On Modal Accounts of Dispositionality

What is it for a property to be dispositional? To answer this question, we can try appealing to the special relationship that dispositions appear to have with modal facts. This is the strategy of modal accounts of dispositionality, which have an important philosophical pedigree.[1] For example, consider the following schemas, where for any '*d*' that names a disposition, one can replace 'M' with a purely modal sentence:

A1. Having *d* [a priori] entails M.

A2. *d* is the modal property of being such that M.

A3. *d* is the second-order property of having a property partly in virtue of which M.[2]

Corresponding to each schema there is a modal account of dispositions. According to what I will call *consequentialism*, dispositions can be distinguished by modal entailments like A1; according to *modalism*, dispositions are a special kind of modal property specified by A2; and according to *second-orderism*, dispositions are a special kind of second-order property specified by A3.

Any such account of dispositionality must identify a type of modal fact that bears the specified relationship to all and only dispositional properties. Suppose, for example, we replace '*d*' in the above schemas with 'the disposition to

laugh when drunk'. What type of modal sentence should we use to replace 'M'? It is natural to appeal to the idea is that dispositions are closely connected to subjunctive conditionals that involve their stimulus and manifestation conditions— in this case, getting drunk and laughing, respectively.

Here are three suggestions along these lines, each of which could be plugged into any of the three accounts:

M1. If one were to become drunk, one would laugh.

M2. For certain {contextually supplied} cases in which one becomes drunk, one would laugh if one were in such a case.

M3. For every one of a {contextually supplied} proportion of cases in which one becomes drunk, one would laugh if one were in that case.

We now face the question whether any of these modal facts meets the following two conditions: (i) it must bear the specified relationship to each dispositional property, and (ii) it must not bear the specified relationship to non-dispositional properties.

Most of the literature on modal accounts of dispositions has focused on the first of these conditions. (M1 faces the well-known problems of *finks* and *masks*, not to mention many others; but it is argued in [Author's articles B and C] that all of these problems are avoided by adopting facts like M3.) In this paper, however, I will assume that there is a type of modal fact that satisfies (i), using (M3) as a place-holder, and instead examine the equally interesting condition (ii).

1. The Symmetry Problem.

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[1] See, among others: (Ryle 1949), (Goodman 1954), and (Quine 1960).

[2] This account is loosely based on (Prior, Pargetter, and Jackson 1982), (Prior 1985), and (Lewis 1997).

Suppose, then, that some type of modal fact bears the specified relationship to all dispositions. Does bearing this relationship to the relevant modal fact really *suffice* for being a dispositional property? Take, for example, the combination of A1 and M3. This yields the general claim, for every disposition d and its manifestation and stimulus conditions φ and ψ:

A1-M3   Having d entails [a priori] that, for a suitable proportion of ψ-cases c, one would φ in c.[3]

Now, suppose this is true, with or without the bit about a priority. If it is to serve as an account of what is *unique* about dispositional properties, then it had better not also be true of non-dispositional properties. But it appears to be. For instance, take the disposition to fit a spherical region 3m in diameter precisely and without deformity when one is concentric with it. Call that disposition B. Assuming A1-M3, if something has that disposition, then in a suitable proportion of situations in which it is concentric with a spherical region 3m in diameter without being deformed, one would exactly fill it. But it seems we can say the same thing about the property of being spherical and 3m in diameter, which is intuitively a categorical property. Moreover, this entailment appears a priori—and even amending A1 to yield a necessary biconditional does not appear to help. (The same points, mutatis mutandis, can be made for the combinations A1-M1 and A1-M2).

This is a version of what Troy Cross has called the 'symmetry problem', generalizing on a case raised by D.H.

Mellor (Cross 2005; Mellor 1974, 1982).[4] The problem is that an account like A1 threatens to count as dispositional some properties that seem entirely non-dispositional. Of course, we could take the conclusion in stride if we were willing to follow Shoemaker (1980) in admitting that all properties are dispositional—and we could even retain this proposal as an account of what makes them dispositional. But that is a last resort: it is worth seeking an account that can successfully illuminate the intuitive distinction between properties like fragility and properties like sphericity.

Setting aside consequentialism for the moment, it is important to show that modalism and second-orderism actually escape the symmetry problem. Consider, for example, the juxtaposition of A2 and M3:

A2-M3 Every d is (for some φ and ψ) identical to the property of being such that, for a suitable proportion of ψ-cases c, it would φ were it in c.

Even supposing that sphericity entails various modal facts of the relevant form—and vice versa— we need not admit that sphericity counts as a disposition. For it is perfectly coherent to maintain that while sphericity is co-intensional with various modal properties, it is not identical to any of them. The idea is that, unlike in the case of dispositional properties, there is more to an object's being spherical than what is given by the purely modal facts that entail and are entailed by its being spherical.

A similar point also applies in the case of second-orderism. While sphericity may entail being such that one would φ if ψ, we would not want to *identify* it with a second-order property of the type yielded by joining (say) A3 to M3.

[3] In the case of dispositions not associated with any special stimuli, such as the disposition to laugh *simpliciter*, we can simply treat any circumstance as a stimulus condition. (More on this in section 3.)

[4] A similar point is made in (Shoemaker 1980).

For it is implausible that to be spherical is the property of having some *other* categorical property partly in virtue of which a modal fact holds. What would that other categorical property be?[5]

At worst the symmetry issue causes epistemological trouble for modalism and second-orderism. It opens up the possibility that there will be cases where we can identify an entailment between the ascription of some property P and a modal or second-order claim of the relevant type, but we are nevertheless uncertain about the relevant property identities. In such a case, we may be uncertain as to the dispositionality of P. But this kind of worry is far from a decisive objection to to modalism and second-orderism, especially in the absence of a reason to expect a different result.

2. Concepts and dispositions.

Things are not so straightforward for consequentialism. One tempting way out is to appeal to the notion of the *essence* of a disposition: in particular, perhaps the relevant modal claim holds *in virtue of the essence of* the disposition, whereas the relevant modal claim is simply a necessary consequence of certain categorical properties. I have in mind the notion of essence advanced by Kit Fine (1994; 1995), which resists a standard analysis in terms of necessity. This would give us:

A1*: It is true in virtue of the nature of d that having d entails M.

I will leave a serious defense of this idea, which would require a closer look at this notion of essence, for another time.

Another approach is to appeal to the notion of concept mastery. Let us assume that it is a priori that, if something has the property of being struck, then in a suitable proportion of situations in which it had the disposition to break if struck, it would break. The problem is that being struck appears to be a categorical property. Still, the relevant a priority feels derivative on the concept of the disposition, rather than on the concept of being struck.[6] A similar contrast is found when it comes to the claims 'If x is a vixen, then x is a fox' and 'If x is a fox, then if x is female, x is a vixen'. While finding these claims a priori compelling appears to be necessary for mastery of the concept of a vixen, it is not necessary for mastery of the concept of a fox—indeed, one might have the latter without the former, and thus not find the relevant claims compelling.

With such a distinction in hand, we might add to A1-M3 that mastery of the concept associated with d requires finding the entailment primitively compelling, or at least believing

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[5] Neither does this view have the result that *the property of having the property of sphericity* counts as a disposition. For—assuming an abundant and hyperintensional metaphysics of properties—this is a distinct property from *the property of having* some *categorical property partly in virtue of which M.* This is true even if necessarily, *sphericity* is the only first-order property that can play the specified role.

[6] See (Author's article A.) This type of approach may be suggested by one kind of locution in (Mumford 1998), who writes "The conditionals for disposition ascriptions follow by analytic necessity because it is part of the meaning of a disposition term that it is a property which causes a particular manifestation if certain conditions are realized" (183). However, Mumford distinguishes dispositional properties by wrongly denying that the relevant counterfactuals are a priori entailed by categorical ascriptions (79), so he does not fully exploit this notion of 'part of the meaning of a term'.

implicitly that that φing is what manifests d. To master the concept of fragility requires believing that it is manifested by breaking; but a child could master the concept of sphericity without having the concept of being concentric, or even of filling a region.

Let us grant the notion of concept mastery at work. There are still some immediate concerns about the idea of distinguishing dispositions by way of the concepts with which they are associated. First, there may be all sorts of dispositions for which we have no concept, such as dispositions only had by particles that existed in much earlier stages of the universe. (And even if there are not such dispositions, there could have been.) And second, arguably a layman could master a highly deferential concept of some dispositional property invoked in theoretical physics without accepting the relevant entailments.

In response to these concerns, it is temping to put the claim modally instead: all and only dispositional properties *could* be expressed by dispositional concepts. But is it the case that no categorical property could be expressed by a dispositional concept? Suppose the term 'grimsity' is introduced by way of the following stipulation: 'Grimsity expresses whatever categorical property one must have to be such that, if one were concentric with a spherical region 3m in diameter without being deformed, one would exactly fill it.' Perhaps anyone who understands this stipulation is in a position to know that grimsity just is the property of being spherical and 3m in diameter.[7] But the point is that because of the stipulation there are now two concepts of the same property; and it might be argued that to master the

stipulative concept, one must find the relevant subjunctive conditional a priori compelling. Clearly, this point rests on tricky issues about concept mastery, and I will leave it at that.[8]

There is also a broader concern about the project of distinguishing dispositions by way of dispositional concepts. Even if it were successful, it would be less than complete as a metaphysical account of dispositionality. For granting that there is a special kind of concept at issue, we might well wonder about the nature of the metaphysical division among properties that answers to this division among concepts. In particular, we might wonder whether it is it a deep division. In a similar fashion, we would not be very happy with the following account of dispositionality: dispositions are those properties that can be expressed by predicates of the following form 'x is disposed to ϕ in ψ'. Even supposing this were true (so that, for example, properties like fragility and irascibility could be expressed in that form), this would not shed much light on the metaphysical distinction underlying the semantic one. Presumably it is in virtue of the fact that certain properties are dispositional that they answer to dispositional terms or concepts, rather than vice versa. If not, then at best we have a gerrymandered distinction among properties, like that between the properties expressed in English by words beginning with vowels, and those expressed by words beginning with consonants.

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[7] I am setting aside issues of uniqueness that might arise for this stipulation if we have a sufficiently abundant ontology of properties.

[8] It might be replied that such a concept is not in some sense canonical, and that only dispositional properties can be expressed by canonically dispositional concepts. Perhaps those are the ones we express with locutions like 'the disposition to ϕ if ψ'. This may well be right. But for reasons given below, I think it must be supplemented if it is to provide a satisfactory way to elucidate the metaphysical distinction among properties.

In short, even if the concept-mastery version of consequentialism were true, it would still leaves us with our central metaphysical puzzle. This is a reason to prefer modalism or second-orderism, which can escape the symmetry problem altogether.

3. Fundamentality

Suppose that either modalism or second-orderism is true. Does it follow that all dispositional facts hold in virtue of modal facts, and that we have in effect reduced dispositionality to modality? That could be a tempting conclusion, especially if we have a theory of modality with which we are comfortable for independent reasons. For example, we might think that the modal facts are settled by facts about infinitely many very large physical objects called 'worlds' that are at no distance from each other. If modal realism is already embedded in our ontology and ideology, it is natural to claim that the facts about this distribution are metaphysically prior to facts about what purely modal properties a thing has. We could then say that a thing has its dispositions *in virtue of* facts about these very large physical objects and, on a standard modal realist treatment of counterfactuals, their resemblance to each other.

But why not reverse the direction of metaphysical priority? One idea that is ripe for revival is the ancient thesis that facts about modality are grounded in the dispositions and powers of actual things. (Variants of this view were held by Aristotle and Boethius.)[9] And I see no reason in principle why modalism or second-orderism would be antithetical to such a project. For example, there is no obvious inconsistency in holding both that (i) every disposition is the property of being such that in proportion p of ψ-cases, one would ϕ; and that (ii) all modal facts hold in virtue of actual objects having such properties. To sketch a view along the lines of one suggested by (Pruss 2002), we might say that what makes a non-actual state of affairs possible is that, at one time, there were objects with the capacity to bring about that state of affairs. The capacity to ϕ if ψ, of course, can be understood as a kind of limiting disposition: it is the property of being such that, in at least one ψ-case, one would ϕ. (At the other limit we have sure-fire dispositions: being such that, in every ψ-case, one would ϕ. Perhaps some fundamental physical dispositions are like that.) There are various worries accompanying any account that attempts to ground all modal facts in terms of the dispositions and capacities of actual things: for example, it seems that everything might always have been different, and the view we just sketched cannot accommodate that intuition. But I do not see any special problems arising from the identification of certain modal properties with dispositions. The project simply becomes that of showing how all of the world's modal properties hold in virtue of those that we can identify with dispositions. Thus, as far as I can tell, even modalism does not rule out the thesis that dispositions ground all (the rest) of modality.

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[9] Admittedly, this claim requires substantial justification, and that cannot be provided with a single quote. But this one from Boethius's commentary on Aristotle's *De Interpretatione* is telling: "That is contingent which chance brings, or which comes from anyone's free choice and his own will, or which in virtue of a readiness of nature it is possible to bring into both parts [of contradictory opposition]" (Boethius 1998: II.190.3-5)

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[References to Author's work have been removed]

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