

## Platonic Dispositionalism

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In this paper I argue that if one subscribes to dispositionalism—the view that natural properties are irreducibly dispositional in character—then one ought to favour a Platonic view of properties. That is, dispositionalists ought to view properties as transcendent universals. I argue for this on the grounds that only with transcendent universals in play can two central dispositionalist platitudes be accounted for in a satisfactory way. Given that dispositionalism is becoming an increasingly influential view in the metaphysics of science, my argument, if successful, suggests that Platonism will see something of a revival in contemporary metaphysics. As we will see towards the end of the paper, this new kind of Platonism has some striking metaphysical and epistemological consequences.

### 1. Introduction

In this paper I argue that if one subscribes to dispositionalism—the view that natural properties are irreducibly dispositional in character—then one ought to favour a certain Platonic view of properties. On the Platonic view, properties are understood as universals which exist independently of their spatiotemporal instantiations: they are transcendent. The core reason why dispositionalists ought to accept a Platonic view is that only with transcendent universals in play can two central platitudes about irreducible dispositions be accounted for satisfactorily. The first dispositionalist platitude concerns the fact that particulars can have dispositions even if those dispositions are never manifested. The second dispositionalist platitude, which will be appealed to in the last part of the core argument, concerns the fact that at least some dispositions are instantiated intrinsically to their possessors. Given that dispositionalism is becoming an increasingly influential view in the metaphysics of science, these conclusions suggest that Platonism will see something of a revival in contemporary metaphysics. After providing the core argument and defending the Platonic view proposed against rival conceptions of dispositions, I will finally explore some of the modal and epistemological consequences of this new form of Platonism, before assuaging some of the worries that these consequences might invite.

Before proceeding, one important point should be emphasized, so that potential confusion is avoided. It is not my intention in this paper to pass judgement on the tenability of Platonism as a general theory. Rather, my conclusion is merely that *if* one subscribes to dispositionalism, then one has special reasons for favouring a certain Platonic view of properties. The question whether Platonism is ultimately acceptable is one I will not attempt to address here. I will not, for example, address the much discussed question of how to understand the relationship between universals and

their concrete instantiations. That said, towards the end of the paper, I will suggest that many of the novel features added to the Platonic picture by dispositionalism are not in themselves problematic.

Let us now say a little more about dispositionalism. As indicated already, dispositionalism is a metaphysical view about natural properties, and it is one that has gained a significant number of adherents in recent decades (e.g. Shoemaker (1980), Ellis (2001), Molnar (2003), Mumford (2004), and Bird (2007)). According to dispositionalism, dispositions (or what are sometimes called ‘causal powers’) are taken to be real properties of concrete things, and properties which cannot be reduced to any more basic kind of entity. But what, precisely, does it mean to say that a property is irreducibly dispositional in nature? Roughly, it means that the property is characterized in terms of the causal behaviour that things instantiating that property are apt to display. This is to say, in other words, that irreducibly dispositional properties are by their very nature orientated towards certain causal manifestations. To illustrate, in order to explain what it means for, say, a particle to have the property of being charged, the dispositionalists will point out for example that charged particles accelerate when placed in an electro-static field. In explaining this feature of charge, dispositionalists take themselves to have said something about the essential nature of charge.<sup>1</sup> In short, then, dispositionalists see properties as properties for something else: their causal manifestations.

Although all dispositionalist views hold that dispositions form a distinct and ineliminable ontological category, some versions of dispositionalism are slightly stronger than others. According to the strongest version of dispositionalism, *all* natural properties are viewed as being irreducibly dispositional in nature. This view is known as dispositional monism, and current advocates appear to include Bird (2007) and Mumford (2004). There are also weaker versions of dispositionalism, which we may call the ‘mixed’ views. On one mixed view, it is said that while some natural properties are essentially or irreducibly dispositional in nature, not all are. Ellis (2002) and Molnar (2003) fall into this category. On another kind of mixed view, it is said that while all natural properties have an irreducibly dispositional aspect to them, they also have a qualitative aspect. Martin (1993) and Heil (2003) fall into this category.<sup>2</sup> But although dispositionalism comes in these slightly different forms,

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<sup>1</sup> Many dispositionalists hold that the identities of dispositions are also fixed by the nature of the stimuli which prompt their manifestations (see for example Bird 2007, p. 145). This allows us to distinguish dispositions which are intuitively different but which have similar manifestations. Since the arguments in this paper are unaffected by the addition of this detail, I will not say much more about it.

<sup>2</sup> See also my 2012a where a reason for favouring this kind of mixed view is discussed. Note that recently, Martin and Heil have claimed that the dispositional and qualitative aspects of properties are not distinct, but rather identical (for example Martin 2008). I think this modification creates problems; for example, I worry with Molnar (2003, p. 155) that this identity view threatens to make the dispositional/categorical distinction mind-dependent. For this reason, I will primarily apply my arguments to the views outlined above, which are more obviously thoroughgoing realist views about dispositions.

all dispositionalists agree that irreducible dispositionality has certain fundamental features. It is these features, I will argue, that can only be accommodated adequately within a Platonic framework. Thus, this paper presents both the strong and weak dispositionalists with special reasons for favouring Platonism.

This may be a surprising outcome, and indeed it is one that has not yet been appreciated in the dispositionalist literature. This is clearly shown by the fact that dispositionalists typically either hold a trope view of properties, as Heil (2003, Ch. 13), Molnar (2003, Ch. 1.2) and Whittle (2008, Sect. V) do, or take properties to be universals in the Aristotelian sense (i.e. universals that are ‘immanent’, in space and time), as Ellis (2001, pp. 17–19) and Mumford (2004, p. 180) do. A minority of dispositionalists, namely Fales (1990, pp. 215–19) and Bird (2007, Ch. 3.2.2), have tentatively argued that the transcendent view of universals brings certain benefits which the immanent universals view does not. However, the main argument they appeal to is not conclusive (as we will see later), and so they do not place a great deal of emphasis on the Platonic aspect of their views. When discussing Platonism, Bird for example says that ‘[S]uch a view is not mandatory on my account’ (Bird 2007, p. 205). At another point in his book, Bird concedes even more, arguing that it ‘... is perfectly coherent to take an Aristotelian view of potencies’ (2007, p. 55; note that ‘potencies’ is the term Bird uses to refer to the natural properties). As we will see later on, I do not share Bird’s faith in the coherence of Aristotelian dispositionalism. Accordingly, I will in section 3 present a more conclusive argument against Aristotelian dispositionalism. However, before addressing the specific choice between Aristotelian dispositionalism and Platonic dispositionalism, we must first address, in the next section, the more general debate between trope dispositionalists and dispositionalists who prefer universals.

The part of the core argument presented in section 2, which attempts to establish that dispositions are best viewed as universals rather than tropes, may be summarized as follows. There is a central fact about irreducible dispositionality which any dispositionalist must account for. I argue that a theory of universals offers better metaphysical resources for accommodating this uncontroversial fact. The fact is captured by what I call the ‘central’ dispositionalist platitude:

Central platitude: a particular can have a disposition even if it never manifests that disposition

The challenge of accommodating this platitude within the dispositional metaphysic is what Armstrong calls the ‘Meinongian’ problem (1997, p. 79). Unlike Armstrong, I argue that this problem does not afflict all versions of dispositionalism equally, and is only insurmountable on the trope view. The second stage of my overall argument, the conclusion of which is that Platonic dispositionalism is to be preferred over the Aristotelian version, involves an issue which has received less attention than the Meinongian problem. In this part of the core argument, presented in section 3, I again explore potential tensions between Aristotelianism and the central platitude, using an objection first raised in Tooley 1977, before conceding that the Aristotelians can simply offer a bullet-biting response here.

However, at this point I argue that Aristotelianism is still unable to accommodate successfully a further, related platitude. Platonism is, in contrast, perfectly consistent with this platitude:

Intrinsicness platitude: many disposition instantiations are intrinsic to their possessors

It is the central platitude that does much of the work in the overall argument, but when the argument concerning intrinsicness is also used against the Aristotelians towards the end, we yield the powerful conclusion that a certain Platonic version of dispositionalism is the best. On the specific version of Platonism to be proposed, dispositional properties are taken to be transcendent universals which are internally related at the second-order level to further manifestation properties.

After providing the core argument, I will in section 4 explore some less orthodox and underexplored metaphysical accounts of dispositions, and consider whether any of those might be preferable to the version of Platonism presented. I will argue that they are not. In the final section of the paper, I will conclude by tracing out some important modal and epistemological consequences of Platonic dispositionalism, many of which have not yet been fully appreciated in the literature.

## 2. Dispositions as tropes or universals?

Let us first outline the general trope versus universals debate, before seeing how the central dispositionalist platitude influences it. Those who adopt a distinct category of properties into their ontology typically understand properties as either tropes or universals. If one adopts universals, then one holds that all instances of a given property are instances of the very same entity. Thus, when it is said that a group of things all have the same property, the universals theorists take this way of talking at face value, and view those things as being *identical* in a certain respect: in respect of sharing the same universal. This same universal can therefore be instantiated in different places at the same time.

In contrast, according to the trope view of properties, each property instance is taken to be distinct, and so like objects, properties do not exist at different locations at the same time. Thus, on this view, properties are themselves particular, although since (plausibly) they cannot exist apart from the objects which bestow them, they are abstract particulars. How, then, does the trope theorist understand the claim that a group of objects—such as one involving, say, New York taxis and Ragwort flowers—share a common property? If one is a trope theorist, then this claim must, strictly speaking, be understood as the claim that the objects in question each possess a *distinct* property instance (i.e. trope) all of which resemble each other.<sup>3</sup>

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<sup>3</sup> The debate between the trope theorists and universals theorists is complicated somewhat by the fact that some metaphysicians hold that *both* a category of universals and a category of tropes are needed in our ontology (see for example Lowe 2006, Ch. 6). The aim of this paper is to establish merely that in order to account for

Let us now turn to the central platitude about dispositions, introduced earlier, and see how it affects the trope versus universals debate in the context of dispositionalism. The central platitude, to recap, is:

Central platitude: a particular can have a disposition even if it never manifests that disposition

As with most platitudes, not much argument, if any, is needed to see that this claim is plausible. Imagine a cube of sugar that has always been in the driest part of the desert, and always will be. In such an environment, the sugar will never come into contact with water. Would it nevertheless be true to say that this sugar cube is water-soluble? For the dispositionalists, the answer is clearly yes. Dispositions, such as solubility, are properties which determine how a thing *would* behave in certain circumstances, and a thing can clearly have the potential for certain behaviour even if their surrounding environment is not conducive to that behaviour. In fact, we need not consider imaginary scenarios in order to find plausible cases of unmanifested dispositions. My grandma's valuable antique vase is, we are quite sure, fragile, and for both financial and sentimental reasons my family will ensure its fragility will forever remain unmanifested.

I will now argue that the theory of universals provides the best resources for accommodating and explaining the central platitude. In order to succeed in this aim, I must show first that the standard versions of trope dispositionalism are impoverished in some way when it comes to accounting for this central fact. It is to this issue that I now turn.

We have already seen how the nature of a disposition consists in an orientation towards a certain manifestation or perhaps multiple manifestations (in varying circumstances). Now, if dispositions are taken to be real, irreducible features of reality, as dispositionalists maintain, then some account of this directedness needs to be offered. How is it that physical properties can point beyond themselves, as it were, towards their manifestation? As soon as the dispositionalists set about answering this question, it is clear that the central platitude described above becomes relevant, because it places an important constraint on the account given of dispositional directedness. The constraint is that our account must explain dispositional directedness in a way that accommodates cases of disposition instantiation in which *the relevant manifestations never come about*. This constraint is clearly important, given that the very identity of a disposition is determined, at least in part, by its directedness towards a certain manifestation. If we fail to account for how a disposition could have a directedness towards a manifestation in, say, the forever-dry sugar cube case, it would no longer be clear in what sense that sugar cube could be said to be water-soluble.

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irreducible dispositions in an adequate way, Platonic universals are needed. If there are independent reasons for accepting tropes in addition to these universals, then so be it.

How, then, might the trope dispositionalists set about accounting for the directedness of disposition tropes in cases where the manifestations of those tropes never come about? An obvious way to account for the connection between a disposition and its manifestation, on either the trope or universals view, is to appeal to a relation of some sort. When we say that entities are connected in some way, what we typically mean is that those entities stand in a relation to one another. If we took this route, the nature and identity of a disposition could be said to be grounded by a non-symmetric relation, call it the 'manifestation' relation. Grounding the nature of a disposition in a genuine relation would provide a straightforward answer to the challenge of explaining the directedness (and so identity) of dispositions. The problem is, however, that as soon as the central platitude is acknowledged, it is no longer clear that this option is open to the trope dispositionalists.

The worry here is that in cases where the manifestation of a thing's disposition never comes about, there will be nothing for the relevant trope to be related to. Therefore, by accounting for dispositional directedness in terms of a genuine relation, the trope theorists will it seems be left with cases in which that relation has only one relatum. But plausibly, relations only exist in so far as they relate one thing to another thing (or multiple things). And even if the notion of relations lacking some of their relata is coherent, which I suspect it is not, this still would not help the trope dispositionalists. Dispositions are directed towards *specific* kinds of manifestations, and it is precisely this feature which makes the identity of dispositions determinate. But if the trope theorist accounts for dispositional directedness in terms of genuine relations, and one of the relata is missing in cases of unmanifested dispositions, it could no longer be said that those dispositions had a *specific* directedness. This would leave the identity of many disposition tropes indeterminate.

A problem along these lines has been raised previously by critics of dispositionalism, such as Armstrong (1997, p. 79; see also Handfield 2008, p.119, who touches upon this problem in a discussion on how Humeans can accommodate dispositional properties). Armstrong thinks that this 'Meinongian' problem applies equally to all forms of dispositionalism, but as we will now see, this is a point on which I disagree. If a theory of universals is accepted, the prospects for answering the Meinongian worry are much better. If I am right, then the Meinongian problem is ultimately a problem about dispositions *viewed as tropes*.

Before showing how the Meinongian problem is surmountable for the universals dispositionalists, let us first consider how the trope dispositionalists might try to respond to the problem. One response would involve questioning whether, just because the manifestations of certain disposition tropes are never realized, that means we cannot quantify over them. Perhaps there is a case to be made for accepting the existence of unrealized possibilities in addition to actual concrete occurrences. If we were to reify counterfactual scenarios, the relational account of dispositional directedness would be more sustainable: rather than having to say that unmanifested disposition tropes are related to something that does not exist, we could simply say they are related to real counterfactual entities, which represent the as-yet-unrealized manifestations.

As far as I know, no current trope dispositionalists have taken this route, and for good reason in my view. Accepting the existence of states of affairs corresponding to each and every unrealized possibility for the purposes of accounting for dispositional directedness would clearly inflate our ontology significantly, and so should be avoided if at all possible, in the interest of economy. The only dispositionalist (as far as I know) who has seriously considered the *possibilia* approach is Bird (2006; 2007, p. 130), although he does so in the context of a universals rather than trope view of properties.<sup>4</sup> As we will see in a moment, however, with universals in play it seems this route is avoidable. But that aside, might the strategy of accepting unrealized *possibilia* be one that can rescue the trope dispositionalists?

Unfortunately, I doubt this strategy is one that can be reasonably employed by dispositionalists of any variety. Pushing aside typical worries concerning the metaphysical oddness of unrealized entities, the main problem is that this strategy threatens to undermine the main motivations for accepting irreducible dispositions in the first place. The worry here concerns the fact that the main motivation for accepting irreducibly dispositional properties is that they can provide truthmakers for a variety of modal claims such as those concerning counterfactuals, laws and dispositions themselves. But crucially, as Lewis (1986) has notoriously shown, real *possibilia* alone can in principle be employed to ground modal claims. If, therefore, dispositionalists are happy to accept that unrealized possibilities exist, one wonders why the unrealized possibilities themselves cannot simply be made to provide truthmakers for modal truths, as they typically do on other modal realist theories. Surely if we are to accept that possibilities are entities in their own right, these will be the most obvious candidates where the truthmakers for modal claims are concerned, rather than properties. And by cutting out the disposition ‘middle men’ we would be left with a much more parsimonious view than one which accepts the existence of *both* irreducible dispositional properties and mere *possibilia*.<sup>5</sup>

There will of course be obvious differences between the view of possibilities which Bird would advocate and that which Lewis himself adopts, aside from the fact that Bird takes *possibilia* to be actual and abstract rather than concrete and other-worldly. For example, as someone with dispositionalist intuitions, Bird would disagree with Lewis on precisely which possibilities there are. Lewis has a very permissive view about which possibilities exist, and this is because he accepts the principle of recombination: that any entity can be combined with any other distinct entity in a possible

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<sup>4</sup> It should be noted that Bird’s realism about *possibilia* is milder than that in, say, Lewis 1986, where possible worlds are taken to be concrete entities rather than abstract ones. Bird (2006, p. 501) does not say a great deal about the precise nature of the abstract *possibilia* he appeals to, however the argument which follows suggests that whichever specific theory of *possibilia* is adopted, it will not sit well with the dispositionalist view.

<sup>5</sup> Roughly speaking, on Lewis’s theory counterfactual truths are said to be grounded by what take place at the ‘close’ possibilities (that is, possibilities sufficiently similar to ours in general respects). Claims about a thing’s unmanifested dispositions are then grounded by the counterfactual possibilities in which that thing (or, on Lewis’s view, its counterpart) displays a certain manifestation in response to a given stimulus.

scenario. This is something that someone with dispositionalist intuitions—someone who takes properties and causal potential to be inextricably tied—would want to reject. Note, however, that dispositionalist intuitions can still be preserved even if the realist dispositionalist ontology is relinquished. As long as existing possibilities are accepted, as they already are on Bird's picture, a nominalist analogue of dispositionalism is for example available which Whittle calls 'causal' nominalism and which preserves precisely the aforementioned intuition.<sup>6</sup>

In sum, then, if the existence of unrealized possibilia is accepted, it is not clear what explanatory work there is left for irreducible dispositions to do. It is for this reason, I suspect, why other dispositionalists have not shared Bird's eagerness to accept the existence of unrealized possibilia in addition to irreducibly dispositional properties. This is, as we will now see, clearly the case with Heil.

Let us now see how trope dispositionalists have invariably reacted to the Meinongian issue, and why this reaction is likely to leave opponents like Armstrong unsatisfied. The response in question has involved simply conceding that dispositional directedness must not consist in a genuine relation. Heil, for example, who claims to be a trope dispositionalist, clearly concedes that dispositional directedness is not a relational affair: '[T]he existence of a disposition (trope) does not in any way depend on the disposition's standing in a relation to its actual or possible manifestations' (Heil 2003, p. 80; word in parentheses added for clarity). Heil also puts the point in terms of truthmaking, which reveals his reluctance to accept the possibilia approach just discussed: '[T]he truth-maker for 'this key would open a lock of kind K' is not the key, possible lock of kind K, and a relation between the key and K' (Heil 2003, p.124). Rather, Heil suggests, the directedness is 'built into' property tropes: '[I]f the key 'points beyond' itself to locks of a particular sort, it does so in virtue of its intrinsic features' (Heil 2003, p. 124).

Given all of the problems discussed a moment ago, one can see why Heil is eager to reject the relational account of dispositional directedness. In response, however, we must surely ask what, precisely, it could mean for a trope to 'point beyond' itself to a manifestation which may not exist. Can the trope theorist put any ontological flesh onto the 'pointing beyond' metaphor? Unfortunately, Heil says little about what the 'pointing beyond' metaphor amounts to metaphysically. But without adding to the story, critics like Armstrong will remain unsatisfied, for his worry is precisely that it is utterly mysterious how a non-mental state could point beyond itself to something that does not exist in a quasi-intentional fashion. Rather than tackling the Meinongian question, Heil is, as a trope theorist, forced largely to ignore it.

This shortcoming is not peculiar to Heil's version of trope dispositionalism. Martin, another trope dispositionalist, appeals to an array of gestures and metaphors in order to capture dispositional directedness, such as the 'what for' of dispositionality (2008, p.4) and dispositional 'selectiveness'

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<sup>6</sup> See Whittle 2009 for further details.



(2008, p.7), but with little metaphysical elaboration.<sup>7</sup> I do not claim that this shortcoming is fatal, but this failure to take the Meinongian problem seriously is, I think, the main reason why many metaphysicians have found the notion of irreducible dispositionalism worryingly opaque and have, for all its benefits, been reluctant to accept dispositionalism. As we will now see, however, dispositionalists need not take the directedness of unmanifested dispositions to be such a mysterious feature. A more transparent account of dispositional directedness *is* available if universals are accepted. This account is one that, importantly, straightforwardly accommodates the central platitude.

How, then, can the universals dispositionalists account for dispositional directedness? The answer is that, unlike the trope theorists, universalists can do so by taking the most obvious route: by grounding dispositional directedness in a *genuine* relation. Note first that in accounting for dispositional directedness on the universals theory, we would not need a separate relation holding between each disposition instantiated by a particular, and a particular manifestation (which may not exist). On the universals theory, all that is needed to secure the directedness of any instance of a certain disposition is a *single* manifestation relation holding between the universal which that disposition is an instance of, and the universal corresponding to the type of manifestation that the disposition is for. This is because, to recall, on the universals theory all instances of a given property are instances of the very same thing (i.e. a universal). Now, crucially, this economy means that even if a particular object's disposition never manifests, the directedness of that disposition may nevertheless be secured by a second-order (non-symmetric) relation to the relevant manifestation universal. There can be such a relation because the manifestation universal can still exist even if the particular's disposition never actually manifests. For if one holds that universals are immanent, which is to say they exist wholly in space and time, as Ellis does, then the relevant manifestation universals will automatically exist 'if something, somewhere, at some time, has an effect of this generic kind' (Ellis 2001, p. 133). For this reason, immanent universals can help the dispositionalists avoid having to say that a thing's unmanifested disposition is related in some mysterious way to something that does not exist (or to *possibilia*), providing the relevant manifestation universal somewhere has an instantiation.<sup>8</sup>

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<sup>7</sup> Other examples: Whittle, who holds a trope theory, considers and then denies the proposal that dispositional directedness is grounded in second-order properties (2008, p. 75–6), and takes it as a brute fact about the tropes themselves that they are directed towards certain potential manifestations rather than others. Molnar, another trope dispositionalist, tries to make the account of dispositional directedness more intelligible by suggesting that dispositional directedness is '... something *very much like* intentionality' (Molnar 2003, p. 61). But unfortunately, Molnar is unable to shed much light on the nature of physical intentionality and concedes in the end that physical intentionality must simply be taken to be 'primitive' (2003, p. 81). For further criticisms of the physical intentionality view, see Bird 2007, pp. 118–26, and Mumford 1999.

<sup>8</sup> Mumford (2004, Ch. 11.7) has also advocated immanent realism for this kind of reason.

If, contrary to the immanent realists, one holds that universals are transcendent (i.e. that they exist uninstantiated), then the requirement that dispositions are always related to something that exists is automatically satisfied. This is because, as we will see later in section 5, transcendent universals are plausibly necessary existents. Thus, even if no instantiation of a given disposition universal ever gets around to manifesting, the directedness (and so identity) of those dispositions would still be secured in virtue of second-order relations to the manifestation universals, at the transcendent level.

In sum, then, we have seen how, unlike the trope dispositionalists, universals dispositionalists are able to solve Armstrong's Meinongian problem. They can do so because they have the resources to account for dispositional directedness in terms of genuine relations in a way which, importantly, allows the central platitude to be accommodated. Because these relations which ground dispositional directedness hold between the universals themselves, rather than particulars, they are *second-order* relations (as opposed to first-order). Such relations may remind us of the second-order relations between universals which Armstrong posits to account for lawhood (1983). Note, however, that second-order manifestation relations are different in at least one important respect. Because the very identity of a disposition is determined by its directedness, the second-order relations which ground this directedness are *internal* and so necessary. Since, in contrast, Armstrong's second-order nomic relations relate properties which are not essentially dispositional in nature (i.e. are categorical), these nomic relations are not internal: that is, they could in principle have failed to hold. As we will see in section 5, given the internality of the dispositionalists' manifestation relations, this leaves the dispositionalists with a position which could be seen as the second-order analogue of a holistic metaphysical view which Schaffer calls 'priority monism' (2010, p. 343).<sup>9</sup>

### **3. The Aristotelian versus Platonic view of disposition universals**

Now that a universals version of dispositionalism has been recommended, let us turn to the choice facing dispositionalists between the Platonic view of universals, which sees universals as transcendent entities, and the Aristotelian view, which sees universals as immanent entities. Roughly, the argument will run as follows. Although the Aristotelians can accommodate the central platitude in cases in which the manifestation properties have at least one concrete instantiation, they still face the potential problem of accounting for dispositional directedness in certain cases first raised in Tooley 1977. The best Aristotelian response here is to bite the bullet and claim that the cases in question are not ones involving (unmanifested) dispositions at all. I will argue, however, that a further problem still remains, which is that the Aristotelian dispositionalists find themselves in a position whereby the

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<sup>9</sup> See Schaffer 2010, Sect. 2, for a detailed argument for why the internal relatedness leads to monism.

intrinsicness of disposition instantiations cannot be accommodated. Platonic dispositionalism, on the other hand, does not face this problem, and so is to be preferred.

As we have already seen, the general point of contention between the Aristotelians and Platonists concerns the existence of uninstantiated properties. Traditionally, philosophers have had mixed intuitions on this issue. In recent decades, however, some Platonists have tried to shift the debate in their favour by appealing to certain claims about causation and lawhood. Tooley (1977) was the first to employ this strategy in a debate with Aristotelians like Armstrong. Bird (2007, pp. 53–4) and Fales (1990, pp. 216–19) have since used the Tooley-type argument in support of the Platonic version of dispositionalism as opposed to the Aristotelian version, and so a brief discussion of that argument is relevant here. I will argue however that the Tooley-type argument against Aristotelianism has very limited success, because it is likely the Aristotelians will be happy to offer a bullet-biting response.

The argument pushed by Platonists like Tooley begins with the observation that since laws typically concern relations between properties, and properties are viewed by the Aristotelians as immanent universals, then immanent universals must play an important role in their account of lawhood. A potential worry awaits this kind of view, according to Tooley (1977, p. 669). It does not seem implausible to think that there could be laws concerning interactions which never happen to physically occur. Even if, say, particles of certain kinds never happen to interact, it nevertheless seems intuitive to some that there could and indeed should be a fact of the matter about what the effects of such interactions would be, a fact expressed in the relevant laws. If one is an Aristotelian, however, one will clearly have trouble accounting for these alleged facts about the potential effects of never-to-occur interactions. If the effects in question have never physically occurred, then the immanent universal corresponding to the effect property does not exist. But if causal laws concern relations between properties (i.e. universals), and the ‘effect’ universal does not exist, then an important element of the alleged law governing the interaction is lost. But without the law, it seems there will be nothing to ground facts about what *would* have happened if the relevant interactions had occurred.

Now, this same kind of worry could be raised against Aristotelian dispositionalists given that, on their view, dispositions are grounded in the second-order (manifestation) relations between universals. Indeed, the Tooley-type case is precisely what Fales and Bird point to in order to show the appeal of a Platonic version of dispositionalism. The worry is that since there will be no manifestation universals corresponding to effects that have never been instantiated, this means there will be no manifestations for the aforementioned never-to-meet particle kinds to be disposed towards, if Aristotelianism is accepted. As such, there will be no fact of the matter as to what kind of manifestation the interaction of those particles would give rise to. This means, in other words, that the particles lack (unmanifested) dispositions which intuitively they should have.

How conclusive is this argument, which Bird and Fales both use against Aristotelianism? I have to confess that I have less faith in it than Bird and Fales appear to have. The problem is that the Tooley-type argument is only likely to persuade those who already have Platonic intuitions. Armstrong, who

has no such intuitions, simply bites the bullet in response to Tooley and accepts that there are no laws where uninstantiated interactions are concerned.<sup>10</sup> As Armstrong points out, this is a perfectly coherent position to take: examples of counterfactuals lacking determinate consequents are not uncommon, as for example counterfactuals about probabilistic interactions illustrate (1997, p. 253). Likewise, then, the Aristotelian dispositionalists are likely to take a similar line and simply question the intuition had by Bird and Fales that unmanifested dispositions could be present in the Tooley-type cases. Unless one already has clear Platonic intuitions, one will not be moved by the Tooley-type argument employed by Bird and Fales.

At this point, however, there is I suggest a more conclusive argument to be had against Aristotelian dispositionalists. When we reflect upon certain thought experiments concerning uninstantiated manifestations, it becomes clear that Aristotelian dispositionalism is still inconsistent with a further platitude about irreducible dispositions. The platitude in question, which is related to the central platitude, is as follows:

The Intrinsicness Platitude: Many disposition instantiations are intrinsic to their possessors

What, precisely, does it mean to say that a property is instantiated intrinsically? Roughly, a property is intrinsic to a particular if its instantiation is independent of that particular's external surroundings. Many properties seem to be of this nature, and so the concept of intrinsicness is pervasive in metaphysics. Surprisingly, though, when we try to give a precise definition of the concept of intrinsicness, the task turns out to be more challenging than might be expected (e.g. see Langton and Lewis 1998 and Denby 2006). For our purposes, however, the following rough definition will suffice to capture the main intuition about intrinsicness. Even if there are details which need to be added, as long as there are disposition instantiations which satisfy the main intuition expressed, we can say with confidence that these dispositions are intrinsic to their possessors:

P is an intrinsic property of x if and only if x's having P is independent of the existence of distinct particulars and x's relation to them

Will the dispositionalists be inclined to think there are instances of dispositions which satisfy this definition? An initial, but mistaken, reaction would involve thinking that because the universals theory proposed accounts for dispositional directedness in terms of genuine *relations*, this automatically rules out the possibility of a particular instantiating a disposition which is wholly intrinsic. It is important to re-emphasize, however, that the manifestation relations which ground the

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<sup>10</sup> See also Lowe 2009, p. 146, in which a similar Aristotelian move is suggested.

directedness (and identity) of dispositions are instantiated at the second-order level on this view, *between the universals themselves*. As Bird has pointed out, this should not be confused with the first-order level of particulars-bearing-properties: one could consistently deny that particulars are purely relational entities (i.e. accept that particulars have intrinsic properties), while accepting that universals themselves are internally related by second-order relations (2007, pp. 140–1). For the universals dispositionalists, therefore, it is a further question as to whether particulars instantiate some dispositional properties intrinsically.

When particular cases of dispositions are considered it seems overwhelmingly plausible that there are indeed dispositions which are instantiated intrinsically. To return to a case discussed earlier, it seems that the charge possessed by, say, an electron, is a property that it has independently of the external situation in which it happens to find itself. It seems clear, then, that at least some disposition instantiations will be taken to be intrinsic to their possessors on the dispositionalist picture. And in fact, it seems that most dispositions will be viewed as being intrinsically instantiated, such as the solubility of a sugar cube, the fragility of a vase, and the flammability of hairspray.

It should be acknowledged that some have argued that not *all* disposition instantiations are intrinsic. McKittrick (2003), for example, has offered the property of weight as an example of an extrinsic disposition. If a person is moved from one planet to another, their weight may change, even if the person remains intrinsically identical. But as Molnar and others have pointed out, it seems clear that not all dispositions are extrinsically instantiated. In coming to explain *why* a person's weight is as it is, we inevitably appeal to properties that do seem to be instantiated intrinsically to their possessors, such as the mass of the person and the mass of the planet. But unlike weight, mass is plausibly not extrinsic: no matter where a massive particular is located, it will retain the same gravitational *abilities* (unless its mass changes). In sum, then, it seems clear that even if some dispositions are extrinsic to their possessors, many are not. 'Such is the resilience of the intrinsic', as Molnar puts it (2003, p. 107).

Let us now proceed to the argument against Aristotelian dispositionalism. As we have seen, if a disposition *D* really is instantiated intrinsically to object *x*, then even if the physical environment external to *x* changed, it will still retain *D* (unless, of course, *x* itself is interfered with in the process). Recall also that according to the universals version of dispositionalism, the very nature and identity of a disposition is secured by its directedness towards a certain manifestation type (at the second-order level). With both of these facts in mind, we are in a position to construct a thought experiment which creates a problem for the Aristotelian dispositionalists.

Let us begin by choosing an example of a disposition which a dispositionalist will think is plausibly instantiated intrinsically by its possessors, such as fragility. The nature of the property of fragility will, on the universals picture, be determined by the property's directedness (at the second-

order level) towards breakage (i.e. the universal corresponding to breakage).<sup>11</sup> The universal corresponding to breakage is instantiated pervasively in our world, and so in fact the Aristotelian dispositionalist has no problem in finding a manifestation universal in the world towards which fragility can be said to be directed: the central platitude is straightforwardly accommodated in this case. But now consider the following scenario: imagine that the circumstances *external* to my grandma's fragile vase had been different, and that nothing had ever happened to break, and nothing ever will. In this scenario, the Aristotelian clearly has to say that the universal corresponding to breakage does not exist, since it has no spatiotemporal instantiations (we are of course assuming that Grandma's vase is never broken either). But if this is so, there is now no manifestation universal for the property of being fragile to be directed towards. And given that the very nature and identity of a property is determined by its directedness towards a particular manifestation universal on the dispositionalist picture, this means that Grandma's vase can no longer be said to be fragile. At best, Grandma's vase now has an indeterminate disposition. But wait. Did we not accept that the fragility of Grandma's vase is intrinsic to it? If the fragility of the vase really is intrinsic, then surely it should not have lost its fragility in the scenario described. In our story, only circumstances *external* to Grandma's vase were changed; we merely altered the circumstances external to the vase in such a way that anything *else* was prevented from breaking. Nothing about the vase itself had been changed. Thus, a clear problem for the Aristotelian view under consideration is revealed: its commitment to immanent universals is inconsistent with the intrinsicness platitude. This is because we can always tweak the external circumstances in such a way that a particular loses a putative intrinsic property. But this should not be possible, if that disposition really is instantiated intrinsically.

If one accepts Platonism, on the other hand, this problem is straightforwardly avoided. On the Platonic picture proposed, manifestation universals exist even if they are never instantiated. Thus, the directedness (and so identity) of a disposition is secured regardless of the contingent circumstances that possessors of those dispositions find themselves in. On the Platonic picture, we cannot make Grandma's vase lose its fragility by placing it in a 'breakage-less' physical world, so to speak, because the nature and identity of fragility is secured by the second-order relations between universals which transcend the spatiotemporal realm.

A further point should also be acknowledged. The Aristotelian dispositionalists cannot even take comfort in the thought that rival Aristotelians such as Armstrong, who do not subscribe to dispositionalism, also have trouble accommodating the apparent intrinsicness of certain property instantiations. On the categoriclist Aristotelian picture (such as Armstrong's), Grandma's vase would not lose any of its supposed intrinsic properties when placed in a world lacking breakage. This is

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<sup>11</sup> I have chosen this example merely for illustrative purposes. If one is worried about whether fragility really is intrinsic, or whether it is a genuine natural property, then the following argument can be altered, *mutatis mutandis*, so as to involve a natural property that is more plausibly instantiated intrinsically.

because, for the categoricalists, all properties (i.e. universals) are categorical and so have a nature independently of their relations to other properties: they are entirely self-contained. Thus, in the case of the categoricalist versions of Aristotelianism, the vase-type thought experiment is simply a variation of the Tooley-type case. In contrast, the vase thought experiment constitutes a much more serious objection to the dispositionalist version of Aristotelianism, since it clashes with the apparent intrinsicness of many disposition instantiations.

This concludes the core argument of the paper, in which I have attempted to show that the Platonic view proposed is superior to the orthodox versions of trope and Aristotelian dispositionalism. But before declaring with confidence that the Platonic view outlined provides the best theory of dispositions, we must also consider whether there are any less orthodox, underexplored metaphysical theories of dispositions which a dispositionalist might try to develop as an alternative to the Platonic view proposed. Specifically we must consider whether a substantial account of dispositional directedness could be provided which does not involve viewing dispositions as being related to distinct manifestation properties, as the Platonic view presented suggests. If there is, and if such views can accommodate satisfactorily the previously discussed platitudes, then it would no longer be clear that the Platonic theory proposed is the best option. I will now argue, however, that none of the alternatives to be discussed is satisfactory.

#### **4. Alternative accounts of dispositional directedness**

Have we hitherto exhausted all of the conceptual possibilities where the metaphysics of dispositional properties is concerned? Perhaps not, in which case we cannot declare with confidence that the version of Platonism outlined is the best until we have considered the remaining options. In what follows, then, I will briefly explore three further, hitherto unexplored strategies which one might attempt to employ in order to solve the Meinongian worry whilst avoiding the claim that dispositions are always related to distinct manifestation properties, which is what the Platonic view proposed maintains.<sup>12</sup> Each of the strategies to be considered look *prima facie* to be compatible with either trope theory, Aristotelianism, or Platonism, and so if any of these strategies are successful, there would no longer be special reasons for favouring a Platonic framework over the alternatives. I will argue, however, that each of these alternative strategies has fundamental flaws.

##### *4.1 Manifestations as parts: the conjunctive property proposal*

How, then, could the Meinongian worry be overcome without us insisting that manifestations exist as distinct properties, properties to which the relevant dispositions are internally related? The first way of

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<sup>12</sup> I am grateful to an a referee for suggesting strategies along the lines of some of those covered in this section.

doing this would be to understand directedness in non-relational terms, by viewing manifestations as being parts or constituents of dispositions in some sense. On this view, a disposition would be for a certain manifestation rather than others in virtue of the fact that the manifestation is enfolded into its very being in some way. This is a promising strategy, it might be said, since facts about which manifestation a disposition has should be entirely within the disposition itself, because that is what makes the disposition the disposition that it is. For all its initial appeal, though, it is not easy to see what precisely could be meant by the claim that manifestations are parts of dispositions. On the most obvious interpretations, we are not left with an account that is appropriate in the case of dispositions, as I will now argue.

In speaking of one property being part of another, one is perhaps reminded first and foremost of The Armstrongian notion of a conjunctive property. Such properties, if we are happy to accept them, are complex since they have multiple constituents, with each standing to the complex as part to whole. Perhaps, then, dispositional properties reflect not simple properties, but rather conjunctive properties in the Armstrongian sense, properties which contain manifestations as parts. If so, then there would be no special need for the dispositionalists to adopt Platonism, for it seems that the existence of conjunctive properties is compatible with both trope theory and Aristotelianism. Armstrong himself views conjunctive properties as Aristotelian universals, for example.

Unfortunately, though, it is immediately apparent that this proposal faces the same difficulty as the more orthodox theories of dispositions discussed in section 2: that is, it cannot accommodate the central platitude. The problem is simply this. What Armstrong calls the Conjunction Principle is plausibly true in the case of conjunctive properties. The principle says that '[I]f F is a property, and G is a property which is part of that property, then whatever particulars have F also have G' (Armstrong 1978, p. 39). This principle would clearly be violated if dispositions were viewed as properties which have manifestations as parts. This is because, as we have seen, intuitively a thing can instantiate a dispositional property even if it never manifests that disposition. If we are to preserve the conjunction principle, then the central platitude about dispositions would have to be rejected.

Furthermore, it seems plausible in at least some cases that the instantiation of a dispositional property in a thing at a given time is even *incompatible* with the instantiation of the corresponding manifestation at that time. Let us call the dispositions in such cases 'suicidal'. To use a macroscopic example, bombs have the disposition to explode, but as soon as the manifestation of that disposition occurs, the disposition thereby disappears. In such cases, the conjunction principle is not only violated, but is necessarily violated. Therefore, on the conjunctive property proposal, properties like that of being explosive are automatically ruled out as being genuine properties. But surely it is up to the natural scientist, and not the metaphysician, to tell us whether properties analogous to that of explosivity are genuine or not. A view which leaves the existence of suicidal dispositions as an open possibility would therefore be preferable. And the Platonic view outlined earlier does just that, given that it views dispositions and their manifestations as distinct (though intimately related) entities.



#### 4.2 Manifestations as structural constituents: the diachronic property proposal

Before moving to the third, rather different proposal, perhaps it is worth considering briefly whether there might still be a way of allowing that manifestations are in some sense part of dispositional properties, one which allows this even in the suicidal cases mentioned a moment ago. This would, of course, require us to reject the conjunctive property proposal in favour of some other. Perhaps, on reflection, the problem with the conjunctive property approach is that conjunctive properties are typically thought of as *synchronic*, which is to say they have no temporal dimensions built in to them. Perhaps the best way to understand dispositional properties is to understand them instead as structural properties which are *diachronic*, that is, stretched out through time. In the bomb case, the four-dimensional structure in question would begin with the internal mechanism in the bomb, with a later temporal part involving the explosion. Both the bomb's mechanism and the explosion would be part of this structure, and this is perfectly coherent, since the claim is not that the bomb's mechanism and the explosion exist *at the same time*. And the notion of parthood can still be applied here: we can say that the manifestation is part of the four-dimensional structure just as we can say that the toilet-stop is a part of the journey. Talk of parthood is not only appropriate in purely three-dimensional contexts.

I take this structural property proposal to be more promising than the conjunctive property proposal, and interestingly Handfield (2008) has suggested that appealing to the notion of a structural property may help Humean metaphysicians make sense of dispositional properties. Perhaps, then, trope theorists or Aristotelians could carry this kind of insight over to the dispositionalist view. Unfortunately, however, as with the conjunctive property proposal, the structural property proposal under consideration does not sit well with the central dispositionalist platitude. If, when referring to the dispositions of things, we are referring to diachronic structural properties which have the manifestation as a part, then we seem to be barred from ascribing dispositions to things in cases where the manifestation never comes about. There can surely be bombs which forever remain intact, and a thoroughgoing dispositionalist would want to ascribe the disposition to explode to such bombs, providing their internal mechanisms are of a certain kind.

In short, the challenge facing proponents of this structural view is to say how dispositional properties can be suitably structured in cases where part of that property is uninstantiated. The only obvious way of doing this is to accept that the uninstantiated parts exist in some sense; for how can a structure exist if parts of the structure do not exist? But as soon as we accept that those uninstantiated parts exist, it is hard to see how we can avoid a version of Platonism after all. Indeed, during his discussion of how a Humean might be able to accommodate the concept of dispositionality using the notion of structural 'process types', it is hinted by Handfield himself (2008, p.119) that something like a Platonic construal of process types would help to assuage Meinongian-type worries.

In sum, then, it is far from clear how a non-Platonic version of the structural view can accommodate structures with uninstantiated parts. Perhaps there is a way of doing this in some way; perhaps such structures can be constructed using only instantiated relations between actual events. But

it is far from clear how such an account could proceed, and until such details are offered, Platonism remains the only viable option.

#### *4.3 Directedness as a certain second-order property*

On the final strategy to be considered in this section, dispositional directedness is taken to be a second-order relational affair, but unlike the Platonic view recommended, directedness is not taken to involve a second-order relational property to the universal corresponding to manifestation M. Instead, dispositions are taken to have the second-order property of *having* manifestation M. On this view, the second-order property of *having* manifestation M is to be clearly distinguished from property M itself. Thus, even if a certain property M does not exist, which would be an open possibility on the Aristotelian and trope views of properties, the second-order property of *having* manifestation M could still exist on those views, it may be said. Thus, the directedness of the disposition towards M is secured by these properties even if the disposition remains unmanifested, thereby (supposedly) overcoming the Meinongian problem without invoking a Platonic theory of properties.

Unfortunately, though, there are two problems facing this proposal. The first is an argument from economy. This first argument may not strike many as conclusive, which is why the Platonist must also appeal to the second argument below. But even if the economy argument is not conclusive, it still serves usefully to clarify the commitments of the proposal under consideration. On this proposal, to repeat, each and every disposition has a further property: the property of *having* some manifestation M. Importantly, these second-order properties will be different for each dispositional property, given that distinct dispositional properties are directed towards different kinds of manifestation. Moreover, as was highlighted earlier, these second-order properties are taken on this proposal to exist *in addition* to the manifestation properties themselves. Positing these extra second-order properties as well as the manifestation properties themselves is clearly an increase in ontological commitment, and so if in giving an account of dispositional directedness we can simply appeal to the manifestation properties themselves, to whose existence we are typically already committed, we would be left with fewer properties overall. This is precisely what the Platonic view outlined earlier suggests we do. All we need, on that view, are the manifestation properties themselves plus a single second-order manifestation relation to relate them to the relevant dispositions in each case.

It should be conceded, however, that at least some opponents will not be moved by this argument. Although the proposal under consideration commits us to more properties, thereby offending against *quantitative* parsimony, it could be said that Platonism also offends against economy in other ways. Since Platonism commits us to a non-spatiotemporal realm of being, it could be said that it offends against *qualitative* parsimony. The strength of the argument under consideration is therefore likely to rest on whether it is quantitative or qualitative parsimony that is more sacrosanct. And notoriously,

metaphysicians such as Lewis (1973) have argued that it is qualitative and not quantitative parsimony that is more important.<sup>13</sup>

I have to confess that it is far from clear to me that qualitative parsimony automatically trumps quantitative parsimony, and settling this issue would take us beyond the scope of this paper. But fortunately, in response to those who do favour qualitative parsimony, we may appeal to a further argument which again concerns the Meinongian problem.

A core desideratum for a theory of dispositions, we have seen, is that it accounts for the directedness of dispositions in a way that overcomes Meinongian worries. On the proposal under consideration, the directedness of a disposition lies in its second-order property of having manifestation M. But how, we may ask, are we to understand a disposition's second-order property of *having* manifestation M? Since this property is distinct from the manifestation property itself, and since this property somehow enfolds within itself reference to the manifestation property, which may not itself exist if Platonism is rejected, then these second-order properties seem to display precisely the kind of Meinongian, quasi-intentional characteristics we were worried about in the first place. If this is the case, the mystery concerning the opaque nature of physical intentionality (to use Molnar's expression) has simply reappeared at a higher-order level. What an advocate of this strategy needs, then, is a transparent account of how these second-order properties can, as non-mental entities, embody a directedness to something which may not exist. At this point, we are left with precisely the same kinds of challenges which face trope theorists like those of Martin, Heil and Molnar. Moreover, even if a transparent account of directedness can be found which does not, at bottom, rely on a Platonic view, one wonders why such directedness could not be built into the dispositions themselves. That is, it is far from clear why we need to employ extra second-order properties of *having* manifestation M to do the metaphysical work. I conclude, therefore, that the proposal under consideration does not constitute an advance in progress from the more orthodox views argued against earlier.

We have, I think, now arrived at a point at which all the possible views concerning the metaphysics of directedness have been considered. In earlier sections we examined the orthodox trope, Aristotelian and Platonic pictures, including the Birdian view which appeals to the existence of unrealized possibilities in order to account for directedness. And in this section we have considered some less orthodox accounts which attempt to account for dispositions without viewing them as being related to distinct manifestation properties, as the Platonic view advocated suggests. In each case, we have found good reasons for favouring the Platonic view presented. In the final section I will now outline in more detail some of the modal and epistemological consequences of this theory.

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<sup>13</sup> Lewis uses this claim to defend his modal realism, which offends against quantitative parsimony: see for example his 1973, Ch. 4.

## 5. Taking stock: some modal and epistemological consequences

On the dispositionalist picture that has emerged, properties are by their very nature directed towards further properties: their manifestations. These manifestations, it has been argued, must be transcendent entities. On this picture, moreover, those manifestations will typically be just as dispositional in nature as those properties they are the manifestations of, meaning they will themselves be directed towards further properties, which in turn will be directed towards further properties and so on. To use one of Popper's examples (1959, pp. 424–25), although the property of being broken is thought of as the manifestation property of fragility, it is a property which itself consists in further dispositions (e.g. a broken vase can cut flesh). In short, the disposition/manifestation distinction has no deep ontological significance, and merely reflects whether we are thinking about a property in terms of its forward-looking or backward-looking causal features. What we are left with, then, is a holistic metaphysical scheme on which dispositional properties form an internally connected web, and on which the identity of each disposition is determined by its position within the overall structure.<sup>14</sup> Such a view will remind some of Schaffer's priority monism (2010), according to which all concrete things are internally related. It is important to emphasize, however, that Platonic dispositionalism is merely the *second-order* analogue of Schaffer's priority monism. As Schaffer himself has indicated (2010, pp. 362–63), further essentialist claims about *individuals* would need to be added to the dispositional picture, in order to arrive at priority monism about first-order concrete entities. But all that is essential for the version of dispositionalism developed here is that dispositions are (transcendent) universals which stand in internal second-order (non-symmetric) relations to further properties.<sup>15</sup>

This picture has some striking modal and epistemological implications, some of which might seem problematic at first glance. One implication of the view that dispositions are transcendent is plausibly that they exist necessarily. That is not to say that abstract entities are by definition necessary. Non-empty classes can be contingent given that they depend for their existence on their members and given that their members can be contingent, concrete entities. In the case of transcendent properties, however, they do not depend on anything in the concrete realm. On this view, then, we cannot take a property out of existence by ensuring that no particulars instantiate that property, and so we have no grounds on which to say Platonic universals are contingent existents.

Now, if dispositional properties exist necessarily, this means that the holistic structure in which those properties stand is also necessary. This is because, as we have seen, a dispositional property's manifestation relations are internal. To say that the manifestation relations of a universal (call it A) are

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<sup>14</sup> See Mumford 2004, Ch. 10, where the holistic nature of the dispositionalist metaphysic is emphasized.

<sup>15</sup> Again, these relations may include what Bird calls 'stimulus' relations (2007, p. 145), as well as the manifestation relations which have been our primary focus.

internal is to say that if an entity  $x$  does not stand in those same relations then it cannot be identical to  $A$ .<sup>16</sup> The upshot of this is that the universals can only be structured in just the way they are. And if the universals are necessary existents, this suggests there may only be one metaphysically possible dispositional property structure, on the Platonic picture.

This is not to say that all elements of transcendent structure will be interconnected, since for all we know some of the necessary properties could belong to isolated sub-structures<sup>17</sup> But again, the existence of these isolated structures would be necessary, given that their elements are. Are there any positive reasons for supposing there are multiple yet isolated Platonic structures, rather than just one entirely interconnected structure? Although there are no obvious a priori reasons for ruling out multiple isolated transcendent structures, it seems that, if there is a grand unified theory to (eventually) be had in science, this would be good evidence that there are not properties corresponding to different, isolated structures; rather, all properties in our world would turn out to be nomically interconnected. And given that scientific theories have become more and more unifying as time has gone on, the dominant assumption has been that such a theory will eventually be found. This assumption, together with the Platonist metaphysics, suggests there that the metaphysically necessary transcendent structure will be entirely interconnected.

It is not entirely clear whether the preceding points concerning necessity are ones which Bird, who as we saw leans towards Platonism, does full justice. Bird does rightly acknowledge that Platonic universals are plausibly necessary existents (2007, p. 55). However, later in his book, Bird goes on to model dispositions using graph theory.<sup>18</sup> Noticeably, Bird then states that these various graphs ‘... represent possible structures of pure potencies’ (Bird 2007, p.146). This statement may strike one as odd, once we acknowledge there really is only one possible way the transcendent realm can be, and given that it may be entirely interrelated. What Bird’s graphs presumably represent, then, are the *epistemic* rather than metaphysical possibilities.

But even if Bird is talking about robust metaphysical possibility here, any apparent tension can, I think, be resolved. Even if there is only one possible property structure, the Platonic dispositionalist

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<sup>16</sup> For the purposes of this paper, I have avoided giving a precise formal definition of internality. As Schaffer has suggested, there have been many interpretations of what it means to say that a relation is internal (2010, Sect. 1.3). See also my 2012b, pp. 175–79, for discussion of different senses of internality. All that is important for the following points is that a relation’s being internal entails that the relation is had by its relata in all possible scenarios.

<sup>17</sup> Note, though, that these different graphs would each have to be structured differently, otherwise there would be no basis on which to say they were distinct, given that pure structures are exhausted by their relational features.

<sup>18</sup> These graphs involve vertices, which represent the universals, and connecting arrows, or ‘arcs’, which represent the second-order non-symmetric manifestation relations in which the universals stand. We need not discuss the finer details of these graphs here; for further details see Bird 2007, Ch. 6.

can still maintain that the world could have been different in the sense that it could have differed *in terms of the dispositions that are spatiotemporally instantiated*. This is quite consistent with the claim that the *transcendent* structure of dispositions could not have been different. Platonic dispositionalism cannot therefore be criticized on the grounds that it violates our modal intuition that the physical world could have been different in terms of the kinds of properties it contains, and this is important if the view is to be defensible. When the Platonist speaks of there being various possible property structures in the metaphysical sense, this may be interpreted as the idea that it is contingent which of the transcendent universals are *spatiotemporally instantiated*.

In order to accommodate the aforementioned notion of possibility, it is helpful for a Platonic dispositionalist to distinguish between a global ‘transcendent’ graph, and the various ‘immanent’ graphs which include only those universals which are *spatiotemporally* instantiated in a world.<sup>19</sup> Given that all spatiotemporal property instantiations must be instantiations *of* transcendent universals, the total number of possible graphs in the immanent category will equal the total number of possible sub-graphs found within a given transcendent graph.

Now, it seems a conceptual possibility that the transcendent graph contains an infinite number of elements, in which case there would be an infinite number of different sub-graphs, which is to say an infinite number of ways a world might be in terms of the combination of dispositional properties that are spatiotemporally instantiated. Even if the transcendent graph is not infinite, it will still contain multiple sub-graphs (providing there are more than two properties, which we can be fairly sure is the case). This point brings out, again, why Platonic dispositionalism is able to respect the modal intuition mentioned a moment ago, that it is contingent as to which dispositional properties are spatiotemporally instantiated.

A pressing question, though, is whether all of the properties in the transcendent structure are spatiotemporally instantiated in our physical world. In other words, should we expect the immanent graph of our world to correspond exactly to the transcendent graph, or should we expect our immanent graph to represent a mere sub-graph—perhaps a minuscule one—of the transcendent graph? If our immanent graph does not correspond exactly to the transcendent graph, then there are what we may call alien dispositional properties. Now, on reflection it seems that unless we take our world to be metaphysically privileged in some way, we would have to be lucky to belong to a world which spatiotemporally instantiates all the properties in the transcendent graph. If there are immanent possibilities corresponding to each sub-graph of the transcendent graph, then the number of possible physical worlds that fall short of instantiating every transcendent universal will outstrip those that do.

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<sup>19</sup> To avoid a potential confusion, by calling the latter kind of graph ‘immanent’, I do not mean that such graphs should be understood as representing first-order relations between the concrete particulars which instantiate the universals. The nodes still represent universals, rather than particulars. The point is just that an immanent graph represents only the universals (and the relations between them) which have concrete instantiations.

What this suggests is that it is rational to suppose that there probably are alien properties. But of course we cannot know for certain, given that we cannot observe the transcendent structure directly.

The epistemic limitation just alluded to might be seen as another potentially negative consequence of Platonic dispositionalism, especially when it is emphasized that the very identity of a disposition is determined by its place within the transcendent web of properties. This point implies that we cannot know the true nature of a property unless we have complete knowledge of the whole property web. Since it is unlikely that we will achieve this knowledge in full, due to the transcendent nature of the dispositional property web, it seems we are likely to be ignorant of the complete nature of properties.

In order to assuage anxieties about these epistemic consequences, the dispositionalists should at this point highlight that the epistemic prospects on the rival categoricist theory are little better. On categoricist theories, natural properties are primitive and self-contained, and in so far as they contribute to the dispositions of their possessors, they do so contingently. But as has been pointed out on numerous occasions, often by categoricists themselves (e.g. see Lewis 2009), this means that an epistemic wall is placed between us and the properties of the world. We can only learn about which properties there are by causally interacting with their instantiations, but if properties have a nature independently of their causal roles, it seems the true nature of the primitive qualities lying behind their causal manifestations are beyond our ken. Given that categoricism creates these epistemological anxieties, categoricists are not justified in rejecting the dispositionalist rival because of its epistemic limitations. What those involved in the categoricism versus dispositionalism debate must do, therefore, is concentrate on getting the metaphysics right. If one's allegiance is with the dispositionalist side of the battle, then that means, I have argued, accepting a certain Platonic view of properties.<sup>20</sup>

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