Why Dispositions Are Not Higher-order Properties

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In this paper I defend C.B. Martin's identity theory in which intrinsic properties of concrete objects are simultaneously qualitative and dispositional. Using three arguments from Sydney Shoemaker, I demonstrate that there are epistemic difficulties with ontologically separating dispositional and qualitative properties. I use Prior, Pargeter, and Jackson as a paradigm case of such an attempt to separate these two kinds of properties. The difficulty with Prior et al.'s higher-order account of dispositions is this: given an asymmetry relation, the qualitative properties can vary without necessarily altering the object's dispositions. Given that our interaction with an object is with its dispositions, our knowledge of objects becomes severely limited. Therefore, we ought not posit qualitative and dispositional properties as ontologically distinct.

1. Introduction

An ontological account of properties should not logically separate qualitative and dispositional properties. In this paper, I use three epistemic arguments from Sydney Shoemaker to demonstrate that separating these two kinds of properties leads to epistemic difficulties. I then point out some difficulties with (or at least prima facie oddities of) Shoemaker's purely dispositional account. I conclude by offering an alternative explanation of the relation between qualitative and dispositional properties, one advocated by C.B. Martin and John Heil. Martin and Heil argue that qualitative and dispositional properties are merely different ways of looking at the same property; all properties are both dispositional and qualitative (Martin 2008: 68). Heil puts it thus:

If P is an intrinsic property of a concrete object, P is simultaneously dispositional and qualitative; P’s dispositionality and qualitativity are not aspects or properties of P; P’s dispositionality, Pd, is P’s qualitativity, Pq, and each of these is P: Pd = Pq = P. (Heil 2003: 111)

In other words, when I say that a sphere has the property of ‘roundness’ I am looking at (or conceptualizing) the property qualitatively. In another respect, the sphere has the property of ‘readiness to roll,’ which is one and the same property (ontologically) as ‘roundness.’ This version of monism is called the identity theory.

According to Shoemaker, any property of an object is a causal power (a power to cause something) of that object (2003: 214-215). Furthermore, there are no non-dispositional properties. On this theory, when we say that a sphere is ‘round,’ we mean that the sphere has a property ‘to roll.’ There is no qualitative property of ‘roundness,’ just the property ‘to roll.’ Shoemaker argues for this view by demonstrating that epistemic difficulties arise from positing qualitative properties that are ontologically distinct from dispositional properties. I will demonstrate that Shoemaker’s arguments support the identity theory as much as they support his pure powers account.

1 I use the term “non-dispositional” for Shoemaker’s view because he not only rejects qualitative properties, but any other kind of property that is not dispositional.
Shoemaker's arguments begin with a supposition (for *reductio*) that the identity of properties consists of something logically independent of causal powers (Shoemaker 2003: 214-215). That is, these two kinds of properties really are independent of each other; they are not just two ways of conceptualizing the same property. They might interact with one another, but not necessarily so. A common view of this sort is one in which dispositions are higher-order properties with qualitative properties as a supervenience base. It will be helpful to have a specific account in mind. I offer the account of Elizabeth W. Prior, Robert Pargetter, and Frank Jackson.

In their paper "Three Theses About Dispositions" Prior, Pargetter, and Jackson argue that all dispositions have causal bases; that these causal bases are distinct from their dispositions; and that dispositions "are causally impotent with respect to their manifestations" (1982: 251). It is their second thesis, that dispositions are higher-order properties, with which I am concerned. Although they wish to "remain as neutral as possible on various wider metaphysical issues concerning...realism about properties and the distinction between categorical properties and dispositional ones," such neutrality is not an easy task. If we assume realism about qualitative and dispositional properties, then their view leads to the ontological separation of these properties. Let me explain the view of Prior et al. with the assumption that qualitative and dispositional properties are real.\footnote{Although I think Prior et al. have in mind realism of both dispositional and qualitative properties, they could deny the existence of qualitative properties which would imply (given their first thesis that every disposition has a disposition base) that dispositions never 'bottom out.' That is, that there can be no fundamental properties. Consider some disposition $x$. On their view this disposition must have some causal base (by their first thesis), call this property $y$. However, by supposition, $y$ is not qualitative, so it must be dispositional. Again, by their first thesis, $y$ must have a causal base, which will also be dispositional, which must have a causal base...}

Prior et al. argue that two objects might have the same dispositions, yet have different molecular structures (1982: 253). That is, two objects might have identical dispositions, yet lack identical qualitative properties. Prior et al.'s thesis concerning the relation between dispositions and qualitative properties is similar to the functionalist thesis concerning the relation between physical and mental states. Two subjects might be in the same pain state while being in different physical states. In other words, if subject X is in mental state $m$ and physical state $p_1$, and subject Y is in state $m$ and physical state $p_2$, we cannot infer that $p_1=p_2$.

In the same way, if object X possesses disposition $d$ with causal base of qualitative properties $q_1$,...,$q_m$\footnote{According to Prior et al., the disposition might have a single qualitative property or a set of qualitative properties as its causal base.} and object Y possesses disposition $d$ with causal base of qualitative properties $q_1$,...,$q_n$ if two objects have identical disposition they need not have identical qualitative properties.

Prior et al. explain that even if there is only one set of qualitative properties (call it Q) that serves as a causal basis for some disposition $d$, it need not be the case that an object's possessing Q implies that object's having $d$. Consider that some object might possess Q while possessing some further properties $Q^*$ "which swamp[s] the effect of having" that disposition (1982: 253). Because this swamping effect is possible, dispositions are not identical to their qualitative bases. In fact, Prior et al. are saying something stronger: two objects possessing identical qualitative properties need not possess identical dispositional properties. Dispositions, according to Prior et al., are multiply realizable, higher-order properties. However, this thesis leads to epistemic problems.
2. Shoemaker's Arguments

2.1 Argument 1

Given an account of dispositions as higher-order properties, it is possible for two or more properties to make (in every circumstance) exactly the same contribution to the object's dispositions. If one of these properties were to change, the object's dispositions would not change because there is still another non-dispositional property contributing to the dispositions. I can put it most precisely in the following way: at $T_1$ an object $O$ possesses properties $A$ and $B$, which make exactly the same contribution to $O$'s dispositional properties $d_1, d_2, d_3...d_i$. At $T_2$ object $O$ loses property $A$ such that there is no $A$ to contribute to $O$'s dispositional property $d_1, d_2, d_3...d_i$, but property $B$ still contributes to $O$'s dispositional properties $d_1, d_2, d_3...d_i$. Thus, even though one of $O$'s properties has changed, its dispositions remain the same. Because of the asymmetry relation in Prior et al.'s account, the higher-order dispositional properties supervene on the qualitative properties $A$ and $B$, but the alteration of $A$ or $B$ alone does not change the higher-order dispositional properties.

This argument presents us with an epistemic problem: any interaction we have with $O$ will be with its dispositional properties and, since there has been no dispositional change, we cannot know that this object has changed. Thus, we may be mistaken in judging objects to be unchanged—for the object may have lost or gained some property that makes an identical contribution to that object's dispositionality.

Perhaps an example will help. Think of a watermelon that has the disposition to be eaten, to roll, to be cut, and to make my mouth water. These higher-order properties supervene on the watermelon's qualitative properties (i.e. its being juicy, its being roundish, its being ripe, etc.). On a higher-order account of dispositionality two of these qualitative properties can make exactly the same contribution to the watermelon's dispositions. For example the juiciness of the watermelon and its water content divided by its volume might make exactly the same contribution to its causing my mouth to water. Suppose the water content divided by the watermelon volume changed, but the watermelon remained juicy. Since these make the same contribution to the watermelon's dispositions, the change will go unnoticed.

The defender of dispositions as higher-order properties may respond that, if two qualitative properties always contribute to the object's dispositions in the same way, they are in fact the same property. In the case of the watermelon, one might say that water content divided by watermelon volume is how we measure the fruit's juiciness. I think this is a sensible claim, but what would justify this inference on Prior et al.'s account? If these non-dispositional properties really are logically distinct from dispositional properties, then the contribution they make to dispositions does not determine their identity. On Prior et al.'s account that two properties make exactly the same contribution to an object's dispositions does not imply that the two properties are identical.

2.2 Argument 2

Consider objects $X$ and $Y$ possessing identical dispositions, but not possessing identical qualitative properties. Although the objects do not possess identical qualitative properties, we would judge the objects to be identical to one another. However, we would be mistaken. That is, it would be impossible for us to recognize that the two objects are not identical. Two objects possessing identical dispositions is necessary (but not sufficient) for their being qualitatively identical (since to be identical they must also possess the same qualitative properties). Again, any interaction with objects must be with its dispositional properties. So when we observe these objects, they will appear similar in every way because all their causal powers are identical, but the objects are not identical since their qualitative properties are
different. So if these two objects appear to be the same in every way, we cannot know that they are qualitatively dissimilar. After all, the objects might have some qualitative property that does not affect their causal powers (Shoemaker 2003: 214-215).

Perhaps another example will help. The watermelon and its watermelon clone might be dispositionally indistinguishable. However, in the cloning process this cloned watermelon's genome sequence may have been slightly changed in an unnoticeable way—a way that does not affect its dispositionality. The set of lower-order properties that constitutes a causal base for each watermelon's dispositions may not be identical, but this does not imply that higher-order properties must also differ. As such it may be incorrect to say that the two watermelons are (qualitatively) identical.

2.3 Argument 3

On a higher-order account of dispositions, qualitative properties can vary independently of dispositions. If the dispositions remain unchanged, it is impossible for us to know that something has retained a property over time. That is, it would be impossible for us to know that something has undergone a change with respect to its qualitative properties. Consider that if an object's dispositions depend upon its qualitative properties, then there could exist some qualitative property that is not supervened upon at all. Not all the lower level properties need affect an object's dispositions. As such, a change in that object’s non-dispositional property would go unnoticed.

More precisely: at $T_1$, object $O$ has numerous dispositional properties, $d_1, d_2, \ldots, d_n$, which supervene on qualitative properties $X, Y, Z$, and $O$ has one qualitative property $A$ upon which no dispositional properties supervene. At $T_2$, $A$ has changed while $X, Y, Z$ have not; therefore $d_1, d_2, \ldots, d_n$ have not changed either. Remember that any interaction with $O$ will be with its dispositional properties. Thus, I cannot know that $O$ has changed because I will not know that $A$ has changed. In this case, I will judge that $O$ has not changed, when in fact it has. In this case, as in the other two we find an epistemic difficulty—qualitative properties (or any non-dispositional properties of any kind, for that matter) end up being properties we may not know about.

2.4 Objection and Reply

Now you may wish to question Shoemaker’s assumption that any interaction with an object will be with its dispositional properties. This premise is essential if these arguments are to carry any force. Consider that, if I interact with an object, I do not interact with its non-dispositional properties (even if they exist) because, simply by definition, non-dispositional properties are not causal powers. As soon as I interact with a property, the property has had some kind of effect upon my senses, and thus is dispositional. So any interaction with non-dispositional properties is mediated by dispositional properties. Although this response will be unconvincing to the metaphysician who believes all properties are qualitative, this paper is not directed toward such a philosopher. I wish merely to persuade the proponent of a higher-order account of dispositions that qualitative and dispositional properties are not logically distinct from one another.

According to Shoemaker, the preceding arguments, if sound, demonstrate that a property's identity is intimately connected to that property's causal potentialities. More precisely, these arguments aim to persuade us that positing qualitative properties as ontologically separate from dispositional properties leads us to an epistemic quandary. A higher-order account of dispositionality results in skepticism about objects' non-dispositional properties and so a skepticism about the objects in general (Shoemaker 2003: 214-215). Of course, it is possible for properties to exist without our knowledge of them. However, most philosophers prefer to
avoid such speculations when another option exists. Shoemaker offers pure dispositionality as an alternative. Without taking into consideration the idea that qualitative and dispositional properties are the same (which is admittedly a surprising identity (Heil 2003: 218)), a pure powers view of properties does look like the most viable theory.

3. Pure Dispositionality

Many metaphysicians have noted problems with pure dispositionality, usually assuming that this position stands or falls with a purely relational account of substance (for example, see Heil 2003: 102). Martin is among the few who do not assume that pure dispositionality stands or falls with a relational account of objects. Instead, Martin argues that a purely dispositional account of properties leads to two regresses. The first comes from properties reducing to dispositions, the second from the manifestation of dispositions reducing to dispositions. I will briefly outline his reasons for thinking that two regresses follow.

First, let us examine what a pure powers account of properties says about alleged 'qualitative properties.' On a pure powers account of properties, a property that appears qualitative (e.g. length) reduces to a capacity (e.g. being capable of being measured at six inches), but this capacity reduces to a disposition “for the formation of other capacities” (Martin 2008: 63). Now, these capacities, which are the reduction of a disposition, also reduce to the formation of other capacities. The same holds with a dispositional property, which is a capacity. This capacity reduces to a disposition “for the formation of other capacities” (Martin 2008: 63). These capacities, which are the reduction of this particular disposition, also reduce to more capacities. Problematically, any time we are confronted with a property, it reduces to a capacity, and any time we are confronted with a capacity, it reduces to another capacity. Because every capacity reduces to a reducible capacity, we have an infinite regress. So we need qualitative properties in our analysis of property identities.

Now let us examine the manifestation of dispositions. According to the pure powers view, when a disposition manifests, there is no manifestation of a qualitative property. The manifestation is merely another causal power (or a collection of causal powers). And when this new casual power is manifested, it will also merely be manifesting another causal power. Martin writes, “this image appears absurd even if one is a realist about capacities—dispositions. It is a promissory note that may be actual enough, but if it is for only another promissory note that is [for another promissory note, and so on], it is entirely too promissory” (Martin 2008: 63). The purely dispositional account does not allow that a real thing happens in a manifestation (I mean something beyond its gaining the power to cause something else); a manifestation is merely a promissory note. By this, Martin means that we receive a promise that, although the manifestation was not what we expected, some real event—the new dispositions—will lead to an eventual manifestation that we expect. In other words, the causal potentiality that the object acquired may lead to causing a real something to happen. However, each new disposition is only a disposition for gaining or losing dispositions (see Martin 2008: 61-63). Therefore, a world of dispositions is a world of mere potentialities. All that happens is the introduction or loss of potentialities.

Perhaps the above reasoning is unconvincing to one who is already a pure power theorist. My hope is that it gives some reason to deny the elimination of qualitative properties. But now it seems that we face a dilemma: on the one hand, positing qualitative properties as ontologically distinct from dispositional properties leads to epistemic worries; on the other hand, eliminating qualitative properties seems absurd. The identity theory is a way between these two unpalatable options. In asserting that properties are simultaneously dispositional and qualitative the identity theory avoids the epistemic worries arising from positing qualitative properties as distinct from dispositional properties.
4. Shoemaker’s Arguments Support the Identity Theory

Argument 1 demonstrates that positing logically distinct, non-dispositional properties leads to skepticism concerning the relationship between qualitative and dispositional properties. The identity theory dissolves the epistemic problem. When two qualitative properties make exactly the same contribution to an object’s dispositionality, it makes the most sense to say they are the same property. Thus, if \( P_{q1} = P_{d1} = P_{q2} \) then \( P_{q1} = P_{q2} \). Let me revisit our object with qualitative properties \( A \) and \( B \) and dispositional property \( d \). Remember that \( A \) and \( B \) make exactly the same contribution to \( d \). On the identity theory, when property \( A \) changes, so does property \( B \) and property \( d \), and when property \( B \) changes, so does property \( A \) and property \( d \). Furthermore, the argument reveals a problem with the view that a qualitative property merely makes a contribution to an object’s disposition. When we think a qualitative property makes a contribution to a disposition, we are seeing the intimate connection between qualitative and dispositional properties because these two types of properties are the same.

The second argument demonstrates that positing an ontological distinction between dispositional and qualitative properties leads to an inability to know if two objects are identical. The identity theory assures us that we can correctly judge objects \( X \) and \( Y \) as identical because if all their dispositions are identical, all their qualitative properties must be identical as well. So the suggestion that two objects might have identical dispositional properties while differing in their non-dispositional properties demonstrates the absurdity of positing such non-dispositional properties. For in that case, we would judge objects \( X \) and \( Y \) to be identical, but our judgment would be wrong. So qualitative properties must not be ontologically distinct from dispositional properties; in other words, the identity theory holds true.

The third argument demonstrates that, if qualitative and dispositional properties vary independently of one another, then there may be qualitative changes of which we cannot (in principle) detect. Instead of doing away with qualitative properties, let us say that, when an object’s qualitative properties change, its dispositional properties must change as well. Because the identity theory states that qualitative and dispositional properties are identical, when a qualitative property changes, the dispositional property changes as well. For example, if a sphere’s qualitative property of ‘roundness’ changes to ‘cubical,’ then the sphere’s dispositional property ‘to roll’ would change as well. Dispositional and qualitative properties must vary in harmony with one another because they are identical to one another.

Shoemaker demonstrates an epistemic quandary arising from the claim that qualitative and dispositional properties are distinct. While Shoemaker eliminates qualitative properties to resolve the problem, a pure powers view of properties is not the only option. Martin and Heil can affirm the arguments I have outlined in this paper. If we do not want to posit qualitative properties as distinct from dispositional properties, let us abandon the ontological distinction between the two. The distinction between the two would instead be merely conceptual—two ways of thinking of the same property.

5. A Brief Objection

One difficulty in criticizing a pure dispositionality view while defending the identity theory is that, according to the identity theory, every property is dispositional. I have stated that there are no non-dispositional properties under the identity theory (of course there are also no non-qualitative properties either). From this it may seem that the identity theory is subject to the same problems as a pure dispositionality view. However, I do not think this is the case.
The regress problems Martin poses to the pure dispositionalist are solved by the existence of qualitative properties. The first regress problem is solved because, when we offer a qualitative property, there is no need to reduce it to a disposition. Both views agree that some of the properties resulting from a manifestation of a disposition will be dispositions. This only leads to a regress if the manifestation is only a change in dispositionality. However, under the identity theory the manifestation will be qualitative as well. So although each manifestation is a promissory note for another promissory note, each promissory note contains what was promised as well. Because there are qualitative properties, we do have real manifestations as we expect.

6. Conclusion

Shoemaker demonstrates that positing non-dispositional properties, as Prior et al. do, leads to epistemic problems. Non-dispositional properties are properties about which we cannot know and, consequently, if we posit non-dispositional properties, we cannot really know an object. Because these arguments are epistemic in nature, they do not demand that we deny non-dispositional properties and, indeed, non-dispositional properties may exist. However, because we have no way of knowing if this is the case, and, furthermore, because there is no need to make such a proposal, we will be better off if we reject non-dispositional properties.

Shoemaker proposes not only that we reject non-dispositional properties but also that we reject qualitative properties. For those of us who would rather hold onto qualitative properties, I propose that we adopt the identity theory. The identity theory proposes that all properties are simultaneously dispositional and qualitative. If we propose that every property is dispositional (though it is also qualitative), then we avoid the problems presented by Shoemaker's arguments. Any change in a qualitative property will change the dispositional property that is identical to that qualitative property. If we know that two objects have identical dispositional properties, we know they have identical qualitative properties. Thus, these arguments, originally intended by Shoemaker to persuade us to accept a pure powers ontology, may persuade us instead to accept the identity theory.

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References


