

## MENTAL PROPERTIES

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The deepest problems currently facing philosophers of mind arise from an ontology of properties that deserves scrutiny. After some preliminaries (§ 1), we identify three doctrines at the heart of this ontology (§ 2), show how these doctrines influence current philosophical thinking about the mind (§ 3), suggest and defend an alternative conception of properties (§ 4), and indicate how this conception might provide answers to two puzzles besetting contemporary philosophy of mind (§ 5). Our aim is not to provide definitive arguments for or against particular philosophical theses, but to indicate the attractiveness of a position at odds with recent tradition.

### 1. PRELIMINARIES

To forestall potential confusion, we shall begin by making explicit three fundamental assumptions. We assume, first, that properties exist: there are entities (in the broadest sense of the term) that characterize objects.<sup>1</sup> This is denied by eliminative nominalists. (We distinguish eliminative nominalists from reductive nominalists—the former say there are no properties, only predicates or classes; the latter say there are properties, but that properties are only predicates or classes.) We reject eliminative

nominalism on the grounds that it fails to accommodate fundamental features of our world, including change and causation. We shall not argue against eliminativists here, however; we refer the reader to other sources (Armstrong [1978a, 1989, 1997]).

Second, we assume there are mental properties. Some philosophers accept our first assumption, accept properties, but deny the existence of mental properties. We find this denial to be at odds with manifest experience, but we shall not argue the point further.

Our third assumption is in some respects the most controversial. We take for granted an *in re* conception of properties. Properties are ways particular objects are. This entails, at least when the objects in question are material, that properties are located in space. Not everyone accepts the *in re* assumption. Platonists regard properties as transcendent entities, not located in space or time; reductive class nominalists think that having a property is solely a matter of belonging to a certain class, where the class is not (entirely) in any of its members; and reductive predicate nominalists believe that having a property is exclusively a matter of falling under a certain predicate. (Predicates, of course, are not in general in the objects to which they apply).

Why make the *in re* assumption? We are interested here primarily in the nature of minds. It seems clear that anything relevant to this nature must be located in minds themselves.<sup>2</sup> We find it hard to understand how being related to a non-spatio-temporal form, or falling into a certain class, or falling under a predicate, could by itself make a difference to the nature of a mind. A mind might be related to a form, class, or predicate in virtue of its nature, that is, in virtue of its *in re* properties. But in that case it will be the properties that are of primary metaphysical interest, not the non-spatio-temporal entities to which they are derivatively related.

The *in re* assumption does not imply that there are no forms, classes, or predicates. What it does imply, however, is that such entities are not properties, that they do not characterize objects. Forms, classes, or predicates might, however, serve other functions. In particular, they might serve as types, devices that unify objects in the world, thereby providing a solution to the “one-over-the-many” problem. We thus reject the traditional assumption that the characterizing role (properties) and the unifying role (types) must be fulfilled by the same entities.<sup>3</sup>

It might be thought that the *in re* assumption narrows the range of views about properties to just a few, but this is not so. In the next section, we shall identify three doctrines about properties that we think influence current philosophy of mind. Each of these doctrines could be held or denied under the *in re* assumption.

## 2. THREE DOCTRINES

Our target is a conception of properties incorporating three central doctrines. Although widely held, the doctrines, like many of the most influential philosophical doctrines, are seldom discussed explicitly by philosophers of mind.

### *Predicates and properties*

The first doctrine concerns the relation between properties and predicates. Here we quote Armstrong, who articulates (without endorsing) the doctrine:

- (P) For each distinct predicate, “*F*”, there exists one, and only one, property, *F*, such that, if “*F*” is applicable to an object *a*, then “*F*” is applicable in virtue of *a*’s being *F*.<sup>4</sup>

According to (P), the predicate “is smaller than a bread box and to the south of Paris” designates a unique property: the property of being a smaller than a bread box and to the south of Paris. If this predicate applies to an object—if, for example, your toothbrush is smaller than a bread box and to the south of Paris—then the object has the property—your toothbrush has the property of being smaller than a bread box and to the south of Paris.

(P) is not to be confused with its stronger relatives. One of these says that in addition to (P), it is also true that for every property, there is a predicate that picks it out. This stronger doctrine resembles what Armstrong (1978a, 13) calls predicate nominalism:

- (PN) *a* has the property, *F*, if and only if *a* falls under the predicate “*F*”.

(P) does not imply this biconditional (although it does imply the right-to-left portion of it). Unlike predicate nominalism, (P) can allow that there are properties not captured in any language. It can also allow that there would be properties even if there had been no language, hence no predicates. Nor is (P) committed to the reductive spirit of predicate nominalism. (P) does not support the identification of properties with predicates, or imply that properties are, as Armstrong puts it, merely shadows predicates cast on objects. Reductive predicate nominalism violates the *in re* assumption. This is a point in favor of (P).

It is also important not to confuse (P) with a weaker principle according to which whenever a predicate truly holds of an object, it does so in virtue of that object's properties. On this weaker view, if "is red headed" applies to Ginger, it does so in virtue of some property possessed by Ginger. The weaker doctrine does not imply that there is a property named or designated by or corresponding to the predicate "is red headed," a property any object must have if it falls under the predicate.

Philosophers rarely announce their adoption of (P). Michael Jubien (1997), a modern-day Platonist, comes as close as anyone to endorsing (P), although he hedges a bit:

(Just about) every declarative sentence that has subject-predicate form attributes a property—the one expressed by the predicate—to an entity—the one denoted by the subject. (37)

Paul Boghossian (1990) suggests that realism about a predicate, "P", takes what amounts to our principle (P) as satisfied for "P". Thus in explicating "non-factualist" (that is, anti-realist) accounts of a predicate, "P", Boghossian says that what such conceptions have in common is

- (1) [t]he claim that the predicate "P" does not denote a property and (hence)
- (2) the claim that the overall (atomic) declarative sentence in which it appears does not express a truth condition. (161)

Most often, however, (P) is not explicitly stated but simply assumed. Philosophers quickly and easily (as though nothing controversial were being presumed) slide from discussing a predicate to talk of the corresponding property.<sup>5</sup> "It will be convenient," says Ned Block "to think of pain as the property expressed by the predicate 'x has pain', that is, to think of pain as the property ascribed to someone in saying that he has pain" (1980a, p. 174). And while Jerry Fodor (1974, pp. 101–102) allows

that not every predicate corresponds to a natural (nomic) kind, he apparently regards it as obvious that every predicate corresponds to a property:

I take it that there is no natural law which applies to events in virtue of their instantiating the property *is transported to a distance of less than three miles from the Eiffel Tower*. . . . By way of abbreviating these facts, I shall say that the property *is transported* . . . does not determine a (natural) kind, and that predicates which express that property are not (natural) kind predicates.

Now it could be that Block, Fodor, and other authors like them who make the predicate-to-property slide are simply using the term "property" to *mean* predicate. By itself, this, although potentially misleading, is unobjectionable. What is objectionable, is to proceed in the course of the same discussion to use "property" to refer to substantive *in re* properties—to say, for example, that we are immediately aware of phenomenal properties or that mental properties occupy this or that causal role. "Properties" as mere predicates are unsuited for these jobs.

#### *Properties as Universals*

The second doctrine implicit in much contemporary philosophy of mind concerns the nature of properties themselves:

- (U) Properties are universals.

Properties, according to (U), are entities that can be (and often are) literally shared by objects. It is possible for wholly distinct, non-overlapping objects to possess one and the same property at the same time.

Earlier we distinguished properties, which characterize objects, from types, which unify them. We believe the two roles, characterizing and unifying, are distinct. If (U) is correct, however, a single entity, a universal, occupies both roles.<sup>6</sup> Given the *in re* assumption, these universals

must be immanent, the sort of universals that Armstrong (1978b) endorses.

Doctrines (P) and (U) are naturally connected. (P) in fact implies (U): according to (P), when a predicate “*F*” applies to more than one object at the same time, both objects will have property *F* at that time. Given the *in re* assumption, both objects’ having *F* must, it would seem, be a matter of *F*’s being wholly present in each, a kind of existence only universals—and perhaps constituents of the Holy Trinity—could enjoy. Thus *F* is a universal, not a particular. However (U) does not entail (P). Like Armstrong, you might take properties to be universals, but deny that there is a universal corresponding to each predicate.

As with (P), (U) is widely taken for granted, but rarely stated explicitly, except by philosophers who are writing about the nature of properties. Philosophers of mind are especially cagey about their acceptance of (U), even though the doctrine is frequently lurking in the background. Notice, for instance, how (U) is implicit in the following remark of Kim’s:

We may consider talk of “event kinds” as equivalent to talk of “properties” of events, since every property of events can be thought of as defining a kind of event, namely, the kind comprising events with that property. (1996, 59)

Kim apparently assumes that the entities fulfilling the unifying role (kinds) are the very same entities that fulfill the characterizing role (properties). This could be so, as we noted earlier, only if properties are universals.

### *Dispositional and Categoricality*

The third and final doctrine we shall consider imposes a mutually exclusive and exhaustive division among properties:

(D) Every property is either categorical or dispositional, but not both.

It is not easy to characterize the envisaged distinction between categorical and dispositional properties, or even to provide uncontroversial examples. We reject (D), so we find this difficulty unsurprising. The best we can do is sketch the distinction in a rough way. Dispositional properties are those that characterize how an object would behave in such-and-such circumstances; they are, like fragility and solubility, “what-would-be-if” properties, powers that manifest themselves in particular ways under appropriate circumstances. Categorical properties, in contrast, are wholly here-and-now properties. Examples often mentioned include shape and mass. Some philosophers believe that categorical properties “ground” dispositional properties. The fragility of a vase (a supposed dispositional property), for instance, might be thought to be grounded in its molecular structure (a supposed categorical property).

Philosophers who endorse (D) are divided on the status of categorical and dispositional properties. Some (e.g., Armstrong 1996) think that only categorical properties are real, *in re* properties. An object’s having a putatively dispositional property is just a matter of its categorical property standing in certain nomic relations to other properties. Other philosophers who accept doctrine (D) (e.g., Mellor 1974, Shoemaker 1980) take properties to be exclusively dispositional.<sup>7</sup> Some dispositional properties, like solubility, might be grounded in more basic properties, but these properties are themselves dispositional. Dispositions never “ground out” in categorical properties. Finally, there are philosophers (e.g., Prior et al. 1982) who accept (D) but think that categorical and dispositional properties are equally real, *in re*, and distinct: dispositional properties are “realized by” categorical properties.

### 3. THE THREE DOCTRINES IN ACTION

We have already provided a few examples of how the three doctrines—(P) properties correspond to predicates; (U) properties are universals; (D) properties are categorical or dispositional, never both—surface in philosophical writing. In this section we shall look specifically at how these doctrines have shaped current debates and problems in the philosophy of mind.

#### *Levels of Reality*

Current philosophy of mind is replete with talk of levels of reality. Microphysical properties and objects, it is supposed, occupy a lower level than mental properties and minds, which occur at a higher, “more abstract” level. Indeed, any given object, mental or not, apparently includes indefinitely many property levels. A scarlet ball, for instance, has the property of being scarlet. Possession of this property brings with it a whole hierarchy of higher-level properties (arranged here in ascending order): being red, being colored, having a visually detectable property, having a physical property, and having a property. In addition to these, the ball has endless higher-level “disjunctive” properties: being red-or-blue, being scarlet-or-triangular, being colored-or-to-the-south-of-Paris.

Different theorists have different things in mind in appealing to property levels, although the differences are not always clearly marked. One idea, an idea we find innocuous, is that reality admits of higher and lower levels of description and explanation.<sup>8</sup> We understand such levels to be levels of abstraction and, in the absence of (P) or the semantic argument discussed below, not to imply the existence of levels of reality. Owing in large measure to the influence of (P), however, there has been a widespread tendency to drift from premises ranging over levels of description

and explanation to conclusions about levels of *being*. We contend that there is no reason whatever to imagine that a commitment to descriptive and explanatory hierarchies brings with it a commitment to such levels.

According to a second view we regard as equally benign, properties are layered in the sense that properties had by an object are (often) distinct from properties had by *parts* of that object. A sphere can be made of parts none of which is spherical; a heap of sand might weigh 1 kg., although none of its constituent grains possesses this property; the ingredients of a soufflé are not miniature soufflés. Suppose mental properties are properties of brains. These properties could be said to occupy a higher level than the electrical–chemical properties of neurons that make up a brain, but only in the sense that a whole brain does not have those (same) electrical properties and individual neurons do not have those mental properties.

We take this sort of part-to-whole property layering to be uncontroversial. We mention it because it is sometimes confused with a more problematic kind of property layering or levels of being that is our target.<sup>9</sup> On this third conception of layers, *one and the same* object can have many different layers of properties. This is the case in our ball example above. The properties being scarlet, being red, being colored, etc., are all taken to be distinct and possessed by the *same* object: the ball. It is this second view that we have in mind when we mention the “layered picture” or “levels of being.”

#### *The Semantic Argument*

What has attracted philosophers to the idea that reality is layered? One likely source is (P) coupled with a *semantic argument*. Since the demise of logical behaviorism, few theorists have imagined

that talk of the mental could be translated or analyzed into talk of the non-mental: mental and physical terms are semantically autonomous. No physical predicate, however complicated, *means* the same as “*x* feels pain.” This is a point about our language (or concepts), not about the world. Some philosophers have nevertheless taken it to imply levels of reality.<sup>10</sup> What might be thought to warrant this inference? One possibility is that (P) is at work behind the scenes. (P) affords a semantic test for property identity: if predicates “*F*” and “*G*” are non-synonymous, they designate distinct properties.

The semantic argument, if successful, implies that there are levels of being even in the non-mental realm. The predicate “is red” does not mean the same as “is scarlet.” If (P) is correct, a scarlet ball must possess two distinct properties: being red and being scarlet. A little reflection reveals that every object will possess a hierarchy of properties, corresponding to every non-synonymous predicate that applies to it. Undoubtedly an object can be both red and scarlet. “Red” and “scarlet” express distinct concepts, however. If something is scarlet, it must be red, but the converse does not hold. So, unless we are willing to deny that scarlet objects are red, we seem driven to conclude that being red and being scarlet are distinct properties (answering to the predicates “is red” and “is scarlet”) possessed by a single object. Being red is a “higher level” property, perhaps because being scarlet suffices for being red, but not vice versa.

### *The Multiple Realizability Argument*

While doctrine (P) drives the semantic argument, doctrine (U)—the doctrine that properties are universals—undergirds an even more influential *multiple realizability argument*. This argument has often been taken to undercut type identity theories

decisively.<sup>11</sup> Identity theorists contend that every mental property is identical with some physical property. Against this, functionalists argue that any mental property can be “realized” in physically diverse ways. Pain in one structure (the human nervous system, say) might be realized by physical property  $P_1$ , while pain in another structure (the nervous system of an octopus) could be realized by physical property  $P_2$ . In general, there might be a variety of distinct physical properties,  $P_1, P_2, P_3$ , etc., that, depending on the structure in question, could realize pain. If pain can be realized by these different physical properties, pain cannot be identical with any one of them. This implies that the identity theory is false, and it also implies a layered picture of the mind: any creature in pain possesses *both* the property of being in pain, a higher-level property, *and* some lower-level realizer.

How exactly is the multiple realizability argument supposed to work? To keep things simple, suppose that pain has just two physical realizations,  $P_1$  and  $P_2$ , in two different structures,  $S_1$  and  $S_2$ . The argument concludes that pain is not identical with any physical property shared by  $S_1$  and  $S_2$ .

- (1) Pain in structure  $S_1$  is realized by physical property  $P_1$ ; pain in structure  $S_2$  is realized by physical property  $P_2$ .
- (2)  $P_1 \neq P_2$ .
- (3) Pain in structure  $S_1$  = pain in structure  $S_2$  = pain (*simpliciter*).
- (4) Therefore, pain  $\neq P_1$  and pain  $\neq P_2$ .

Whatever the merits of this argument, it evidently relies, in its third premise, on (U), the doctrine that properties are universals. To say that there is a property, pain *simpliciter*, identical in  $S_1$  and  $S_2$  is to say that pain is a universal. Because, according to functionalists, every mental property is multiply realized in this way, the argument generalizes to all mental properties.

Doctrine (P), which entails doctrine (U), is also at work in premise (3): creatures with structures *S1* and *S2* both fall under the predicate “is in pain,” and so, according to (P), there must be a property, being in pain, they both possess. Indeed, in introducing the argument for multiple realizability, Putnam (1967, 429) makes the shift from predicates to properties explicit: “‘Is pain a brain state?’ (Or, ‘Is the property of having a pain at time *t* a brain state?’).”

### *Inter-Level Relations*

The layered picture of the mind is ontologically ungainly, and may offend those theorists whose tastes run to desert landscapes. Nevertheless, relying on the previous two arguments, philosophers have thought that the picture is well-motivated enough to tolerate the luxuriance of properties it incorporates. The layered view leads to notorious problems, however, problems that go beyond aesthetics or concerns about parsimony.

One problem is this: what exactly is the relation holding between property layers? Philosophers who endorse the layered view suppose there is an asymmetrical “grounding” or “dependency” relation between them, although they differ significantly on the strength and nature of the dependency. Mental properties, for instance, have been said to be realized by (Papineau 1995), to supervene on (Kim 1993b), to be determinables of (Yablo 1992), or to be caused by (Searle 1983, 1992), lower-level physical properties. Some of these relations admit of various strengths. Supervenience, for example, can be a nomological, metaphysical, or logical relation.

We do not consider the question of inter-level relations to be the most serious problem with the layered view, but it is worrisome. Without a plausible account of the nature of inter-layer dependency, the

layered picture risks having to postulate *sui generis* property correlations and necessitations.<sup>12</sup>

### *Mental causation*

More serious than the problem of inter-level relations is the (or a) problem of mental causation.<sup>13</sup> The difficulty is this. According to the layered view, mental properties are distinct from, and occupy a higher level than, physical properties. When a mental event, *M* (a pain, for instance), causes a behavioral event, *B* (a wince), it seems clear that *M*’s physical properties are causally relevant in the production of *B*.<sup>14</sup> But then what work remains for *M*’s mental properties? They appear to be pre-empted. Why so? First, according to a plausible exclusion principle, if *M*’s physical properties are sufficient for the production of *B*, *M*’s mental properties cannot contribute causally to the production of *B*:

(EP) If property *F*’s being instantiated is causally sufficient for the occurrence of an event, *E*, then no property distinct from *F* is causally relevant to the occurrence of *E*.<sup>15</sup>

Second, given a closure principle, the mere fact that *M*’s mental properties are not physical (as the layered view requires) entails that they could not be causally operative in the production of *B*:

(CP) Every physical event has in its causal history only physical events and physical properties.

Closure rules out the causal relevance of non-physical properties whether or not the exclusion principle is true.<sup>16</sup>

Even without explicit appeal to (EP) and (CP), it is easy to see how a layered picture naturally gives rise to worries about causal relations involving properties belonging to different ontological levels. Suppose higher-level properties are distinct from

their lower-level realizers, and instances of these lower-level realizers causally suffice for instances of other lower-level properties. In that case, unless we assume widespread causal over-determination, it is hard to see how instances of higher-level properties could be causally operative in the production of instances of lower-level properties. And if higher-level properties supervene on their lower-level realizers, then “horizontal,” higher-level-to-higher-level causal relations appear to be undercut as well.<sup>17</sup> The occurrence of higher-level effects would appear to be explicable entirely in terms of the occurrence of appropriate lower-level effects.

### *Qualia*

Functionalism, like any multi-level theory, faces the problem of mental causation just discussed (see Block 1990). But functionalists also face what appears to be a far more serious problem. According to a prominent form of functionalism, the functional state identity theory, mental properties are higher-level, dispositional properties. To be in pain, for instance, is to be in some state or other apt to be caused by bodily damage and apt to cause avoidance behavior (an actual functional characterization of pain would be rather more complicated than this). Mental properties, on this view, are purely dispositional. It appears essential to many states, however, especially conscious states, that they include (or perhaps *are*) a certain phenomenal or qualitative character or “feel.” Such feels—or “qualia”—elude functional characterization. Qualia are—are in fact paradigm cases of—*categorical* properties; and a categorical property is a non-dispositional property. The feel of a pain, for example, certainly seems to be a categorical, wholly here-and-now property, not a dispositional what-would-be-if property. If qualia are paradigm mental properties, it

appears to follow that functionalism is an inadequate theory of mind.<sup>18</sup>

This line of objection to functionalism presupposes the third doctrine, (D): every property is either categorical or dispositional, but not both. There must be a distinction between categorical and dispositional properties in order for qualia to be categorical, not dispositional properties.<sup>19</sup>

## 4. AN ALTERNATIVE CONCEPTION OF PROPERTIES

Important problems in the philosophy of mind can be traced directly to three doctrines: (P), (U), and (D). In this section we shall sketch an account of properties that dispenses with these doctrines. We shall proceed in stages, first making clear our grounds for rejecting (P), (U), and (D), then indicating an alternative account of properties. We do not attempt knock-down arguments. The strongest consideration favoring the position we discuss is its overall explanatory power.

### *Rejecting (P)*

Few philosophers would subscribe to the view that every name or description picks out an individual. “Superman” and “Socrates’ dying of old age” do not refer to anything. Why then should we imagine that the predicates in our language are different? Why, that is, should we suppose, as (P) obliges us to suppose, that every significant predicate picks out—names or designates—a property?

One possibility is that, unless (P) were true, we could not account for predicates in our language being straightforwardly applicable to objects (see, e.g., Boghossian 1990). Unless a predicate designates a property, it lacks meaning, fails ever to apply truly to objects, or functions non-descriptively. Philosophers have argued, for instance, that the predicate “is good”

fails to designate a property possessed by objects to which it is applied. From this some conclude that it is false that anything is good, others that the predicate must be meaningless, still others that in saying of an object that it is good, we do not ascribe a property to it, but instead express an attitude toward it, commending it perhaps.

Consider, however, garden variety predicates like “is a game,” “is a toy,” and “is a joke.” Most of us would find it implausible to suppose that these predicates name properties, something common to all games, toys, or jokes and in virtue of which they are games, toys, or jokes. Does this mean that these predicates are meaningless, or that it is false that anything is a game, or a toy, or a joke, or that in saying of something that it is a game, a toy, or a joke we are merely expressing an attitude toward it? We doubt it. More likely, these and countless other predicates apply to objects in virtue of salient similarities or family resemblances among those objects. The similarities in question are not exact, indeed they may shade off imperceptibly into dissimilarities. Mastering predicates like “is a game,” “is a toy,” or “is a joke” involves acquiring a feel for which similarities are relevant and which are not.

On the face of it, many predicates apply truly to objects, and apply in virtue of those objects’ properties, but the predicates do not designate or name properties. Our suggestion is that, even if properties are regarded as universals, this is so for most predicates, including those figuring in the special sciences. Take “is red.” This predicate applies to some objects and not to others; it applies or fails to apply to an object in virtue of that object’s properties. But does “is red” designate a property—a property shared by every object to which it truly applies? That seems unlikely. Red objects are undoubtedly similar in important respects, but the similarity is partial,

less than perfect. Objects sharing a property must be identical (or at least exactly similar) in some respect.

Consider a predicate like “is a heart.” Does this predicate express a property shared by every object to which it applies? Again this appears unlikely. Or does it? Perhaps “is a heart” names a higher-level “functional property.” This, however, is to miss our point. “Is a heart” could well be a functional *predicate*, a predicate that applies to objects in virtue of dispositional similarities among those objects. As arguments for multiple realizability remind us, however, the similarities in question need not be, and in fact typically are not, exact. It is easy to lose sight of this humble point so long as we focus solely on highly abstract functional predicates. Such predicates are satisfied by objects’ possession of properties that answer to very general dispositional descriptions, descriptions satisfied by objects’ possessing any of a broad, perhaps open-ended, range of similar properties.

#### *Rejecting (U)*

The only version of (U)—the doctrine that properties are universals—that respects the *in re* assumption is immanent realism, so we shall focus our criticisms on that doctrine. Were immanent realism true, a property would be “wholly present” in each of its instantiations. Some philosophers, ourselves included, find this mode of existence mysterious, if not incoherent. What does “wholly present” mean? Normally, “*x* is wholly present in region *R*” means “*x* is present in region *R* and nowhere else”; what could “wholly present” mean if not something that included what is expressed in the italicized phrase? This cannot be what immanent realists have in mind; they take universals to be wholly present in many distinct, non-contiguous places at once (wherever their instances are located).

The only alternative for the immanent realist appears to be to regard “wholly” in “wholly present” as an undefined primitive. Prefixing “wholly” to “present in region *R*” is only to say “present in region *R*, but not in the way particulars are present in *R*,” where this new “way” is left unspecified. Every theory must take some notions as primitive (ours, for example, takes resemblance among properties to be primitive). But normally, a primitive notion is one concerning which we have some (primitive!) grasp. In the case of immanent realism, the allegedly primitive concept—that of being “wholly present”—is left entirely up in the air.

Some philosophers may be inclined (implicitly) to accept (U) because they (also implicitly) accept (P), which entails (U). Others may accept (U) because they conflate types and properties. They observe that many different objects fall under one and the same type. If types are properties, it will seem that these objects all have, *in re*, one and the same property, which must of course be a universal, since it is literally shared by distinct objects. But once (P) is rejected, and once types are clearly distinguished from properties, we see no reason to accept (U). If the considerations above are correct, there are excellent positive reasons to reject (U) as well.<sup>20</sup>

### *Rejecting (D)*

We have noted that one standard objection to functionalism—the “qualia” objection—presupposes (D), presupposes that every property is dispositional, or categorical, but not both. Many philosophers apparently regard (D) as so obviously true that it needs no defense. The very way in which the distinction is standardly presented—“categorical” means “non-dispositional”—surrounds (D) with an aura of obviousness. The only question to be worked out is whether it might turn out that all properties are categorical, or all

dispositional, or whether dispositional properties might be in some way grounded in categorical properties.

We propose a flat-out rejection of (D). Every property is *both* dispositional and categorical. One way to appreciate the attractiveness of this conclusion is to consider the alternatives.

First, might there be purely categorical properties, properties with no dispositionality whatsoever? If there are such properties, their possession could make no difference to their possessor. They would, for instance, be undetectable. They would be, as C. B. Martin (1997) puts it, like God and the number two, “in pure act.” Consider an ordinary quality: being square. This quality might appear to be a clear example of a categorical property. But note: in virtue of being square, an object is disposed to pass smoothly through holes of certain shapes (and not through others), disposed to reflect light in a particular way, disposed to make an indentation of a particular kind in a lump of clay.<sup>21</sup> Being square, then, appears through and through dispositional.

Someone who imagines that dispositional properties are grounded in categorical properties might regard this line of attack as unfair. After all, if a given categorical property “realizes” a dispositional property, the categorical property could signal its presence via the disposition it grounds.

We have two replies to this line of argument. First, in some cases at least (see Prior, Pargetter, and Jackson [1982]), the basis for saying that dispositional properties must be grounded in categorical properties amounts to a generalized version of the multiple realizability argument we reject. Dispositional predicates need not be thought to designate distinctive properties shared (in whatever sense) by objects to which they apply. “Is fragile,” for instance, need not be thought to name a

property shared by all fragile objects (and therefore distinct from various categorical “grounding” properties): there are different ways of being fragile. The fragileness of a glass vase resembles, but does not exactly resemble, the fragileness of a ceramic ashtray or an antique clock.

Second, those who think that dispositional properties really are distinct from categorical properties that ground them owe the rest of us a substantive account of the grounding relation. Grounding understood causally implies a regress. Appeals to supervenience are not to the point. If *A*'s supervene on *B*'s, we know that *A*'s are correlated with *B*'s. But what we need is an account of the basis of this correlation. We believe a much more satisfying explanation for dispositionality can be found by building it into the supposed grounding properties.

Philosophers who, like us, find it difficult to envisage purely categorical properties have sometimes been moved to conclude that every property is dispositional.<sup>22</sup> This, coupled with (D), implies that every property is exclusively dispositional. There is, however, something hard to understand about the idea of pure dispositionality. A disposition is *for* some manifestation with some reciprocal disposition partner. If every manifestation were itself purely dispositional, a regress looms, one in which every property is characterizable only as being for something else, which is characterizable only as being for something else, which is characterizable only as . . .

C. B. Martin (1997, see esp. 213–17) has provided what is perhaps the clearest statement of a regress argument against construing properties as pure dispositionalities.<sup>23</sup> Martin points out, similarities between pure dispositionalism, phenomenalism, and other reductivist programs. Phenomenalists hoped to characterize

objects in terms of actual *and possible* sense experiences. Thus, an *x*'s being in the next room might be characterized in terms of possible sense experiences:

“It would tend to look *x* to you *were your sensory capacities in good working order and were you to open the closet door and look in the direction of x*, etc.” The italicized part of the sentence is not characterized in terms of the basic ontology. When [a] candid attempt is made to do so and to scrub the vocabulary clean—that is, to reformulate the putative analysis in purely phenomenal terms—its anti-intuitiveness becomes apparent. (214)

The same difficulty besets attempts to reduce qualities to dispositions.

For “*x* and *y* are equal in length,” “*x* and *y* are disposed to *fit* or not *fit* into the same *containers* in the same way ignoring their *width* and *weight*, etc.”<sup>24</sup>

The story is no different than it is for phenomenalism and behaviorism. The need is to couch all of the vocabulary in terms of dispositionalities and only dispositionalities. (215)

Considerations of this sort incline us to favor a conception of properties according to which every property is dispositional and every property is categorical or, as shall say, *qualitative*. We prefer “qualitative” because, as noted above, “categorical” has come to mean “non-dispositional.” It is part of our thesis that every property—every genuine intrinsic property of a concrete object—is at once dispositional and qualitative.

A property's dispositionality and qualitativeity are not aspects or properties of the property, they are rather the property itself, differently considered.<sup>25</sup> Thus, any intrinsic property of an object can be “seen” or considered as a disposition of that object or as a quality. Recall the property of being square. The quality of being square *is*

the property of being square, and this *is* the dispositionality an object has in virtue of being square. A property's dispositionality and qualitatively do not merely co-vary, they are the selfsame property regarded now one way, now another.

### *The Nature of Properties*

We have said enough, perhaps, to make it clear why we reject (P), (U), and (D). We do so in part because these doctrines have little to recommend them, and in part because a plausible ontology of properties implies their falsehood. We shall now endeavor to tie the strands of the ontology together.

First, we reject (P) and thus accept a "sparse" theory of properties according to which there need not be a property corresponding to every meaningful predicate. We agree with Armstrong (1978a, 1978b, 1989, 1997) that what properties exist is an empirical matter, to be determined by our best scientific efforts. Consider the following close relative of (P):

(P\*) If a predicate, "*F*", applies to an object, *a*, then there is a property, *f*, such that "*F*" is applicable to *a* in virtue of *a*'s being *f*.

Less formally, whenever a predicate applies to an object, it does so in virtue of some (possibly complex) property of that object. (P\*) does not say, as (P) does, that the property in question is one picked out by "*F*", one that must be shared by all objects that fall under the predicate.<sup>26</sup>

Although (P\*) captures an important truth that holds for many predicates, we are not prepared to endorse (P\*) unconditionally. "Is self-identical" does not apply to objects in virtue of those objects' properties. Predicates serve functions other than those envisioned by (P\*).

Second, in addition to rejecting (P), we reject (U) as well. Properties are particulars, ways particular objects are. While the

way a particular apple is might be exactly similar to the way other apples are (in respect to color, say), a way an apple is is wholly present in the apple: it is nowhere else. (Unlike Armstrong, we can give the usual "nowhere else" reading to "wholly present.") Similar objects are similar in virtue of possessing similar properties. The similarity relation holding among properties is an "internal" relation, one that holds solely in virtue of the natures of the properties themselves.

Third, although properties are not universals, classes of similar properties are available to play the unifying role that universals are commonly thought to play, that is, the role of types. If two objects are of the same type, both have properties belonging to the same resemblance class. Thus even though we reject (U), we are happy to address "unity" questions of the sort philosophers have been asking since Socrates, questions that have traditionally been thought to concern universals: What do all *F*s have in common, in virtue of which they are *F*s? Thus, Ned Block (1980a, pp. 178–179) asks, "What is common to the pains of dogs and people (and all other pains) in virtue of which they are pains?" The answer will be that creatures in pain have properties that resemble one another, with the kind of resemblance specified by the appropriate theory of mental types. (For example, if functionalism were true, the properties would resemble each other in the causal powers they bestowed on their possessors.)

Fourth, we reject (D), according to which all properties are either dispositional or qualitative ("categorical"), but not both. On the contrary, every property is both dispositional and qualitative. This is not to say that properties have dispositional and qualitative aspects—a property's dispositionality and qualitativity are not properties of the property, they are the property itself differently considered. Properties differ

from objects in this respect. Ordinary objects, in addition to being mereologically complex (that is, having parts) are also “attributively complex”: they have many different properties, properties that are distinct from each other and (if substratum theories are true—see Martin 1980; Lowe 1988, 1994, 1996, 2000) distinct from the objects themselves.

Fifth, properties can be simple or complex. A complex property comprises properties standing in particular relations to one another. Complex properties are not higher-level properties except in the unexciting sense that they are wholes distinct from their individual constituents. Most, if not all, properties we associate with middle-sized objects are complex. Middle-sized objects are made up of parts that are themselves objects. When these simpler objects are assembled in a particular way the result is a complex object the intrinsic properties of which are the properties of its constituent objects and their interrelations. Consider a complex object: a grain of salt. The grain of salt is soluble. Now consider the complex object consisting of the grain of salt embedded in a cube of Lucite. Although the grain of salt (a constituent of the complex object) retains its solubility, the complex object—salt-in-Lucite—is not soluble.

Sixth, some readers might wonder—given our philosophically unorthodox use of “property”—how properties are supposed to be individuated. Sometimes this challenge comes from philosophers proclaiming that they refuse to admit an item into their ontology without clear, informative identity conditions. Identity conditions for complex entities can be specified by reference to their constituents and relations these bear to one another and to themselves at earlier times. When it comes to the basic constituents of the world—and we think

fundamental properties qualify as such constituents—we reach bedrock. This might mean that no informative, non-circular specification of identity conditions is available for such entities owing to their basicness: there is nothing else in terms of which their identity conditions could be specified (see Lowe 1994).

It need not follow that there is nothing whatever to be said concerning property identity. Identity conditions come in three varieties: synchronic, diachronic, and modal (or “trans-world”). Most relevant to the present topic are synchronic identity conditions; our denial of property layers entails that “leveled” descriptions of an object at a time are true in virtue of one and the same property. What independently plausible synchronic identity conditions for properties might respect this view?<sup>27</sup> We tentatively propose the following (cf. Schaffer 2001). Let *F* and *G* be properties had by a particular (material) object at a time.

- (I) *F* = *G* if and only if *F* spatially coincides with *G*, and *F* exactly resembles *G*.

Recall that we take the notion of exact resemblance among properties to be primitive: properties resemble one another simpliciter, not, like objects, in virtue of their properties. If property resemblance holds in virtue of anything, it holds in virtue of the properties themselves. But exact resemblance cannot be sufficient for property identity, since distinct objects can have the exactly similar (“the same”) properties. (I) adds the requirement that *F* and *G* coincide spatio-temporally. This principle of synchronic identity is compatible with our view of property identity.

## 5. PUTTING THE PICTURE TO WORK

We have sketched an ontology of properties that includes the rejection of three prominent doctrines:

- (P) For each distinct predicate, “*F*”, there exists one, and only one, property, *F*, such that, if “*F*” is applicable to an object *a*, then “*F*” is applicable in virtue of *a*’s being *F*.
- (U) Properties are universals.
- (D) Every property is either categorical or dispositional, but not both.

These doctrines, working largely behind the scenes, have led philosophers of mind down the garden path—or so we contend. In this section, we shall indicate how repudiation of (P), (U), and (D) could open the way to solutions to two prominent puzzles in the philosophy of mind.

### *Mental Causation*

Armed with an ontology of properties, let us return to two problems in philosophy of mind mentioned earlier, the problem of mental causation and the qualia problem. Both problems, we argued, were outgrowths of the three doctrines, (P), (U), and (D). Consider first the problem of mental causation. We reject the layered picture of the world that leads to this problem in its most recent guise: the problem of causal relevance. There are no *in re* property layers; *a fortiori*, there are no property layers that might compete with each other for causal relevance. Mental properties, on our view, *are* physical properties. There is no threat to the causal efficacy of mental properties from either (EP) or (CP), the exclusion and closure principles discussed earlier.<sup>28</sup>

In contending that mental properties are physical properties, we are not advancing a type–type identity theory. We regard it important to distinguish properties and types. We are happy to say that particular versions (though not the ones we presented earlier) of the Multiple Realizability and Semantic Arguments might establish that mental types are not physical types. But higher-level types are not ontological

additions to our world; they are simply more abstract ways of characterizing physical properties. Our view is compatible with type-dualist views popular today. Puzzles about mental causation arise only if types and properties are identified.

Is our view then just a token–token identity theory? Yes, although our version crucially amends familiar token-identity theories. Although such theories are adept at explaining how mental events can cause behavior—mental events just *are* physical events—they founder on the problem of causal relevance, the problem of showing how mental events, *qua* mental, could cause behavior. Given type-dualism, and given the usual identification of types with properties, this question has seemed unanswerable. On our view, however, mental events are unproblematically relevant to behavior *qua* mental, because mental properties are physical properties.

Some readers may have noted that our view has affinities with the “functional specifier” view defended by Armstrong (1968) and Lewis (1972).<sup>29</sup> If we abstract away from certain disagreements these authors might have (with each other and with us), our idea is that all properties, or at least all intrinsic properties of concrete objects, including mental properties, are first-order properties.<sup>30</sup> These properties can be specified in various ways, and at various levels of abstraction. The property in virtue of which Gus is in pain might be picked out as “being in brain state *B*” or as “the property causally relevant to Gus’s wincing just now” or, by Gus, as “that property.” But these various modes of specification do not require, for their deployment, *in re* property layers. The truth-maker for “Gus is in brain state *B*” and “Gus is in a state causally relevant to his wincing” is Gus’s possession of one and the same property. Gus’s being in brain state *B* is his possessing that property and this state *is*

causally responsible for Gus's wincing. These are, one might say, "categorical" (or "qualitative") and "dispositional" ways of describing the property, but again, such descriptions, while they classify the property differently, do not introduce distinct properties.

### *Qualia*

Functionalists focus on mental types, classes of properties with similar dispositionalities. To suppose that this is all there is to mental properties, that mental properties are purely dispositional, or that the "essential nature" of mental properties is purely dispositional, is to invoke (D): dispositional implies non-qualitative. A functionalist is then faced with a choice: try to accommodate the qualitative character of the mental within a purely dispositional functionalist framework, or accept that states of mind are only contingently qualitative.<sup>31</sup> Once (D) is abandoned, however, the possibility that "qualia" might vary independently of dispositionalities evaporates. Functionalists are wrong to mistake a feature of their abstraction—the consideration of properties solely as dispositional—for an ontological feature of properties.<sup>32</sup> And critics of functionalism are wrong to suppose that a dispositional classification of properties leaves corresponding qualitative classifications entirely open.

If we are right about this, "zombies," imaginary creatures indiscernible from us in every physical and dispositional detail but different from us in important qualitative respects, are flatly impossible: qualities cannot vary independently of dispositionalities. To be sure, it might be possible to envisage a being dispositionally similar, though not precisely similar, to an ordinary conscious agent, with a mental life that differs qualitatively from that of the ordinary agent. If, as seems plausible,

however, close dispositional similarities reflect close qualitative similarities, it would be natural to suppose that the envisaged being's mental life would be qualitatively similar to the mental life of an ordinary conscious agent.

A reminder: our conclusion is the result of a perfectly general ontological argument. Our claim is that every property (that is, every genuine intrinsic property of a concrete object), not just every mental property, is dispositional and qualitative. There is no mystery as to how mental properties could be qualitative: *every* property is qualitative. Questions remain as to how specifically mental qualities could be housed in the nervous systems of conscious agents. The difficulty here is not that of trying to locate mental qualities in a non-qualitative material world, however, but of finding a place for distinctively mental qualities among the rest.

## 6. CONCLUDING REMARKS

In acquiescing to a largely unexamined ontology of properties, philosophers of mind have put themselves behind the eight ball. We have identified three central tenets of that ontology, tenets that have attained the status of a default view. We have argued that these tenets—(P), (U), and (D); roughly: every predicate names a property, properties are universals, properties are dispositional or categorical, never both—are implausible on the face of it, and inconsistent with an independently attractive ontology of properties. We have noted how two notorious puzzles in the philosophy of mind, the problem of mental causation (or causal relevance) and the qualia problem, apparently turn on acceptance of (P), (U), and (D). We recommend rejecting (P), (U), and (D), and accepting a conception of properties according to which (1) not every predicate that can be

correctly ascribed to an object designates a property that object shares (in whatever sense) with any object to which it might apply; (2) properties are construed as particulars—ways particular objects are—not universals; and (3) every property is both dispositional and qualitative.

We do not pretend that this ontology resolves every puzzle facing the philosophy of mind. It does, however, give us a fresh start, one that avoids a view of the world as comprising hierarchies of properties and objects, levels of being. The layered view of the world constitutes another default doctrine, a doctrine that loses its charm once scrutinized from the vantage point of a plausible view of properties.

Even if we are wrong in the details, our approach might serve to stimulate a closer look at ontological presuppositions of the philosophy of mind. If we have accomplished only that, we consider this progress in a domain where progress has been noticeably lacking.

In a well-known introduction to functionalism, Ned Block (1980a) says that since functionalists, identity theorists, and behaviorists agree that all mental particulars are physical, the debate between them, which concerns how to type mental states, is “*metaphysical without being ontological*” (172). We think that Block has, with this phrase, inadvertently captured the essence of what ails mainstream philosophy of mind. With its emphasis on thought-experiments, formal techniques, and gestures toward “cognitive science,” philosophers have kept ontology at arm’s length and thereby lost contact with their ontological roots. Our goal is to reverse this trend. We shall have succeeded if we have refocused discussion in the philosophy of mind on ontology, more particularly on the ontology of properties.

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## NOTES

Ideas developed in this paper have been presented by both authors to a variety of audiences. We are grateful for valuable comments and discussion on those occasions.

1. Here we remain neutral on the question whether objects are “bundles” of properties or substances possessing properties.
2. We are officially neutral on externalism, the doctrine that some mental properties are (or include) relations to the external environment. This doctrine is compatible with the *in re* assumption. An *in re* property could be or involve a relation of an object to some external item; what an *in re* mental property cannot be is one of the external relata.
3. See Oliver (1996) for a discussion of the various “roles” properties might be thought to fill; see also Robb (manuscript).
4. Armstrong (1972, p. 164). (P) presumes that predicates are individuated semantically; see Armstrong (1978a, pp. 6–9).
5. A notable case in point is Putnam’s retitling “Psychological Predicates” (Putnam 1967), “The Nature of Mental States.”
6. A caveat. For Armstrong, physical types will universals, but “higher-level” types need not be universals; they might be what Armstrong (1997, pp. 43–46) calls “second-class properties.”
7. Shoemaker apparently no longer accepts this view; see Shoemaker (1998).
8. Dennett’s “stances” come to mind here (Dennett 1987); see also Churchland (1986), Davidson (1970, 1974), and Dupré (1993).
9. Kim (1993a, pp. 190–191), for example, seems to conflate the two in an otherwise lucid discussion of property layers. More recently, Kim (1998, pp. 82–83) has been clear on the distinction. For further discussion, see Martin (1997, pp. 195–201), and Martin and Heil (1999).
10. Davidson’s defense of “anomalous monism” (1970, 1974) is sometimes read as implying levels. We are skeptical, but we leave Davidson exegesis to others.
11. See Putnam (1967) and Fodor (1981). For a critical discussion of this argument, see Kim (1993b, chap. 16); see Block (1997) for a reply.
12. See, for instance, Chalmers (1996). It is worth noting that any such account must include more than a set of purely formal conditions—as in appeals to supervenience. When the supervenience relation is satisfied, the question remains: in virtue of what is it satisfied? See Horgan (1993); Heil (1998).
13. See, for instance, Kim (1993a) and Heil and Mele (1993). We focus here on problems arising from the layered view and ignore those stemming from the allegedly “broad” character of certain states of mind, including the propositional attitudes. For an approach to that problem congenial to the view defended here, see Martin and Heil (1998) and Heil (2003, chap. 18).
14. Here we formulate the problem of mental causation using a coarse-grained (Davidson-style) conception of events. A parallel problem arises, however, within fine-grained (Kim-style) accounts of events. Suppose (as on the fine-grained view) an event is the instantiating of a property by an object at a time. If mental properties supervene on physical properties, then, given (EP) and (CP) below, the causal clout of mental events is apparently pre-empted by their subvenient physical bases.
15. (EP) follows Robb (1997, p. 184), who roughly follows Yablo (1992, p. 247).

16. Nevertheless, there are connections between the two principles; in particular, the exclusion principle might be used to derive the closure principle; see Robb 1997.

17. We take for granted that causal relations are something more than counterfactual dependencies or Humean regularities. Were causation nothing more than regularity or counterfactual dependence, the problem of mental causation—and, more generally, the mind–body problem—would be tractable, even for Cartesian dualists. Thus, e.g., Yablo (1992), Lepore and Loewer (1987), and Horgan (1989) claim to secure the causal relevance of mental properties by demonstrating counterfactual dependencies between these properties and behavioral effects. It is now apparent, however (Kim 1973; Braun 1995; Ehring 1997), that counterfactuals are too weak to secure the causal relevance of any property, mental or otherwise.

18. It is not clear that all versions of functionalism are vulnerable to this objection. In particular, the “functional specifier” view of Armstrong (1968) and Lewis (1972, 1994) might be immune. Block (1990, pp. 163–166) dismisses the Armstrong–Lewis brand of functionalism; but see Lewis 1994.

19. In fact, matters are a bit trickier than this. The functional state identity theory is a theory of mental *types* according to which mental types are dispositional types. We have argued that it is important to distinguish types from properties. It could turn out that even though (as we think) all *properties* are both categorical and dispositional, there is still a distinction to be made (which we do not deny) between categorical and dispositional *types*. The qualia-based objection may be relying on this latter distinction and not on doctrine (D). In that case, we have nothing to say (at least for the purposes of this paper) against the objection. However, if the objection is intended to imply something of *ontological* significance—that is, if it is intended to refute a functionalist theory of mental *properties*—then we think it does rely on (and so stands or falls with) doctrine (D).

20. We note in passing that it is possible to reject (U) without abandoning talk of objects “sharing” a property or possessing “the same” property, provided talk of distinct objects sharing properties or possessing the same property is reconstrued. Imagine that when two billiard balls share a color, each is the same shade of red, for instance, this means only that the balls are exactly alike with respect to color: the red of one ball is exactly similar to the other ball’s red. In this sense two ordinary people might share a passion for Wagner or wear the same outfit to work. In such cases, talk of sameness is not talk of strict identity. “Same” can mean, and often does mean, “exactly similar.” When we speak of objects sharing a property or possessing the same property, then, we might mean only that each possesses a property exactly similar to a property possessed by the other.

21. Although we shall not pursue the point here, each of these cases involves a manifestation of one and the same disposition. How a disposition manifests itself depends on its reciprocal disposition partner; see Martin (1997); Martin and Heil (1999).

22. Pure dispositionalism has been advanced by many philosophers including Boscovich (1763/1966) and Mellor (1974)—and perhaps by Sydney Shoemaker (1980a, 1980b).

23. See also Swinburne (1980); Foster (1982, pp. 67–72); Blackburn (1990); Heil (2003, chap. 10). Keith Campbell (1976, pp. 93–94) advances a very similar argument in the course of a discussion of Boscovich. For a dissenting view, see Holton (1999).

24. Simon Blackburn (1990, p. 64) puts the point somewhat differently: “To conceive of *all* the truths about a world as dispositional is to suppose that a world is entirely described by what is true at *neighboring* worlds. And since our argument was a priori, these truths in turn vanish into truths about yet other neighboring worlds, and the result is that there is no truth anywhere.

25. Here we rely on Locke’s notion of “partial consideration” (1690/1978, bk. ii, chap. viii, §13). See Martin (1997); Martin and Heil (1999).

26. (P\*) does imply that “a’s *F*-ness” picks out a property.
27. We do not ask: “What independently plausible identity conditions for properties will *establish* this view?” Identity conditions on properties should not be used to argue for the sort of identity theory we favor. That theory is established on other grounds. Only then are identity conditions on properties formulated, conditions that (i) are independently plausible and (ii) respect this identity theory. Noordhof’s (1998) discussion of Robb (1997) trips over this point; see Robb (2001).
28. For more details, see Heil (2003, chap. 5) and Robb (1997).
29. It is also a view that Kim (1993b) is headed toward, according to Horgan (1997).
30. This is slightly misleading. Mainstream functionalism is the view that functional properties are higher-level properties with distinct lower-level realizers. A given object possesses both the higher-level property and its lower-level realizer. A higher-*order* property, unlike a higher-*level* property is a property of a property. In rejecting levels, we reject the idea of higher-level properties.
31. Harman (1990), Tye (1995), Lycan (1996), and Dretske (1997, pp. 65–95) defend the first option arguing for a representational account of mental qualities; Jackson (1982) and Chalmers (1996) opt for versions of the second; see also Carruthers (1996).
32. Philosophers make the same mistake when they interpret physics’ silence on qualities as an endorsement of the Pythagorean idea that there are no qualities; if Langton (1998) is right, the mistake is made by Kant in considering the “phenomenal world”; see Martin 1997.

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