsism.

²⁹ As Einstein puts it, the everlasting mystery of the world is its comprehensibility (Einstein 1936, 315).

Declarations

Ethics approval I declare that the research for this work did not involve humans and/or animals in any manner requiring informed consent or approval of relevant regulatory bodies.

Competing interests The author declares no competing interests.

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