What is a Disposition?

Amir Ehsan Karbasizadeh[*]

Abstract

Attempts to capture the distinction between categorical and dispositional states in terms of more primitive modal notions – subjunctive conditionals, causal roles, or combinatorial principles – are bound to fail. Such failure is ensured by a deep symmetry in the ways dispositional and categorical states alike carry modal import. But the categorical/dispositional distinction should not be abandoned; it underpins important metaphysical disputes. Rather, it should be taken as a primitive, after which the doomed attempts at reductive explanation can be transformed into circular but interesting accounts.

Keywords: *disposition, dispositional properties, categorical properties, subjunctive conditionals, counter factual.*

***

Introduction

We have an intuitive feel for the distinction between dispositional and non-dispositional (or categorical) states, as reflected in our natural classification of fragility, flammability and solubility as dispositions, as opposed to, say, triangularity, which is pretty clearly *not* a disposition.[1] I have a healthy respect for this "intuitive feel" and our apparent agreement on how to classify certain central cases. Such an ordinary

---

*. Assistant Professor, Iranian Institute of Philosophy, Tehran, Iran.
amir_kalbasi@yahoo.com

distinction does not, I think, require any vindication by a philosopher's reductive analysis.

Of course, I would welcome some such analysis if one could be found. Philosophers say some very strange and conflicting things about dispositions, after all, and an analysis might aid our understanding of what they are saying and our ability to evaluate it. In the analytic tradition, dispositions have often been viewed with suspicion and much energy has been spent in an attempt to excise them from fundamental ontology.[2] But the philosophical community is no longer univocal on this point. Sydney Shoemaker, Chris Swoyer, and others have advocated a view that may be characterized as doing away with *everything but* dispositions, at least at the fundamental level.[3] Brian Ellis and Catherine Lierse, in a compromise, acknowledge both kinds of states (Ellis & Lierse, 1994, pp.27-44). More unsettling, however, is the suggestion by C. B. Martin and John Heil that every state is *both* dispositional and categorical, that the very idea of the *purely* dispositional (or the *purely* categorical) is an abstraction, something not to be found in any real state.[4] Karl Popper suggests, along similar lines, that the distinction is one of degree, not of kind (Popper, 1992). Finally, D. H. Mellor has recently said that states (or properties) are *neither* dispositional nor categorical, that the distinction applies only to predicates (Mellor, 2000, pp. 757-780).

A widely accepted reductive analysis of the dispositional/categorical distinction would be helpful in settling or at least sorting out these debates, but unfortunately no such analysis exists. Instead, several technical notions, sometimes explicit but often tacit, are in play, along with our naïve classificatory intuitions. Some of these technical definitions of "dispositional" and "categorical" make it fairly uncontroversial that all properties are exclusively dispositional, others make it uncontroversial that all properties are exclusively categorical, still others that all properties are both dispositional and categorical or that all properties are neither. I will set out some of these technical definitions and mark their consequences, arguing that none of them captures our original classificatory intuitions and provides an adequate basis for meaningful debate. In addition to this exercise in ground clearing, I want to suggest that there remains a philosophically useful distinction between dispositional and categorical properties, one that does not obviously rule all properties dispositional, or all categorical, or all both or all neither. The distinction I invoke grounds substantive and interesting metaphysical disputes, but is conceptually irreducible; it has no reductive

analysis. Instead of an analysis, I offer illuminating but non-reductive sufficient conditions for being a dispositional property and illuminating non-reductive necessary conditions for being a categorical property.

1. Modal Accounts

The traditional mark of a disposition is its intimate relation to subjunctive conditionals: a fragile object would break if dropped, a soluble object would dissolve if immersed in water, a flexible object would bend if put under pressure. More precisely, it is thought that *having* a disposition *entails* some non-trivial subjunctive conditional. If an object has a disposition (e.g., fragility) then there are some activation conditions (jarring) such that if the object *were* in those conditions, some further condition manifesting the disposition (breaking) *would* obtain. It's important to note that neither the activation conditions nor the manifestation conditions need ever actually occur in order for an object to have the disposition in question, and this lends dispositions their "suspicious" quality, for they seem to be inherently modal; they are by nature *about* the merely possible. By contrast, categorical property ascriptions are *not* supposed to be modal; they're not supposed to bear any special relation to subjunctive conditionals. To attribute a categorical property like shape to an object is to say nothing about how it *would* behave under such-and-such circumstances, but merely something about how it *actually* is.

I have used subjunctive conditionals to draw the distinction, but related modal notions could do very nearly the same work. For instance, dispositional properties may be defined as those that play their causal roles essentially, i.e., those that have a causal or functional essence. Categorical properties, on the other hand, may be defined as those that play different causal roles in different possible worlds, depending on the laws of nature (or, alternatively, what dispositions are common in the environment). In other words, nothing in the nature of a categorical property ties it down to a particular causal role.

Likewise, we could appeal to a principle of unrestricted recombination to mark the divide. Categorical properties are those that freely recombine, that place no constraints on the possible surrounds of their bearers.[5] Dispositions violate the principle, which is why they are "unHumean". If an object instantiates the unconditional disposition D, to E in C, then if D is instantiated in C circumstances, E is necessarily brought about. It may be easiest to think in terms of "cutting-and-

33

pasting." You cannot cut out a D&C bit of the world and a non-E bit of the world and paste the D&C bit immediately prior to the non-E bit and thereby generate a possibility. That would violate D's essential nature, which requires the manifestation conditions to follow. Dispositions thus constrain possibilities in a way that categorical properties do not.

What these three "modal" accounts have in common is the characterization of the dispositional as peculiarly "outward-directed" and the categorical as purely "inward". The dimension of "outward" here is *modal*; what is "out there" is the merely possible and what is "in here" is the actual. Disposition possession entails non-trivial subjunctive conditionals, dispositions have causal/functional essences, and dispositions constrain possibilities, that is, they violate an unrestricted principle of recombination. Categorical property possession entails no non-trivial subjunctive conditionals, categorical properties do not have causal/functional essences, and categorical properties place no constraints on recombination.

2. Two Challenges to Modal Accounts

I have gestured at three accounts of the distinction, all of which promise to capture the intuitive difference between dispositional and categorical properties and to cash the "outward/inward" metaphor in modal terms. Do the accounts succeed in capturing our intuitive judgments? Well, the subjunctive conditional story, and by extension, the other two accounts, face two separate challenges, coming from opposite directions. First, C. B. Martin's cases of so-called 'finkish' dispositions have convinced much that disposition possession does not entail subjunctive conditionals (Martin, 1994, pp.1-8). The basic thought, and there are variations on the theme, is that the activation conditions for a disposition may cause the loss of that disposition. Thus, while it may be true that the object has a certain disposition, it may also be false that if it were in the disposition's characteristic activation conditions, it would manifest itself. Martin imagines a live wire paired with an electro-fink device, which immediately cuts the current if anything touches the wire. The wire is live, but if touched, it would no longer be live, and thus, would not conduct electricity to the object touching it.

The second line of criticism holds that true attributions of paradigmatically *categorical* properties entail non-trivial subjunctive conditionals. Mellor's example is triangularity, which seems to be

categorical if anything is.[6] Necessarily, if an object is triangular, then the following subjunctive conditional is true: if its corners were (properly) counted, the result would be three. And Mellor says what he means by counting properly. It is not merely a matter of attempting to count nor of taking oneself to count. Rather, proper counting consists of putting the corners into one-to-one correspondence with the initial segment of the number line. Thus, it should be uncontroversial that if the corners of a triangle were properly counted, the result would be three.

It would be very odd indeed if *both* Martin and Mellor's criticisms of the subjunctive conditionals account were correct, for then our initial attempt at characterizing the distinction would prove precisely backwards: true attributions of paradigmatically categorical properties, but *not* dispositional properties, would entail subjunctive conditionals. That's *clearly* wrong, so everyone should reject at least one of the criticisms. My own view is that in the end, Martin's criticism fails and Mellor's succeeds. Against Martin, consider that attributions of dispositional properties typically presuppose background conditions. Every object would dissolve under high enough pressure and would shatter if jarred at low enough temperature, so ordinary attributions of solubility, fragility and the like must presuppose certain conditions to be informative (Prior, 1985). Because the background conditions presupposed vary from context to context, ordinary disposition terms like "fragility" do not name a single property, any more than terms like "large," "empty," "flat" or "tall". Rather, they take different properties as semantic values on different occasions of use.[7] For example, an engineer designing a space station might truly say that a certain kind of plastic goggles are fragile, while an OSHA inspector touring a manufacturing plant may truly say that the same goggles are not fragile, but in fact, shatterproof. The ascribes in these two cases have different background conditions in mind and thus do not differ about whether the goggles have some given property. They're talking about different properties.

My contention: in finkish cases, what happens is that one makes a true disposition ascription, the activation conditions obtain, but the background conditions presupposed in the context are violated; something interferes, an electro-fink device, for instance, and no manifestation results. This poses no problem for the conditional account of dispositional properties, but simply reveals the contextual nature of familiar dispositional predicates.[8] Nor is it troubling that we cannot specify (in a non-circular way) which background conditions are

presupposed in a given context. That is the very nature of contextual presupposition and what makes it so useful. If we had always to be able to specify our presupposed background conditions exhaustively and in non-circular terms, ordinary communication would be impossible.

This is by no means a novel proposal. The general idea goes back at least as far as Gilbert Ryle's *The Concept of Mind*. Knowing French, he says, is a disposition to respond pertinently in French if addressed in French, but we should not expect such answers if the subject is asleep, absent-minded, drunk or in a panic (Ryle, 1949). The expression, "knows French" is vague, says Ryle, "and, for most purposes, none the less useful for being vague" (Ibid). Elizabeth Prior, too, clearly saw the need to restrict the conditions under which a disposition was supposed to manifest itself, and more recently, Stephen Mumford appeals to 'ideal conditions' that are determined, in part, by the context of attribution (Mumford, 1998; Prior, 1985). The 'contextualist' answer to finkishness seems so obvious—it may even have been tacitly *assumed* by historical advocates of a conditional approach—that it remains something of a mystery why Martin's finkish cases were widely credited with success. Perhaps the fact that the presupposed background conditions were in principle unspecifiable disqualified subjunctive conditionals for the purpose of reductively analyzing dispositions.[9] Perhaps it is part of the very notion of successful reductive analysis that no open-ended reference to presupposed conditions is permitted. But that is quite irrelevant to the question of whether the possession of dispositional properties *entails* subjunctive conditionals, which is not a matter of reductive analysis of each dispositional property, but rather, of the distinction between dispositional and categorical properties.[10]

2.1 Mellor's Attack: Everything Entails Subjunctive Conditionals

Let us return to Mellor's example of triangularity, which I find more troubling for the subjunctive conditionals account. The point is that possessing the property of triangularity entails a subjunctive conditional: if the corners were properly counted, the result would be three. Elizabeth Prior's initial response is that given different laws of nature, counting the corners of a triangle may result in some number other than three (Prior, 1985). That response fails; however, given Mellor's definition of *proper* counting, for whatever the laws of nature, if some number other than three is reached, the corners were *not* put into one-to-one correspondence with the initial segment of the number line after all, and thus were not *properly* counted (Mellor, 1982). Prior also considers

the possibility that proper counting means getting the number of corners *right*, but argues that it must then be asked whether the right number is the *actual* number of corners or the *counterfactual* number of corners (in the nearest world in which the triangle is counted). For if it's the *counterfactual* number, then the entailment fails. Counting corners may in some possible worlds change triangles into squares. Thus, if a triangle's corners were counted, the result would be four. But if it's the *actual* number of corners that matters, we still have a distinguishing mark of dispositions, since the conditionals entailed by disposition ascriptions make no reference to *actual* properties in their antecedents (Prior, 1985).

I think this reply fails as well. Suppose "counting correctly" refers to getting the *counterfactual* number of corners right. This suggestion is supposed to falter on the possibility of a world where the act of counting changes the number of corners, so a triangle in that world would be such that were its corners properly counted, the result would be four. But the example makes no use of the distinction between the actual number and the counterfactual number of corners. Rather, it turns on our failure to say what is being counted, which is, strictly speaking, not the number of corners of an object, but the number of corners at some particular time. We can stipulate that if an object x has n corners at time t, then to properly count the *corners-of-x-at-t* over some duration t^+ through t^{++}, one must arrive at the answer, n, regardless of the number of corners of x at t^{++}. In a world where attempts at counting change the number of corners, proper counting may be difficult or even nomically impossible. But that is no counterexample to the subjunctive conditionals account. It would still be true that *were* the *corners-at-t* of a *triangle-at-t* properly counted, the resulting number would be three.[11]

Stephen Mumford does not deny the entailment, but denies it is of the right kind.[12] The entailment of subjunctive conditionals by disposition ascriptions is *conceptual*, whereas knowledge of the entailment of subjunctive conditionals by categorical property ascriptions is not a matter of linguistic competence, but rather *a posteriori* investigation of the laws of nature (Mumford, 1998; 1999, pp. 215-225). Note first of all that to take Mumford's solution is to abandon the categorical-dispositional distinction as it applies to *properties* and preserve it only for *predicates* or *concepts*, because different attributions of the same property may differ with respect to their conceptual entailments. For example, if Bob's favorite property is fragility, then "x has *Bob's (actually) favorite property*" attributes exactly the same property as "x has *fragility*" but the first attribution does not *conceptually* entail anything about what x would do if

dropped, while the second does.

More importantly, Mellor's case *does* give us an a priori entailment. It is not by a posteriori investigation of the laws of nature that we come to know that putting the corners of a triangle into one-to-one correspondence with the initial segment of the number line yields the number three. It's a simple matter of a priori reflection. So it seems even at the level of *predicates*, we cannot rely on subjunctive conditionals to distinguish the dispositional from the categorical.

2.1.1 Generalizing the Symmetry Problem for Modal Accounts

There are further responses to Mellor's case, but before discussing them, let's generalize the problem. Supposing φ and ψ are intrinsic categorical properties, we can define disposition D as the (unconditional and deterministic) power to go immediately into state Ψ if in state φ. Assuming we have addressed problems of finkishness so that D and φ do not interfere, having D entails a subjunctive conditional: necessarily, if an object is D, then if it were in state φ it would go into state Ψ. But, again assuming there are no problems of finkishness, our arbitrarily chosen intrinsic categorical property, φ, entails a subjunctive conditional as well: necessarily, if an object has φ, then if it were in D, it would immediately go into state Ψ. And in general, this holds for dispositions and their entailed subjunctive conditionals. Satisfaction of the antecedent of the conditional entails, or at least seems to entail, another subjunctive conditional: if the disposition were possessed, then the consequent of the conditional would result. Suppose that a true ascription of *fragility* to x entails that if x were dropped under (contextually supplied) conditions C, x would (probably) break. It seems, then, that a true ascription of *being dropped* to x likewise entails that if x were fragile and in conditions C, x would (probably) break.

To translate the problem in terms of causal or functional essences: D has a functional essence, to bring about Ψ in φ; D is a disposition, so it's *supposed* to have a functional essence. But it is hard to see why Ψ does not have a functional essence as well, namely, causing things that are D to go into state Ψ. After all, it plays that role necessarily, and moreover, we've determined that a priori.

Finally, let's put the problem in terms of recombination. If φ and Ψ are intrinsic categorical states, then any arrangement of them in space and time represents a possibility, whereas D is supposed to constrain possibilities, its essential nature precluding some arrangements. But

what is impossible is an object that is *both* D and Φ, but does not immediately become Ψ. D does not freely recombine with Φ and Ψ, but neither do Φ and Ψ freely recombine with D. *Which* property is responsible for violating the principle of recombination is anything but clear.

2.1.2 Circularity

There is another move available to Mumford and Prior against Mellor, and that is to raise the charge of circularity. "Proper counting" is a term of *success*; although thinly disguised, it basically means getting the *right* number of things you're counting.[13] This guarantees the truth of Mellor's subjunctive conditional, but it may also serve to distinguish the kind of conditionals conceptually entailed by disposition attributions from those conceptually entailed by categorical property attributions. For the former, but not the latter, entail conditionals involving no *success* element, no circularity, whatsoever. (A similar reply is available for the generalized symmetry problem. D is defined as the disposition to Ψ in Φ, so the conditional entailed by having Φ is equivalent to: if x were disposed to Ψ in Φ and x were in Φ, then x would Ψ. The conditional entailed by D-attribution, by contrast, makes no mention of D in the antecedent.)

The problem with this proposal is that *some* dispositional predicates do not satisfy it. For instance, the concept of inertial mass, understood as the disposition to resist acceleration, is defined partly in terms of force, which is defined partly in terms of inertial mass. In other words, some disposition ascriptions conceptually entail subjunctive conditionals whose antecedents contain disposition terms, disposition terms that are defined as part of a package deal with the disposition being ascribed.[14] Moreover, even if disposition ascriptions could be distinguished from categorical ascriptions by appeal to circularity, we would still have only an epistemic distinction between kinds of predicates, or kinds of concepts, not a metaphysical distinction between kinds of *properties*.

In sum, it is clear that even paradigmatically categorical properties are "outward looking" in that their possession entails subjunctive conditionals (viz., conditionals with certain dispositional antecedents), they have causal or nomic essences (viz., their causal relations to certain dispositions), and they constrain possibilities (viz., they do not recombine freely with certain dispositions). If the modal accounts give us sufficient conditions for dispositionality, then it is safe to say that *all,*

or nearly all, properties are dispositional. Moreover, if "categorical" simply means *not dispositional*, as some take it to mean, we can infer that *no properties, or nearly none, are categorical.* But there is another way of understanding categoricity.

3. Categoricity

"Categorical" can mean *non-dispositional*, but it can also mean *actual* or *unconditional* or *not hypothetical.* I say, and this is nothing new, that dispositions are actual, unconditional and not hypothetical. In other words, if those are the marks of the categorical, then even dispositions are categorical. Ryle remarked that "Potentialities, it is truistically said, are nothing actual" (Ryle, 1949). But what Ryle is calling a truism seems to me obviously false. One of C.B. Martin's favorite themes is that dispositions are as actual as anything else (Martin, 1994, pp. 1-8; 1996, pp. 71-87). And Martin is clearly right. The *manifestations* of dispositions are sometimes non-actual, but that does not mean that dispositions themselves are non-actual (Mumford, 1998). The glass in front of me is *actually* fragile. If at some time it loses its fragility that is an *actual* change in the glass. (The same goes, mutatis mutandis, for being *unconditional* or *not hypothetical.*)

It might be objected that dispositions, while actual in some sense, are not *merely* actual. Unlike categorical properties, which mind their own business, dispositions are intrusive and meddling, always reaching beyond the confines of their modal neighborhood to interfere in the business of other worlds. But to cash out the notion of *mere actuality*, we would have to resort to our earlier modal characterizations of dispositionality—subjunctive conditional entailment, functional essences, or recombination—none of which would leave *any* properties as merely actual.

So, if "categorical" means actual (or unconditional or not hypothetical), then we will be hard pressed to find instantiated properties that are not categorical. *Everything is categorical.* And if "dispositional" simply means not-categorical, then *nothing is dispositional.* If "dispositional" is defined by one of the modal analyses, on the other hand, then *everything is both categorical and dispositional.* If "dispositional" means both non-actual *and* modally outward-looking, and if "categorical" means both actual and not modally outward-looking, then *nothing is either dispositional or categorical.* [15]

4. Why Preserve the Distinction?

The upshot of all this is disheartening to say the least. Determining whether properties are all categorical, all dispositional, all both, or all neither is a matter first of settling on definitions and then of seeing some fairly straightforward consequences of those definitions. If we adopt any of the proposed definitions, then what appear to be meaningful and even radical proposals about the nature of the world turn out to be mere epiphenomena of semantic decisions. Moreover, none of the accounts of the dispositional/categorical distinction yields anything like our pre-theoretic division, according to which some properties, like fragility, are dispositions, and others, like shape, are not.

Perhaps our pre-theoretic intuitions can't be saved. Perhaps they are hopelessly unsystematic and ought to be abandoned. But other things being equal, it would of course be better to have a distinction that carves close to our initial judgments. And the debates over whether fundamental (or natural) properties are dispositional or categorical are, intuitively speaking, *not* solved merely by settling on definitions. Lewis's Humean picture of the universe as a "vast mosaic" of purely qualitative (i.e., non-dispositional) property instances is genuinely different from Shoemaker's picture of the universe as a spread of causal powers, which differs again from Ellis and Lierse's mixed picture according to which the world has irreducible dispositions, but also irreducible categorical properties (Ellis & Lierse, 1994, pp. 27-44). Without a non-trivial notion of the dispositional, how do we even conceptualize this debate? What is the *content*, for instance, of Lewis's claim that the fundamental properties are purely qualitative (which, he is careful to note, is not to say that they are in any way mental)? Is he merely saying that the fundamental properties are actual? Then on trivial grounds, we can agree with him. Is he saying that they're not, modally speaking, outward-looking? Then on trivial grounds, we must disagree with him. For each of his properties, as he would no doubt admit, would necessarily produce some effect in the presence of the appropriate dispositional properties.

Is there some other way to characterize the metaphysical dispute? Perhaps we should say it is an argument over the modal status of laws of nature, "categoricalists" holding that they are contingent and "dispositionalists" holding that they are metaphysically necessary. I find two flaws with this suggestion, however. First, even if fundamental properties are dispositional, some laws of nature, e.g., thermodynamic laws, reflect characteristics of the boundary conditions of the universe

rather than causal essences of properties, and thus would still be contingent. But second, even if dispositionalism were committed to the necessity of the laws and categoricalism to their contingency, to characterize the positions in this way would be incomplete. For, even if some fundamental properties were dispositional and some were categorical (assuming we have an intuitive grasp on that possibility) the laws of nature could be necessary.[16] Suppose for instance, that the only categorical fundamental property were P and among the fundamental dispositions were several that were activated, in part, by co-instantiation with P. Then the laws involving P could be necessary, because they would describe P's relation to other fundamental properties, all of them dispositional. So, merely appealing to the modal status of laws of nature will not capture the extent of disagreement.

The same can be said for the principle of recombination. True, a set of intrinsic categorical properties will obey the principle of recombination. But some sets of purely dispositional properties will also obey it, as will some mixed sets. How could that be? So long as the properties that make up the activation conditions are not also in the set, recombination will succeed, because nothing in the set will necessarily trigger the manifestation of any of the dispositions. In other words, if we translate Lewis's claim that all properties are purely qualitative into an assertion of the principle of recombination (of perfectly natural properties), then intuitively speaking, we leave it open that the perfectly natural properties contain some latent primitive dispositions not activated by any other perfectly natural properties.

There may be, in the end, some independent way of making sense of the categoricalist/dispositionalist controversy. But the dispute is most naturally and directly understood as being about what kind of properties there are, whether the fundamental (or perfectly natural) properties are dispositional or categorical. The adequacy of other proposals will be judged by how well they capture our original picture of the dispute in dispositional/categorical terms.

5. A Non-Reductive Proposal

Suppose we take the distinction between dispositional and categorical properties as a primitive. Can we say anything more to recapture some of the intuitive pull of the modal accounts? Well, there is a relevant difference in the way categorical properties and dispositional properties impinge on their modal neighbors. Dispositional property possession

42

entails subjunctive conditionals with purely categorical antecedents and consequents, whereas categorical property possession entails subjunctive conditionals only with dispositional antecedents or consequents.[17] Categorical property + categorical property don't necessitate *anything* else that's categorical. Likewise, dispositional properties play their causal or nomic roles specified purely in terms of categorical properties essentially, whereas categorical properties play their roles essentially, but only if dispositions are allowed to figure in the specification of the roles. Finally, categorical properties are fully recombinable with all other categorical properties, whereas dispositions are not fully recombinable with all other categorical properties.

Once we are freed of the task of reductive analysis, we can try to take advantage of this seeming asymmetry as follows:

> A property, φ, is dispositional if an object's being φ entails a non-trivial subjunctive conditional with a perfectly categorical antecedent and consequent.

Unfortunately, the analysis fails. Some dispositions do not entail any non-trivial subjunctive conditionals with perfectly categorical antecedents, because their activation conditions are at least in part dispositional. (Recall the previous discussion of mass and force.) What we can say, however, is something weaker. Namely, if an object's being φ entails a non-trivial subjunctive conditional with a perfectly categorical antecedent and consequent, that suffices for its being dispositional. Because I take "categorical" to mean non-dispositional, it is thus a necessary condition of a property's being categorical that its possession does *not* entail a non-trivial subjunctive conditional with a perfectly categorical antecedent and consequent. And the saving transformation applies, *mutatis mutandis*, to the other two modal accounts. It suffices for a property's being dispositional that it plays some causal role essentially, where that causal role is described purely in terms of the relations between categorical properties, and is a necessary condition of a property's being categorical that it plays no such role essentially. It suffices for a property's being dispositional that it violates recombination with respect to some set of categorical properties and is a necessary condition of its being categorical that it freely recombines with other categorical properties.

These conditions are neither reductive nor analyses. But they may be enough to justify our intuitive classification of states, to explain the initial appeal of modal analyses, and most importantly, to ground meaningful

metaphysical debate about the nature of fundamental properties. When metaphysicians assert that all properties are dispositional, that all are categorical, that all are both, or that all are neither, we have a right to ask what they mean. On pain of trivializing the debate, they cannot merely say disposition possession entails subjunctive conditionals nor that categorical properties are actual. Nor can they tacitly employ these definitions in arguing for a substantive metaphysical conclusion. They can, of course, invoke our commonsense, intuitive grasp of the distinction. Isolated from other modal notions, however, this seems too thin to bear up under significant metaphysical weight. Our bare intuitive purchase on the difference between fragility and shape, for instance, is not enough to understand the *content* of the radical claim that all properties, including fragility and shape themselves, are both dispositional and categorical or the claim that all are neither. And the other radical metaphysical claims are understood on this intuitive basis dimly, if at all. My positive proposal is an effort to thicken the concept of a disposition by linking it to other modal notions – subjunctive conditionals, causal roles, combinatorial principles – in a non-reductive but nevertheless illuminating fashion. If this effort succeeds, I will have cleared a conceptual space for meaningful metaphysical debate about the place of dispositions in the world. If it fails, either because my conditions, circular and incomplete, are deemed still too thin, or else because some counterexample to them is discovered, then at least a negative lesson should be drawn: metaphysicians intent on making radical pronouncements about dispositions should first say what a disposition is.

Endnotes

1. Of course, there are borderline cases (e.g., molten) and controversial cases (e.g., colors).
2. David M. Armstrong, "Categoricalist Versus Dispositionalist Accounts of Properties," *Acta Analytica* 15 (1996), Rudolf Carnap, "Testability and Meaning (Part I)," *Philosophy of Science* 3 (1936), David Lewis, *Philosophical Papers", V2* (Oxford: Oxford Univ Pr, 1986), Quine, *Roots of Reference,* Gilbert Ryle, *The Concept of Mind* (Chicago: Chicago UP, 1949).
3. Evan Fales, *Causation and Universals* (London and New York: Routledge, 1990), James H. Fetzer, "A World of Dispositions," *Synthese*

44

34 (1977), D. H. Mellor, "In Defense of Dispositions," *Philosophical Review* 83 (1974), Sydney Shoemaker, "Causal and Metaphysical Necessity," *Pacific Philosophical Quarterly* 79 (1998), Shoemaker, "Causality and Properties.", Sydney Shoemaker, "Properties, Causation, and Projectibility," in *Aspects of Inductive Logic*, ed. L. Jonathan Cohen and Mary Hesse (Oxford: Oxford University Press, 1983), Chris Swoyer, "The Nature of Natural Laws," *Australasian Journal of Philosophy* 60 (1982). Two qualifications about Shoemaker's position deserve mention. First, while Shoemaker's position appears to posit only dispositional properties, he himself reserves the adjective "dispositional" to modify predicates rather than properties. Second, Shoemaker's most recent paper acknowledges that properties are "categorical", while nevertheless playing their causal roles essentially and being individuated by those roles Shoemaker, "Causal and Metaphysical Necessity.", which sounds to me like the Martin and Heil view.

4. Martin, "On the Need for Properties: The Road to Pythagoreanism and Back.", C. B. Martin, "Power for Realists in Ontology, Causality and Mind: Essays in Honour of D M Armstrong, Bacon, John (Ed)," (New York: Cambridge Univ. Pr, 1993).

5. Of course, *extrinsic* categorical properties, e.g., being three feet from a square, also violate recombination. But the thought is that there are intrinsic dispositional properties that violate recombination.

6. D. H. Mellor, "Counting Corners Correctly," *Analysis* 42 (1982), Mellor, "In Defense of Dispositions." Mellor's example is foreshadowed in Popper, *The Logic of Scientific Discovery*; and Goodman, *Fact, Fiction, and Forecast*.

7. One might try to do the relevant work with pragmatics rather than semantics. One might hold, for instance, that a fragile object must break if jarred under *any* circumstance, and thus, that almost nothing is truly fragile, but that fragility is nevertheless in some conversational circumstances appropriately ascribed. Nothing crucial for my purposes turns on this theoretical choice, so far as I can tell.

8. Other factors that contribute to confusion of the finkish cases: (a) dispositions of parts of an object or system entail conditionals about what those parts *would* do under certain circumstances, without assuming that they remain embedded in the object or system of which they're actually a part; and (b) some dispositions are probabilistic, so in

45

their activation conditions, they do not always manifest themselves. In (a) cases, the proposed subjunctive conditional is presumed false because it is *assumed*, counterfactually, that the object with a disposition remains embedded in the object or system of which it's a part, so the subjunctive conditional turns out false. In (b) cases, the failure of manifestation is taken to show that no conditional is entailed, when that failure entails nothing about the falsehood of a probabilistic conditional. See Alexander Bird, "Dispositions and Antidotes," *The Philosophical Quarterly* 48 (1998), Lars Gundersen, "In Defence of the Conditional Account of Dispositions," *Synthese* 130, no. 3 (2002).

9. I thank John Heil for helpful discussion here.

10. See Appendix A for a complication with the contextualist strategy.

11. All of my attempts to generate counterexamples along the lines of Prior's suggestion involve backtracking counterfactuals. For instance, suppose world w contains one thousand objects and at w, there's a daily shape lottery and a daily counting lottery. The winner of the daily shape lottery is made into a triangle for the day, while the losers are all made into squares for the day. The winner of the shape lottery is then taken out of the running for the counting lottery. The winner of the counting lottery, and only the winner, then has its corners counted. Now, consider the winner of the shape lottery, which is a triangle for the day at some time *t*, after winning the shape lottery. One is tempted to say that if its corners had been counted at t^+, the result would have been *four*, because if its corners were being counted, that would mean that it had won the counting lottery, which means it must have lost the shape lottery earlier in the day and have been made a square for the day. But this subjunctive conditional is a backtracker, because we have supposed already that the object already won the shape lottery and was made a triangle prior to *t*. Perhaps, as Lewis has argued, backtracking conditionals require a "non-standard resolution" and for the purposes of thinking about causation, they should be ignored. David Lewis, "Causation," *Journal of Philosophy* (1973). But even if one does not agree with Lewis in general on the status of backtrackers, for our purposes we can stipulate that the entailed conditionals are *non*-backtracking.

12. Actually, Mumford is difficult to pin down on this point. On the one hand, he says that the truth of the subjunctive conditional, "depends on the contingencies of the laws of nature--Prior's systematically deceptive world is, after all, a possible world…" and thus, some

possible triangles are such that were their corners properly counted, the number reached would *not* be three Mumford, *Dispositions..* On the following page, however, Mumford affirms that "Stronger-than-material conditionals are 'entailed' by both dispositional and categorical ascriptions but in the case of dispositions the relation is a priori as opposed to a posteriori in the case of categorical ascriptions." Mumford, *Dispositions..* For the purposes of this paper, I'm assuming the latter statement represents Mumford's position.

13. Strictly speaking, success terms enter at the level of putting the corners into one-to-one correspondence with the initial segment of the number line. One must *succeed* in matching corners to numbers. But surely, if circularity is a problem for the generic, straightforward case in the following paragraph, the negligible conceptual distance between *number of corners* and *triangularity* will not help.

14. Furthermore, the suggestion seems to rest on a dubious premise about dispositional concepts. It is not obvious that all disposition concepts are introduced via their activation and manifestation conditions. Consider the property of hardness. It's clearly a disposition, but in what terms is it defined? Its activation and manifestation conditions seem more conceptually remote, or at least more difficult to label and grasp than the disposition itself.

15. What about U.T. Place's suggestion Ullin T. Place, "Dispositions as Intentional States," in *Dispositions: A Debate*, ed. Tim Crane (London and New York: Routledge, 1996). that intentionality is the mark of the dispositional? Either intentionality is somehow inherently mentalistic, in which case, the suggestion must be rejected Mumford, "Intentionality and the Physical: A New Theory of Disposition Ascription.", or else it is not, and rather means directedness, and in particular, being directed towards what is not. (Other features of intentionality are really features of intensionality, i.e., s-intensionality, and will thus be ignored.) But now we must ask what directedness is. As we have seen, categorical properties are also directed towards the non-existent, at least in the sense that they have implications for what would happen under such-and-such circumstances, have functional essences, and constrain possible recombinations. Perhaps there is a special sense of being directed towards the non-existent had exclusively by dispositions, i.e., dispositional directedness. In fact, I agree with

47

this suggestion, but the dispositional/categorical distinction is doing the heavy lifting here, not the notion of intentionality.

16. Occasionalism is one such possibility. According to occasionalism, the created universe, both mental and physical is purely passive and its properties are all categorical, while God is the sole causally active entity and at least some of the divine attributes are dispositional. The laws of nature will be necessary on this picture just in case God's acts in the same way in every possible world.

17. Thanks to Chase Wren for pointing out that both the antecedent and the consequent of the conditional must be categorical. For discussion of the circularity problem and the need to purify the relevant conditionals of dispositional elements, see Marc Lange, "Dispositions and Scientific Explanation," *Pacific Philosophical Quarterly* 75 (1994).

References

Armstrong, David M. (1996). "Categoricalist Versus Dispositionalist Accounts of Properties", in *Acta Analytica*, 15: 7-19.

Bird, Alexander. (1998). "Dispositions and Antidotes", in *The Philosophical Quarterly*, 48: 227-234.

Carnap, Rudolf. (1936). "Testability and Meaning" (Part I), in *Philosophy of Science*, 3: 420-471.

Ellis, Brian, and Caroline Lierse. (1994). "Dispositional Essentialism", in *Australasian Journal of Philosophy* 72: 27-44.

Fales, Evan. (1990). *Causation and Universals*. London and New York: Routledge.

Fetzer, James H. (1977). "A World of Dispositions", in *Synthese* 34: 397-421.

Goodman, Nelson. (1983). *Fact, Fiction, and Forecast*. Fourth ed. Cambridge, MA: Harvard University Press.

Gundersen, Lars. (2002). "In Defence of the Conditional Account of Dispositions", in *Synthese* 130, no. 3: 389-411.

Lange, Marc. (1994). "Dispositions and Scientific Explanation", in *Pacific Philosophical Quarterly*, 75: 108-132.

Lewis, David. (1973). "Causation", in *Journal of Philosophy*, 70: 556-567.

---------. (1986). *Philosophical Papers, V2*. Oxford: Oxford University Press.

Martin, C. B. (1994). "Dispositions and Conditionals", in *The Philosophical Quarterly*, 44: 1-8.

---------. (1997). "On the Need for Properties: The Road to Pythagoreanism and Back", in *Synthese* 112, 2: 193-231.

---------. (1993). "Power for Realists in Ontology, Causality and Mind: Essays in Honour of D M Armstrong, Bacon, John (Ed).", New York: Cambridge University Press.

---------. (1996). "Properties and Dispositions", in *Dispositions: A Debate*, edited by Tim Crane, 71-87. London and New York: Routledge.

Mellor, D. H. (1982). "Counting Corners Correctly", in *Analysis*, 42: 96-97.

---------. (1974). "In Defense of Dispositions", in *Philosophical Review*, 83: 157-181.

---------. (2000). "The Semantics and Ontology of Dispositions", in *Mind*, 109(436): 757-780.

Mumford, Stephen. (1998). *Dispositions*. Oxford and New York: Oxford University Press.

---------. (1999). "Intentionality and the Physical: A New Theory of Disposition Ascription", in *The Philosophical Quarterly*, 49: 215-225.

Place, Ullin T. (1996). "Dispositions as Intentional States", in *Dispositions: A Debate*, edited by Tim Crane, 19-32. London and New York: Routledge.

Popper, Karl. (1992). *The Logic of Scientific Discovery*. London and New York: Routledge.

Prior, Elizabeth. (1985). *Dispositions*. Vol. 7, *Scots Philosophical Monographs*. Aberdeen: Aberdeen University Press.

Quine, W. V. O. (1974). *Roots of Reference*: Open Court.

Ryle, Gilbert. (1949). *The Concept of Mind*. Chicago: Chicago UP.

Shoemaker, Sydney. (1998). "Causal and Metaphysical Necessity", in *Pacific Philosophical Quarterly*, 79: 59-77.

---------. (1980). "Causality and Properties", in *Time and Cause : Essays Presented to Richard Taylor*, edited by Peter van Inwagen, 109-35. Dordrecht ; Boston: Reidel Pub. Co.; sold and distributed in the U.S.A. and Canada by Kluwer Boston, inc.

---------. (1983). "Properties, Causation, and Projectibility", in *Aspects of Inductive Logic*, edited by L. Jonathan Cohen and Mary Hesse, 291-312. Oxford: Oxford University Press.

Swoyer, Chris. (1982). "The Nature of Natural Laws", in *Australasian Journal of Philosophy*, 60: 203-23.