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The Bare Metaphysical Possibility of Bare Dispositions

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Many philosophers hold that all dispositions must have independent causal bases. I challenge this view, hence defending the possibility of *bare dispositions*. In part 1, I explain more fully what I mean by "disposition," "causal basis," and "bare disposition." In part 2, I consider the claim that the concept of a disposition entails that dispositions are not bare. In part 3, I consider arguments, due to Prior, Pargetter, and Jackson, that dispositions necessarily have distinct causal bases. In part 4, I consider arguments by Smith and Stoljar that there can't be bare dispositions because they would make for unwelcome "barely true" counterfactuals. In the end, I find no reason to deny the possibility of bare dispositions.

It is asked what the cause and reason are of opium's making one sleep.
To which I respond: because there is in it a dormitive virtue whose
nature it is to put the senses to sleep.
Moliere, "Le Malade Imaginaire"

1. Introduction

As Moliere's jest illustrates, if someone is wondering why taking opium puts one to sleep, telling him that it has a disposition to do so is not very helpful. More ought to be said about why opium causes sleep, and in fact, we can say more: opium contains alkaloids such as morphine which, being structurally similar to the body's naturally occurring peptides, bind to opiate receptors in the brain, causing sleep. Some people think that all dispositions are like the dormitivity of opium, in that there must always be another property that causally explains the manifestation of the disposition. When people ask why something produces a certain effect, they are often looking for a deeper explanation than just "because it is disposed to produce that effect." The inability to produce a deeper explanation, on this view, reflects ignorance or a failure of understanding.¹ It is supposed that there must be something other than the disposition that causally explains the manifestation, or to use

¹ "We thus expose ourselves to Moliere's ridicule, and, if we did nothing further, we would deserve it." D. M. Armstrong, *Belief, Truth and Knowledge* (London: Cambridge University Press, 1973), 15.

terminology that is now common, every disposition must have a distinct “causal basis.” There is something puzzling about the idea of a *bare disposition*—a disposition that has no distinct causal basis. Some have argued that the very idea of a bare disposition is incoherent. However, I disagree. Bare dispositions are possible. Moreover, it is an open question whether any objects have bare dispositions in this world.

Significantly, bare dispositions figure in larger metaphysical programs, for example, the phenomenalist view that matter is the “permanent possibility of sensation.”² More recently, some philosophers have defended the view that the fundamental properties of the ultimate constituents of matter are dispositional.³ On these views, the world abounds with bare dispositions. On some other views, there are no bare dispositions. For example, according to Lewis’ “Humean supervenience,” everything that is true about the world supervenes on “a vast mosaic of local matters of particular fact.”⁴ I take it that, on this view, these local matters of particular fact are not dispositional. It follows that, if the world contains bare dispositions, Humean supervenience is false. Clearly, a defense of bare dispositions has broad philosophical significance.

My defense will proceed as follows. In part 1, I explain more fully what I mean by “disposition,” “causal basis,” and “bare disposition.” In part 2, I consider the claim that the concept of a disposition entails that dispositions are not bare. In part 3, I consider arguments, due to Prior, Pargetter, and Jackson, that dispositions necessarily have distinct causal bases.⁵ In part 4, I consider arguments by Smith and Stoljar that there can’t be bare dispositions because they would make for unwelcome “barely true” counterfactuals.⁶ In the end, I find no reason to deny the possibility of bare dispositions.

1.1 *Dispositional versus Categorical*

The paradigm examples of dispositions, as I am using the term, are properties of physical objects: fragility, inflammability, elasticity, conductivity, solubility, volatility, dormitivity, and poisonousness, for example. These proper-

² John Stuart Mill, *Collected Works of John Stuart Mill, Volume IX: An Examination of Sir William Hamilton’s Philosophy and of The Principal Philosophical Questions Discussed in his Writings*, ed. J. M. Robson (Toronto: University of Toronto Press, 1979), 183.

³ For example, Simon Blackburn, “Filling in Space,” *Analysis* 50 (1990), 60–65; P. F. Strawson, “Reply to Evans” in Zak van Straaten, ed., *Philosophical Subjects* (Oxford: Clarendon Press, 1980), 273–282; Richard Holton, “Dispositions All the Way Around,” *Analysis* 59 (1999), 9–14.

⁴ David Lewis, *Philosophical Papers*, vol. II (New York: Oxford University Press, 1986), ix.

⁵ Elizabeth W. Prior, Robert Pargetter, and Frank Jackson, “Three Theses About Dispositions,” *American Philosophical Quarterly*, 19 (1982), 251–257.

⁶ Michael Smith and Daniel Stoljar, “Global Response Dependence and Noumenal Realism,” *Monist*, 81 (1998), 85–111.

ties are associated with an event-type involving the object that has the disposition. This event-type is the *manifestation* of the disposition—shattering, burning, stretching, conducting, dissolving, evaporating, putting to sleep, poisoning and so on. An object can have a disposition prior to the occurrence of the manifestation. In fact, an object can have a disposition even if the manifestation of that disposition never occurs. A glass can remain fragile even if it never shatters, fuel can be inflammable even if it never burns, and so on. In addition to its manifestation, a disposition is associated with another event-type, the *circumstances of manifestation*. In the case of fragility, the circumstances of manifestation typically involve a striking of the fragile object. In the case of solubility, the circumstances of manifestation involve the submersion of the soluble object in a solvent.

An attribution of a disposition to an object licenses inferences about what will happen in various circumstances. According to Elizabeth Prior, “What is commonly accepted by *all* those who discuss dispositions is that there exists a conceptual connection between a statement attributing a disposition to an item and a particular conditional.”⁷ To say that disposition statements entail counterfactuals is perhaps too strong,⁸ but we can admit this much: if you know that something has a certain disposition, and that it will be subject to the circumstances of manifestation, you have some basis for predicting its behavior. For example, if you know that a sugar cube is water-soluble, and that it is about to be placed in a beaker of water at room temperature, you have good grounds for predicting that it will dissolve.

A *categorical* property, by contrast, need not be associated with a triggering event or a manifestation.⁹ As paradigm examples of categorical properties, philosophers often offer shape properties. To say something is square is not to say anything about what it would do in particular circumstances; squareness has no associated manifestation or triggering event.¹⁰ According to

⁷ Elizabeth Prior, *Dispositions* (New Jersey: Aberdeen University Press, 1985), 5.

⁸ C. B. Martin, “Dispositions and Conditionals” (*American Philosophical Quarterly*, 1994) among others, show that disposition statements do not entail certain simple counterfactuals. For example, if a fragile glass is protected by internal supports, “the glass is fragile” is true, but the counterfactual “If the glass were struck it would break” is false.

⁹ For present purposes, we need not suppose that this distinction among properties is exhaustive. For example, mathematical properties and some disjunctive properties (fragile or square) might be neither categorical nor dispositional.

¹⁰ Hugh Mellor argues that even shape properties are dispositions. For example, he says that triangularity is the property of being disposed to be counted as three-angled (“In Defense of Dispositions,” *Philosophical Review*, 83 (1974), 171). Similarly, Goodman says “a cubical object is one capable of fitting try squares and measuring instruments in certain ways. Indeed, almost every predicate commonly thought of as describing a lasting objective characteristic of a thing is as much a dispositional predicate as any other” (*Fact, Fiction, and Forecast*, 4th ed. (Cambridge, MA: Harvard University Press, 1983), 41). I am not going to discuss these claims here; I am just trying to explain the distinction between dispositional and categorical properties, without taking a stand as to which (if any) specific properties fall into each category. Nothing I say hangs on the correct way

a common view, categorical properties lack the special relation to counterfactuals had by dispositions. Prior says, “dispositional properties can be distinguished from categorical ones because dispositional ascription sentences possess a relationship to certain subjunctive conditionals not possessed by categorical ascription sentences.”¹¹ Along these lines, Stephen Yablo offers as an intuitive characterization, “a property is categorical just in case a thing’s having it is independent of what goes on in nonactual worlds.”¹²

I’m assuming that the dispositional/categorical distinction applies to properties, but some philosophers dispute this claim. Armstrong and Shoemaker, for example, both say that the distinction applies merely to predicates. Shoemaker says that what determines the identity of a property “is its potential for contributing to the causal powers of the things that have it.”¹³ One might want to describe his view by saying that all properties are dispositional, but Shoemaker resists this move. He says “I think that the term ‘dispositional’ is best employed as a predicate of predicates, not of properties.”¹⁴ Similarly, Armstrong claims that the dispositional/categorical distinction is a “verbal distinction that cuts no ontological ice.”¹⁵ Unlike Shoemaker, however, Armstrong thinks that all properties are categorical.¹⁶ He acknowledges that some states of objects are picked out by disposition terms, but claims that such terms simply provide us with a useful way of speaking of categorical properties.

Clearly, Armstrong thinks that the distinction between properties is coherent—he just thinks that one of the categories is empty, and so if a non-trivial distinction is wanted, then it must apply to predicates. And although Shoemaker wants to reserve ‘being dispositional’ as a predicate of predicates, he can agree with Armstrong that the distinction between properties makes sense—he just disagrees about which category is empty. These views differ from the extreme thesis that the distinction between dispositional properties and categorical properties is unintelligible, or that a purely linguistic distinction is being confused with a distinction between entities. For example, some property terms such as ‘yellow’ are polysyllabic, while others such as ‘red’ are monosyllabic. It would be a mistake to conclude that, because of this linguistic fact, there is an interesting metaphysical distinction between the properties to which these terms refer. There is widespread agreement, at least,

to characterize categorical properties, for my arguments here would be consistent with there being no categorical properties.

¹¹ *Dispositions*, 62.

¹² Stephen Yablo, “Identity, Essence, and Indiscernibility,” *The Journal of Philosophy* 84:6 (June 1987), 306. Yablo goes on to argue that this characterization is inadequate.

¹³ Sydney Shoemaker, “Causality and Properties,” in Peter van Inwagen, ed., *Time and Cause: Essays Presented to Richard Taylor* (Dordrecht: Reidel, 1980), 109-136.
¹⁴ *Ibid.*, 211.

¹⁵ *Belief, Truth and Knowledge*, 15.

¹⁶ Tim Crane, ed., *Dispositions: A Debate* (New York: Routledge, 1996), 16.

that the dispositional/categorical distinction is not like that. Consequently, my arguments proceed on the assumption that the issues are metaphysical, not merely linguistic.¹⁷

1.2 Causal Bases

When a sleeping pill puts someone to sleep, that event can be causally explained in terms of the chemical properties of the pill. When a fragile glass breaks, that event can be causally explained in terms of the microstructural properties of the glass. These chemical and microstructural properties are causally relevant to the associated manifestations.¹⁸ A property of a disposed object which can causally explain the manifestation of the disposition is called a *causal basis* of that disposition. A causal basis is a property of an object which is causally relevant to the manifestation of the disposition.

So, a causal basis is a causally relevant property, but what kind of property? There are three candidates. Either causal bases are always categorical, always dispositional, or they can be either categorical or dispositional.¹⁹ A causal basis for fragility might be a particular type of molecular bonding. Plausibly, to have a particular type of molecular bonding is to have a dispositional property. As Armstrong says, “To talk of molecular *bonding* is surely to talk again in terms of dispositions of bonded things.”²⁰ If a type of molecular bonding can serve as the basis of fragility, say, then there can be causal bases of dispositions that are themselves dispositions. I use the expression “causal basis” as neutral between dispositional bases and categorical bases, unless stated otherwise.

Note that a causal basis is not, conceptually or by definition, distinct from its associated disposition: if fragility turns out to be causally relevant to breaking, then fragility is its own causal basis. This will become important in the arguments that follow. One might balk at the idea of a causally rele-

¹⁷ Similarly, it might be said that the distinction between bare and non-bare dispositions applies only to predicates. One may claim that among the dispositional predicates, we can distinguish the bare-dispositional predicates, which imply no distinct causal basis, and the non-bare-dispositional predicates, which do imply a distinct causal basis. However, the prospect of locating the bare/non-bare distinction in our language does not look promising. Furthermore, all parties to the debate under consideration treat the bare/non-bare distinction as metaphysical, so I will set this possibility aside.

¹⁸ What is it for a property to be causally relevant? Intuitively, some properties exemplified in an event are relevant to what that event causes, and others are not. If a baseball is thrown at a window, the mass and velocity of the ball seem relevant to the window's breaking, while the color of the ball seems irrelevant. I use expressions “...is causally relevant to...” and “...causally explains...” interchangeably. For the purposes of this paper, I do not distinguish between “causal relevance” and “causal efficacy,” as Frank Jackson does (“Mental Properties, Essentialism and Causation,” *Proceedings of the Aristotelian Society*, 95, 253-268).

¹⁹ Although I am not assuming the dispositional/categorical distinction to be exhaustive, given the classes of properties under consideration, these are the three salient candidates.

²⁰ *Belief, Truth and Knowledge*, 13.

vant disposition; however, anyone who claims that dispositions can have dispositional causal bases is supposing that dispositions can be causally relevant. If a disposition can be the causal basis of a disposition, what is to preclude a disposition from being a causal basis of itself?

It might seem counter-intuitive to say that a disposition can be its own causal basis. However, I think this sense of counter-intuitiveness results from confusions that can be dispelled by getting clear on how these expressions are employed. To say that a disposition can be its own causal basis is not to say that a disposition causally explains itself, but only that it causally explains its manifestation. Furthermore, when one says “a disposition has a causal basis,” this does not, by itself, suggest that the disposition and the causal basis are distinct. A disposition and a causal basis are both *properties* instantiated by *objects*. It is the object with the disposition that *has* the causal basis, in the property-instantiation sense. To say that a disposition has a causal basis is not to say that one property instantiates another; rather, it is to say that an object with that disposition instantiates a property which is causally relevant to the manifestation of that disposition. Showing that a disposition has a causal basis does not by itself show that it has a *distinct* causal basis. If one object instantiates a dispositional property and a causally relevant property, for all that has been said, they might be one and the same property.

If some disposition is relevant to its manifestation, this by itself does not rule out some categorical property of the object also being relevant to the manifestation. We need not assume that a thing can only have one causal basis per disposition; perhaps many of an object’s properties are relevant to the manifestation of the disposition. Therefore, a disposition could be its own causal basis, and have a distinct causal basis as well.

1.3 Bare Dispositions

Equipped with this understanding of dispositions and causal bases, we are now better placed to understand the concept of a bare disposition. A *bare disposition* is a disposition that has no distinct causal basis, neither dispositional nor categorical. A disposition whose unique causal basis is itself would count as a bare disposition. If an object has a bare disposition, the object has no intrinsic properties which are both distinct from the disposition and causally relevant to its manifestation. One might say it is just a brute fact about the thing that it is so disposed. For example, suppose a glass were “barely fragile,” and it shattered. The only properties of the glass which could be causally relevant to the shattering are properties which are not distinct from fragility.

In saying that a bare disposition has no distinct causal basis, by ‘distinct’ I cannot mean merely non-identical—for then finding multiple causal bases

distinct from the disposition would be too easy, and my thesis would be trivially false. If *being fragile* is causally relevant to breaking, perhaps *being a fragile glass* is as well. If we treat *being fragile* as distinct from *being a fragile glass*, the glass's fragility could not be a bare disposition, simply because *being a fragile glass* would count as a distinct causal basis. So we need to understand 'distinctness' as something other than non-identity. Intuitively, we need a notion of two properties being separable or independent. I offer as a preliminary suggestion, if "x has property F" entails "x has property G," it follows that F and G are *not* distinct. So, *being a fragile glass* is not distinct from *being fragile*.

Before considering the arguments against bare dispositions, I want to clarify what I take bare dispositions to be by way of comparison to other views. I think that one cannot show that a disposition is not bare simply by showing that *some* property is causally relevant to the manifestation of the disposition. It may be that the disposition itself is causally relevant to the manifestation. If a disposition has no causal basis except for itself, it seems right to say that the disposition is bare. Hence, I define a bare disposition as a disposition that has no *distinct* causal basis.

Taking the above points into consideration, I think that my account fares better than competing accounts. Mark Johnston offers the following alternative definition of a bare disposition: If x has a bare disposition, "x would R in S under C and no intrinsic feature of x or of anything else is the cause of x's R-ing in S."²¹ I take Johnston to be saying that, if x has a bare disposition, x would exhibit the manifestation in the circumstances of manifestation, but no intrinsic feature of anything is causally relevant to the manifestation. It seems as though Johnston is committed to the view that if a barely fragile glass was shattered by a hammer, no intrinsic property of the hammer, for instance, is causally relevant to the shattering. More to the point, on Johnston's account, if bare fragility were an intrinsic property of the glass, it could not be causally relevant to the shattering. Johnston's definition significantly differs from mine in that it rules out bare dispositions that are both intrinsic and causally relevant to their manifestations.

With my account of bare dispositions in mind, we can now consider the question: are such things possible? In the rest of this paper, I will defend the claim that they are. One way of showing that bare dispositions are possible would be to produce an example. While fragility does not look like a good candidate for a bare disposition, perhaps some of the dispositions of fundamental particles are. Consider the property of being negatively charged, and the dispositions of negatively charged things, such as being disposed to repel other negatively charged things. Is there a possible world in which particles are negatively charged, but not thereby disposed to repel other negatively

²¹ Mark Johnston, "How to Speak of the Colors," *Philosophical Studies* 68 (1992): 234.

charged particles? If not, then the connection between being negatively charged and behaving in certain ways in certain circumstances is not accidental or contingent. This suggests that negative charge is itself a dispositional property (which is not distinct from the disposition to repel negatively charged particles). Furthermore, it seems probable that there is no structural, micro-physical property of an electron which accounts for its dispositions to repel and attract other particles—at any rate, current physics does not tell us otherwise. If this is right, then bare dispositions are more than some remote metaphysical possibility. Our best scientific theories posit properties which are bare dispositions. As Strawson points out:

It seems that our search for the properties of the categorical base must finally lead us to the undeniably theoretical properties which physics assigns to the ultimate constituents of matter—perhaps force, mass, impenetrability, electric charge. But these properties seem to be thoroughly dispositional in character...²²

Blackburn makes the stronger claim that “science finds only dispositional properties, all the way down.”²³ These considerations give us reason to think that bare dispositions aren’t merely possible, but are instantiated by the ultimate constituents of our actual world.

2. The Conceptual Argument

Some say that the very concept of a disposition precludes bare dispositions—that it is part of the concept of a disposition that it has a distinct causal basis.²⁴ For example, a disposition can be said to be:

a higher order property of having some distinct intrinsic properties which would cause the manifestation of the disposition in the circumstances of manifestation.²⁵

If this definition is correct, bare dispositions are ruled out *a priori*; it is an analytic truth that all dispositions have distinct causal bases.

However, the causal relations of an object seem far more central to disposition ascriptions than its intrinsic properties. Consider what we would say if we felt justified in making a certain disposition claim but could not find a distinct causal basis for that disposition. Suppose an object *x* reliably exhibits manifestation *M* under circumstances *C*, but we can find no property distinct from the disposition that is causally relevant to the manifestation. Per-

²² “Reply to Evans,” 280.

²³ “Filling in Space,” 255.

²⁴ Gareth Evans, “Things Without the Mind,” in Zak van Straaten, ed., *Philosophical Subjects* (Oxford Clarendon Press), 76-116; also Smith and Stoljar, “Global Response Dependence...” 88-90.

²⁵ Adapted from Johnston, “How to Speak of the Colors,” 234. Johnston does not endorse this analysis.

haps we would assume that there has to be a distinct causal basis, but we just haven't discovered it yet. But what would be our grounds for making that assumption? Suppose we were in a far superior epistemic situation; we have a (nearly) exhaustive list of *x*'s properties and their causal upshots. We are trying to decide whether to add disposition *D* to the list of *x*'s properties. We find no other properties that are causally relevant to *M*, and yet whenever *x* is in *C*, it exhibits *M*. What are we to say? If *x* will exhibit *M* whenever it is in *C*, it seems natural to say that *x* is disposed to exhibit *M* in *C*, and that it has a disposition to exhibit *M* in *C*. It would do more injustice to our linguistic practices to deny that the thing has the disposition than to say that it does, inexplicable as that may be.

One might think that the situation I have described is impossible; however, nothing in our language or our concepts tells us that. We can imagine making the discovery described above, so it is no part of the meaning of "disposition" or of disposition terms in general that there is a distinct causal basis. If the conceptual analysis were correct, we would have to say that the object in our example did not have the disposition that we thought it did. Even if the foes of bare dispositions were right to say this, though, I don't see how they would have achieved any more than a verbal victory. There is a substantive issue still left, concerning what types of properties objects can have. If what I'm calling "bare dispositions" shouldn't be called "dispositions" strictly speaking, they might nevertheless be possible.

3. The Non-Identity Thesis²⁶

In "Three Theses about Dispositions," Prior, Pargetter, and Jackson defend:

- (1) The Causal Thesis: All dispositions have causal bases;²⁷ and
- (2) The Non-Identity Thesis: Causal bases are not identical to their attendant dispositions.

These theses are meant to apply not only to actual dispositions, but to all possible dispositions. It follows that, necessarily, every disposition has a causal basis which is not identical to the disposition, and so bare dispositions

²⁶ Prior, Pargetter, and Jackson (hereafter jointly referred to as 'PPJ') call this thesis "The Distinctness Thesis." However, it is clear that by 'distinct', they mean non-identical. As I am using the expression 'distinct', two properties can be non-identical yet fail to be distinct if one entails the other. To avoid confusion, I translate PPJ's distinctness talk into non-identity talk.

²⁷ By "causal basis," PPJ mean "the property or property complex of the object that, together with ... the antecedent circumstances, is the causally operative sufficient condition for the manifestation" ("Three Theses...", 251). This is along the lines of my account of the causal basis as a property which is causally relevant to the manifestation. Discrepancies between these two accounts, if there are any, should make little difference to the discussion that follows, since I grant the Causal Thesis.

are impossible.²⁸ I am willing to grant the Causal Thesis for the sake of argument. This is no threat to the possibility of bare dispositions. The Causal Thesis still leaves open the possibility that the property which is causally relevant to the manifestation of a disposition is *the disposition itself*. Given that we have no reason to suppose *a priori* that the causal basis is not identical to the disposition, PPJ need to establish the Non-Identity Thesis to show that there can be no bare dispositions.

PPJ offer three main arguments for the Non-Identity Thesis that causal bases are not identical to their attendant dispositions: two arguments from multiple realizability, and one based on what PPJ call “swamping” the causal basis.

3.1 *The Arguments from Multiple Realizability*

PPJ begin by noting that a disposition can have different causal bases in different objects. They go on to say:

We cannot say both that being fragile = having molecular bonding α , and that being fragile = having crystalline structure β ; because by transitivity we would be led to the manifestly false conclusion that having molecular bonding α = having crystalline structure β .²⁹

PPJ are assuming that if one is going to identify a disposition with its causal basis in one case, one must do so in all cases. They go on to reason that since some dispositions can have several distinct causal bases, it is absurd to identify the dispositions with each of these causal bases.

However, if one considers the possibility of bare dispositions, PPJ’s assumption can be rejected. There is no reason to think that, if one is going to identify a disposition with its causal basis, one has to do so in all cases. One could identify a disposition with some causal bases, but not others. Suppose that a disposition like fragility could be bare in some instances, and yet have different causal bases in other instances. In such a case, fragility would be identical to the first causal basis, but not the second. We do not have to say that if a disposition is ever identical to its causal basis, then it has to be identical to all of its possible causal bases. PPJ show at most, that in some instances, a disposition is not identical to its causal basis. However, this does not preclude the possibility of a disposition being had barely in other instances.

²⁸ To be more precise, it would follow that there can be no dispositions which have no causal bases, nor any dispositions which are identical to their causal bases. However, PPJ’s arguments leave open the possibility that there can be dispositions which are neither identical to, nor distinct from, their causal bases. (I have in mind two different properties which are not distinct in the sense I explained earlier, because one entails the other.) These dispositions would count as bare dispositions on my view. However, I am interested in defending the claim that dispositions can be their own causal bases, so I take PPJ’s challenge seriously.

²⁹ “Three Theses...,” 253.

In their second argument, PPJ move from the existential claim that some causal bases are not identical to their attendant dispositions to the modal claim that no causal basis can be identical to its attendant disposition. Considering a disposition that has only one causal basis in this world, PPJ claim that:

if “fragility (being fragile) = having α (say)” is true, it is necessarily so, and if false, necessarily so (ignoring worlds where one or the other doesn’t exist, if there are any). But there are worlds where fragile objects do not have α , for it is contingent as to what the causal basis of a disposition is. Hence there are worlds where “fragility = having α ” is false for the decisive reason that the extensions of fragility and being α differ in that world; and therefore by rigidity it is false in all worlds, including the actual world.³⁰

This argument can be set out as follows. Let D be a disposition, and let P be a causal basis of D, leaving it open whether P is identical to D.

- (1) It is contingent that P is the causal basis of D.
- (2) Therefore, there is a world in which there is an object x such that:
x has D and x does not have P.
- (3) Therefore, there is a world with respect to which
“having D = having P” is false.
- (4) If “having D = having P” is true, it is necessarily true.
- (5) Therefore, D is not identical to P.

The bare dispositionalist can grant (1). However, (2) does not follow. What follows from (1) is that there are worlds in which an object x has disposition D, and P is not a causal basis of D. But that is consistent with x’s *having* P. (1) by itself gives us no reason to suppose that there is *any* world in which some object has D but not P—unless of course, we are supposing that P and D are different properties, which would beg the question.

Consider the argument as applied to a particular example. Suppose that having negative charge is a dispositional property. Further, suppose that negative charge is its own causal basis. Conceding PPJ’s points, if “negative charge = negative charge” is true, it is necessarily true, and it is contingent that the causal basis of negative charge is negative charge. Even if negative charge is its own causal basis, it could have had a different causal basis; there is a possible world in which objects are negatively charged, say, because of some complex structural property. In that world, the structural property is the only property which is relevant to the manifestation of negative charge. So there is a world in which negative charge is not its own causal basis. How-

³⁰ *Ibid.*, 254.

ever, that is not a world in which some object has negative charge, and yet does not have negative charge.

I think that the initial plausibility of PPJ's argument trades on the ambiguity of the contested claim:

"D = D's causal basis" is necessarily true.

Depending on whether "D's causal basis" is taken to refer rigidly, the contested claim can mean:

- (1) Necessarily, D = property P (which happens to be D's causal basis).

Or it could mean:

- (2) Necessarily, D = any property which fulfills the role of being D's causal basis.

The bare dispositionalist can accept (1) while denying (2), and it is only (2) which is subject to the difficulties PPJ raise. I conclude that the arguments from multiple realizability do not show that a disposition cannot be its own causal basis.

3.2 *Swamping the Disposition*

PPJ's third argument for the Non-Identity Thesis runs as follows. Even if property P were the only causal basis of some disposition D, a particular object x may have P, but x may have other properties that "swamp" P so that x does not have D. In that case, x would have P without having D. Therefore, $P \neq D$. As PPJ put it:

there is the difficulty that even if there is only one causal basis of fragility, say, bonding α , it may happen that although all fragile objects have α , some objects that have α are not fragile. This would be the case if there were an internal structural property S which swamped the effect of having α .³¹

First of all, it is not clear why this is not just a case of masking.³² The fragility of a glass is *masked* when the glass is equipped with internal supports that prevent it from breaking. The causal basis is overwhelmed, such that it will not produce breaking, even when the glass is struck. However, in the case of masking, intuitively, the glass still remains fragile. Therefore, this is not a case where you have the causal basis but not the disposition, and so it is not a counterexample to the claim that the disposition is identical to the causal basis.

³¹ *Ibid.*, 253.

³² As discussed in Johnston, "How to Speak of the Colors."

But perhaps PPJ take themselves to have described a situation in which an object has the base property α , but fails to have the disposition, fragility. That would be to say, the property α is not a property of the object that, together with the circumstances, would be a causally operative *sufficient* condition for breaking. But *that* is to say that property α is not the causal basis of fragility. PPJ *define* “causal basis” as the property of an object that, together with the circumstances, would be the causally operative sufficient condition for the manifestation of the disposition.³³ So, if an object could have some property without having a given disposition, then that property cannot be the causal basis of that disposition. In the scenario described above, the causal basis of fragility has just been misidentified.

As applied to a bare disposition, PPJ’s suggestion amounts to the claim that an object x can have a disposition D , but simultaneously x can have some other properties that stop x from having D . I don’t know how to make sense of this suggestion. Say you have some object x that is “barely fragile.” You change x ’s properties by adding some fortifying stuff to it, so that it becomes nonfragile. It is not as if, after it has become tough as nails, x has the bare fragility lingering inside of it. If the fragility gets “swamped,” then the disposition *and* the causal basis go away. If a disposition is its causal basis, you’re never going to be able to lose the disposition and keep the causal basis.

3.3 Concluding Remarks about The Non-Identity Thesis

PPJ’s arguments don’t rule out the possibility of bare dispositions. Perhaps this is because PPJ’s target is not a bare-dispositionalist, but rather an identity theorist like Armstrong who argues that two properties which appear distinct are in fact one and the same. While PPJ define ‘causal basis’ without appealing to non-dispositional, categorical, or micro-structural properties, their arguments for the Non-Identity Thesis assume that we can distinguish in some way (descriptively or conceptually, perhaps) between a disposition and its causal basis. However, if we are considering a disposition which is its own causal basis, we can make no such distinction. A causal basis is simply the object’s causal contribution to the manifestation. PPJ’s arguments for the Non-Identity Thesis do not rule out the possibility that what it is about the object that causally contributes to the manifestation is just a bare disposition.³⁴

³³ “Three Theses...,” 251.

³⁴ One might think that this possibility is ruled out by the third of the “Three Theses about Dispositions,” The Impotence Thesis, according to which dispositions are not causally relevant. However, the arguments for this third thesis rely on the first two. So, unless we have independent reasons for thinking that dispositions are causally irrelevant, PPJ’s arguments should not convince us that there can be no bare dispositions.

4. Bare Counterfactuals

Disposition claims bear some important relation to counterfactuals. When something has a disposition, a certain counterfactual is true of that thing. Suppose that I have on my table a normal, water-soluble sugar cube and a cup of ordinary tap water, at room temperature. The prevailing circumstances (atmospheric pressure, laws of nature, etc.) are as one would expect. Barring inductive skepticism, it is safe to say that if I put this sugar cube in this cup of water, it would dissolve. In possible worlds talk, in the closest possible world in which I put the sugar cube into the water, the sugar cube dissolves.

The observation that dispositions are connected with counterfactuals in this way is supposed to cause trouble for bare dispositions for the following reasons. It is reasonable to suppose that true counterfactuals are true because of facts about the actual world. Given the circumstances described above, the following counterfactual is true: If the sugar cube were placed in water, it would dissolve. But given that I haven't actually placed the sugar cube in the water, the submersion of the cube and the dissolving of the cube are no part of the actual world. What makes the counterfactual true? A plausible answer is that it is something about the sugar cube's properties. The sugar cube is composed of glucose molecules, connected by weak ionic bonds which break when confronted with the bipolarity of H_2O molecules, and so on.

But what if the disposition is bare? If solubility has no distinct causal basis, there are no distinct properties of the sugar cube which are causally relevant to its dissolving. A bare disposition is like an inexplicable causal power. It seems as if the only reason for saying that the object has the bare disposition involves non-actual circumstances and events. Is there anything about the actual world that makes the counterfactual true? If not, bare dispositions would seem to run afoul of what C. B. Martin, Armstrong, and others have called the "Truth Maker Principle." Armstrong says "It seems obvious that for every true contingent proposition there must be something in the world (in the largest sense of 'something') which makes the proposition true."³⁵

However, unless more is said about what can and what cannot count as something in the world (in the largest sense of 'something') this principle seems vacuous. The bare dispositionalist can say that the fact that something has a disposition is something in the world. She can say that the counterfactual "if the sugar cube were placed in water, it would dissolve" is made true by the sugar cube's being water-soluble. Left at this intuitive and abstract level, the argument from Truth Makers does not count against the bare dispositions thesis. Michael Smith and Daniel Stoljar offer an argument that sharpens the point suggested by the Truth Maker Principle. However, this

³⁵ *Belief, Truth and Knowledge*, 11. See also *Dispositions: A Debate*, 15.

argument offers an opportunity for the bare dispositionalist to sharpen her reply as well.

4.1 Smith and Stoljar's Argument

Smith and Stoljar begin by noting that some disposition claims are contingent; an object with a certain disposition might have lacked it. That is, there is a possible world in which that object exists but lacks the disposition. Suppose that:

- (1) x is disposed to exhibit manifestation M in circumstances C .

They give the following semantic analysis of (1):

- (2) " x is disposed to exhibit M in C " is true iff in the closest x -in- C world, x exhibits M in C .

Given the disquotational schema:

- (3) " x is disposed to exhibit M in C " is true iff x is disposed to exhibit M in C ,

and from the supposition that (1) is true, they derive:

- (4) In the closest x -in- C world, x exhibits M in C .³⁶

Smith and Stoljar say that if x 's disposition is a bare disposition, then (1) is not only contingent, but "barely true." That is to say:

If (1) is true of the actual world, say, then there is no further fact about the actual world that makes it true. If someone were to ask 'What about the actual world makes (1) true?', the only thing to say is that x is disposed to verb in C .³⁷

(4) is derived from (1) via the *a priori* premises (2) and (3). Smith and Stoljar claim that this shows that if (1) is contingent and barely true, then (4) must be contingent and barely true as well. But what, they ask, does it mean to say that (4) is barely true? Consider the worlds @, w_1 , and w_2 .

@: x is not in C , and x does not exhibit M .

w_1 : x is in C , and x exhibits M .

w_2 : x is in C , and x does not exhibit M .

³⁶ "Global Response Dependence...", 98.

³⁷ *Ibid.*, 91.

According to (4), @ is more similar to w_1 than it is to w_2 . But if (4) is barely true, there are no intrinsic features of @, w_1 , and w_2 that make it the case that @ is more similar to w_1 than it is to w_2 . What this does, according to Smith and Stoljar, is to treat similarity as an extrinsic rather than an intrinsic relation. There is no intrinsic property of @ in virtue of which it is more similar to w_1 than it is to w_2 . If bare dispositionalism were true, the relationship between @ and w_1 would be one of “bare similarity.” Smith and Stoljar deny that there is any such external relation of bare similarity. Similarity, they claim “is an *internal relation par excellence*.”³⁸ They go on to say:

We ourselves are not sure that *any* external relation between possible worlds that the friends of the Bare Dispositions Theory succeed in characterizing should count as a relationship of *similarity*.³⁹

The general point can be characterized as follows. If dispositions can be bare, then there can be counterfactuals that are barely true. If an object had a bare disposition, a certain counterfactual statement would be true, but that statement would not be reducible to or explainable by any categorical facts. If you are going to analyze counterfactuals in terms of similarity to other possible worlds, then you are going to have to say that similarity between possible worlds is not always determined by intrinsic, categorical properties of worlds, and that seems like an odd thing to say.

4.2 The Bare Dispositionalist Response

There are basically two ways to respond to Smith and Stoljar’s argument. One is to deny that the bare dispositionalist is committed to the bare truth of (4), “In the closest x-in-C world, x exhibits M in C.” I gave an account of what it means to say a disposition is *bare*. A bare disposition is a disposition with no distinct causal basis. There is no obvious route from there to understanding what it means to say that a statement is *barely true*. As we have seen, Smith and Stoljar elaborate on the claim that (1), “x is disposed to exhibit M in C,” is barely true as follows:

If (1) is true of the actual world, say, then there is no further fact about the actual world that makes it true. If someone were to ask ‘What about the actual world makes (1) true?’, the only thing to say is that x is disposed to verb in C.⁴⁰

It is not obvious that that is the only thing to say. The question is ambiguous. It could mean: “why should we expect x to manifest the disposition?” There might be a number of ways to respond to such a question. Consider the “barely” soluble sugar cube. What about the world makes it true that this

³⁸ *Ibid.*, 97.

³⁹ *Ibid.*, 99.

⁴⁰ *Ibid.*, 91.

sugar cube is disposed to dissolve if I put it in this cup of water? Well, for one, the sugar cube is not encased in some waterproof coating. For another thing, the water is not frozen, but is at 72 degrees. On another reading, the question could be asking: "what brought it about that x has this disposition?" There might be all manner of things to say about how and why the sugar cube acquired its bare disposition. Perhaps God endowed the sugar cube with this bare disposition. Or, the question might mean: "in virtue of which underlying properties does x have the disposition?" However, if we are supposing that x has a *bare* disposition, this question has a false presupposition. Since it is not clear which of these questions is being asked when we say "What about the actual world makes (1) true?", it is not clear that if something has a bare disposition, any sentence saying so is a sentence which is barely true.

Moreover, even if we grant that "x is disposed to exhibit M in C" is barely true, it does not follow that (4) is barely true as well. Smith and Stoljar's semantic analysis of the disposition claim is a conjunction of two separable analyses, a counterfactual analysis of dispositions, and a possible worlds semantics for counterfactual statements. Smith and Stoljar's argument relies upon the *a priori* truth of the counterfactual analysis of dispositions. That is, it relies on (2) "'x is disposed to exhibit M in C' is true iff in the closest x-in-C worlds, x exhibits M in C" being an *a priori* truth.⁴¹ The bare dispositionalist is not forced to accept this analysis. There are notorious problems for giving a satisfactory counterfactual analysis of dispositions.⁴² A weaker, intuitively plausible claim is that if something has a disposition, other things being equal, a certain counterfactual is true of that thing. But that is not to say that disposition statements are *a priori* equivalent to counterfactuals. Smith and Stoljar need (2) to be *a priori* in order for (4) to follow *a priori* from (1).

Finally, even if we grant that (4) follows *a priori* from (1), it is not obvious that (1)'s being barely true entails that (4) is barely true as well. It is not clear that bare truth transmits over *a priori* entailment. To take an example from Gareth Evans, if we give the name 'Neptune' to whatever causes the perturbations in the orbit of Uranus, then "Neptune is Neptune" *a priori* entails "Neptune causes the perturbations in the orbit of Uranus."⁴³ Plausibly, "Neptune is Neptune" is barely true. However, it is not plausible that "Neptune causes the perturbations in the orbit of Uranus" is barely true, for there are many facts about our solar system and the laws which govern it that make the second sentence true.

⁴¹ *Ibid.*, 98.

⁴² David Lewis, "Finkish Dispositions," *The Philosophical Quarterly* 47 (1997): 143-158; Martin and Johnston, *op. cit.*

⁴³ Evans, "Reference and Contingency," in *Collected Papers* (Oxford: Clarendon Press, 1985), 192.

4.3 Biting the Bullet

We have looked at ways in which the bare dispositionalist could resist having to say that (4) is barely true. Now let's look at how the bare dispositionalist could respond if she *accepts* that (4) is barely true. She could admit that barely true counterfactuals and extrinsic similarities among possible worlds are consequences of allowing bare dispositions into her ontology. More generally, she would be allowing for irreducible modal properties. By "modal properties" I mean things like 'being possible', 'being necessary', 'being a cause' and a host of interrelated properties, which includes 'having a disposition', and 'having a counterfactual true of you'. To say there can be bare dispositions is to say that a thing can have a modal property irrespective of its other properties. Broadening the picture, that would be to say that a modal property of some world does not depend on any other features intrinsic to that world. To insist that having a modal property in a world must be based on some non-modal properties of that world is to beg the question against the bare-dispositionalist. Similarly for Smith and Stoljar's claim that:

if one possible world is similar to another, this must be explained by the intrinsic features of the possible worlds in question.... But to say that similarity must be explained in terms of intrinsic features of possible worlds is to insist that it be explained... in terms of the non-dispositional properties...⁴⁴

That is just another way of saying that the modal needs grounding in the non-modal—the dispositional needs grounding in the non-dispositional. If my hypothesis can be put "there can be a modal property that is not grounded in non-modal properties," then this has been denied without argument.

One consideration that Smith and Stoljar raise is that barely true counterfactuals run afoul of the principle that similarity is an internal relation. I'll grant for the sake of argument that modal properties are relational properties—they depend on which possible worlds are nearby. However, intuitively, it is not at all clear why similarity must be similarity of intrinsic properties. Two things can be similar in their relational properties. I'm similar to Ned in that we are both within a mile of Boston, and that we are both shorter than Alex. Do Smith and Stoljar mean to be denying such claims when they say that similarity is "an internal relation *par excellence*"? If people can be similar with respect to their relational properties, then why not worlds? There doesn't seem to be anything wrong in principle with talking about worlds being similar to one another with respect to their relations to other worlds. For example, some worlds can be similar to one another in that they are more similar to the actual world than to some far off world.

With this in mind, let's reconsider the possible worlds Smith and Stoljar described.

⁴⁴ "Global Response Dependence....," 96.

@: x is not in C , and x does not exhibit M .

w_1 : x is in C , and x exhibits M .

w_2 : x is in C , and x does not exhibit M .

The challenge posed to the bare dispositionalist is to say why @ is more similar to w_1 than it is to w_2 . Granted, she can't say that they are similar with respect to their intrinsic, categorical properties. But she can say that @ and w_1 are similar in that they are both more similar to other x -Ming-in- C worlds than they are to x -not-Ming-in- C worlds. Similarly (or perhaps equivalently), she can say that in @ and w_1 , the counterfactual statement "If x were in C , x would exhibit M " is true. She can say that @ and w_1 are similar in that, in both worlds, x has the disposition to exhibit M in C .

4.4 "Bare Truth" Revisited

Perhaps Smith and Stoljar's arguments suffer from a less than clear characterization of what it means to say that a statement is barely true. Michael Dummett gives an alternative account of bare truth in terms of reducibility: "A statement is barely true if it is true, but there is no class of statements not containing it or a trivial variant of it to which any class containing it can be reduced."⁴⁵ So, if a statement is barely true, on this view, it can only be "reduced" to itself, or a trivial variant. The suggestion is that while ordinary disposition statements can be given such a reduction, bare disposition statements cannot. Ordinary (non-bare) disposition statements could be reduced to statements about causal bases, or they could be translated into counterfactual statements and then cashed out in terms of a less problematic notion, resemblance—that is, resemblance among categorical properties of possible worlds.⁴⁶ The reductionist program of translating all statements into statements about categorical or non-modal properties cannot allow for barely true modal claims.

Two questions arise with respect to this conception of bare truth as irreducibility. First, are bare disposition statements irreducible in this sense? Plausibly, the answer is yes. Second, is this a problem? Well, it is not clear that it is. If bare disposition statements are irreducible, arguably, they are in good company. If we are to reduce all statements containing problematic

⁴⁵ "What is a Theory of Meaning II", in Evans and McDowell, *Truth and Meaning* (Oxford: Clarendon Press, 1976), 94. He says that it comes to the same thing as holding "that we cannot expect a non-trivial answer to the question 'In virtue of what is a statement...true when it is true?'" (94). Robert Stalnaker points out in *Inquiry* (Cambridge, MA: MIT Press, 1987) that these do not come to the same thing, you might not be able to reduce a statement, and yet there might be some non-trivial answer to the question 'in virtue of what is the statement true?'

⁴⁶ This is how Stalnaker characterizes Lewis' view (*Inquiry*, 155-160).

modal notions such as dispositions, causes, and laws, we need some set of non-modal facts to reduce them to. Unless we can specify a set of facts that will do the job, reductionism is at best a promissory note. As Stalnaker points out:

a reductionist program presupposes that the causal dependencies between events and the causal powers of things in a possible world derive from *relational* properties of the possible world, properties defined in terms of the way the possible world resembles other possible worlds.... the project requires isolation of a level of pure categorical particular fact relative to which possible worlds are compared.⁴⁷

The familiar form of reduction of macro-properties to microphysical properties, which is itself a promissory note, would be inadequate to the task of reducing all modal notions. This is because, as I suggested earlier, contemporary scientific characterization of the ultimate constituents of matter is rife with causal and dispositional notions. If we reject the assumption that we are required to give a reductive analysis of modal statements in terms of non-modal statements, the argument against bare dispositions looks considerably weaker. The bullet-biting response to Smith and Stoljar's argument rejects this demand outright.

In sum, it is not clear that the existence of bare dispositions would lead to barely true counterfactuals. And furthermore, even if it did, maybe that is something a bare dispositionalist could happily live with.

5. Conclusion

I have considered several arguments against the possibility of bare dispositions: the Conceptual Argument; Prior, Pargetter, and Jackson's multiple realizability and swamping arguments for the Non-Identity Thesis; the argument from the Truth Maker Principle; and Smith and Stoljar's Bare Counterfactuals argument. I have explained why I think these arguments do not work.

There are basically two ways of showing that something is possible. One is to show that it is actual. I have suggested that fundamental properties such as charge are examples of bare dispositions. The plausibility of this claim goes towards showing that bare dispositions are possible. Of course, these examples are debatable. It is an empirical question whether, for example, the disposition to repel negatively charged particles has a distinct causal basis. However, if one grants that it is an empirical question, one has granted my thesis that bare dispositions are *possible*. For all we know, electrons may have bare dispositions, and even if they don't, they might have.

Another way of showing that something is possible is by showing that it fits into a coherent metaphysical view. We can give a full description of it, which, as far as we can tell, entails no contradiction. We can show that the

⁴⁷ *Ibid.*, 157.

existence of such a thing is not incompatible with other things we believe to be true. We can dispel confusions and faulty arguments which may lead one to think that such a thing is impossible. My remarks in this paper were largely of this type. Of course, I have not shown that no arguments against bare dispositions can succeed. However, my arguments have undermined the most common reasons for supposing that there are no bare dispositions.