

Unmanifested powers and universals

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Abstract

According to a well-known argument against dispositional essentialism, the nature of unmanifested token powers leaves dispositional essentialists with an objectionable commitment to the reality of non-existent entities. The idea is that, because unmanifested token powers are directed at their non-existent token manifestations, they require the reality of those manifestations. Arguably the most promising response to this argument works by claiming that, if properties are universals, dispositional directedness need only entail the reality of actually existing manifestation *types*. I argue that this response fails, because no version of the response can adequately accommodate dispositions of the sort that follow from Coulomb's law. This result both defeats an important argument that dispositional essentialists ought to be realists about universals and appears to leave dispositional essentialists with a problematic commitment to either non-relational connections or a Meinongian ontology.

1 Introduction

According to dispositional essentialism (DE), the essences of at least some natural properties are exhausted by their dispositional roles.¹ Here I refer to these properties as 'powers'. An object's having a power, then, consists just in its having certain dispositions. To take a

¹ Well-known versions of DE include Molnar (2003), Heil (2003), Mumford (2004), Bird (2007) and Whittle (2008).

common example, if *fragility* is a natural property, then it is a good candidate for a power, as an object's *being fragile* appears to consist just in its *being disposed toward breaking*.

As this example indicates, for an object to have a power is, at least in part, for that object to be dispositionally directed toward a specific manifestation or set of manifestations. For a vase to be fragile, for instance, is for it to be dispositionally directed at its breaking. I will express this point by saying that token powers are directed at their manifestations.²

This directedness of token powers leads to a well-known difficulty for DE. Given that a relation is real only if its relata are, token powers' directedness at their manifestations appears to entail that the manifestation of any token power is real. The manifestations of unmanifested token powers, though, do not actually exist. For instance, where the fragility of a vase is unmanifested, *the vase's being broken* does not actually exist. The consequence appears to be that the manifestations of unmanifested token powers are real despite not actually existing. DE, then, appears to be committed to an objectionable 'Meinongian' ontology on which there are real but non-existent entities.

The two main dispositional essentialist responses to this problem have been to claim that directedness is not a genuine relation and to invoke universals. The idea behind the first approach is that, because directedness is not a genuine relation, a token power's directedness at its manifestation does not entail that the manifestation is real. According to the second approach, which following Bird (2007: 106) I refer to as the 'type-level response', token

² By a 'token power' I mean any state of affairs in which an object has a power, irrespective of whether powers are understood to be tropes or universals. For reasons that I clarify in section 4, I think that, strictly speaking, it would be more accurate to say that token powers involve particulars being directed towards manifestations than to say that token powers are directed towards manifestations. For ease of exposition, though, I will generally talk of token powers being directed at manifestations.

powers' directedness at their manifestations only involves manifestation types, and not token manifestations, in a genuine relation.³ So, given that manifestation types are universals, the directedness of token powers only involves a commitment to actually existing universals and not to any Meinongian entities.

Both of these responses come with substantial commitments. The first commits the dispositional essentialist to non-relational connections of some sort, while the second commits the dispositional essentialist to universals. While these commitments may be more palatable than a Meinongian ontology, they are still significant. Determining the prospects of the various responses to the problem of unmanifested powers, then, not only has important implications for the overall prospects of DE but also for the broader ontology that comes with DE.

While I discuss further the cost that attaches to each of the options in the next couple of sections, at face value the least costly option is to invoke universals. Both the commitment to entities that are real but non-existent and the commitment to non-relational connections look particularly puzzling and costly. The type-level response, then, is arguably the most promising response. If this is right, then the natures of unmanifested token powers give dispositional essentialists significant reason to be realists about universals.

In this paper, though, I argue that the type-level response is, in fact, untenable. To give this argument, I use *charge*, an archetypal example of a potential power, as a test case to consider whether the various possible versions of the type-level response can accommodate the right sorts of properties. My conclusion is that no version of the response can adequately

³ I take token manifestations, like token powers, to be states of affairs in which particulars have properties irrespective of whether the properties are thought to be tropes or universals.

accommodate the connection between charge and the dispositions that follow from Coulomb's law, and, so, that the type-level response ultimately fails.

The immediate upshot is that arguably the most promising response to the problem of unmanifested powers fails, and, as a consequence, an important argument that dispositional essentialists ought to be realists about universals also fails. A further consequence is that the problem of unmanifested powers appears to leave dispositional essentialists with a costly ontological commitment either to a Meinongian ontology or to non-relational connections. My conclusion, then, both clarifies the ontological implications of unmanifested powers for DE and supports the conclusion that these implications significantly raise the theoretical cost of DE.

I begin in section 2 by clarifying both the problem of unmanifested powers and the alternatives to the type-level response, as well as outlining the key difficulties with those alternatives. In section 3 I clarify the type-level response, distinguish between its different possible versions and outline how it avoids the difficulties faced by the alternative responses. In sections 4 and 5, I present my main line of argument against the type-level response, which is that the response cannot accommodate the dispositions that follow from Coulomb's law. In sections 6 and 7, I consider, but ultimately reject, the idea that appealing to an Armstrongian conception of universals as state-of-affairs types can save the type-level response.

2 The problem of unmanifested powers

In the previous section, I used the example of fragility to illustrate DE and the problem of unmanifested powers. A favourite example of dispositional essentialists that involves a more promising example of a natural property is *charge*. The idea is that *charge* is the power to *exert electrostatic force in the manner described by Coulomb's law*. So, an object's *being charged* consists just in its *being disposed toward exerting force in this way*.

This example illustrates the uncontroversial point that, if DE is true, there will be many unmanifested token powers. There will, for example, be many cases in which a charged object is directed at exerting force without actually exerting it. Indeed, any charged object will be directed at *some* exertions of force that do not actually occur. So, it seems plausible that any token power will be unmanifested relative to some of its manifestations. Whether or not this claim holds, though, DE certainly implies the existence of many unmanifested token powers.

According to an influential argument originally due to Armstrong (1997: 79; 1999: 29–30; 2002: 168–169), this fact raises serious difficulties for DE. Elsewhere, I reconstruct this argument as follows (Coates 2020a: 3):

1. Unmanifested token powers actually exist (for reductio).
2. If a token power actually exists, then the token manifestations of that power are real.
3. The token manifestations of unmanifested token powers do not actually exist.
4. The token manifestations of some token powers are real but do not actually exist (from 1, 2, 3).
5. Everything that is real actually exists.
6. Unmanifested token powers do not actually exist (4, 5).

We have just seen that DE clearly entails (1). So, DE turns out to be tenable only if the dispositional essentialist can reject (2), (3) or (5).

Rejecting (5) would land the dispositional essentialist with a commitment to a ‘Meinongian’ ontology (Armstrong 1997: 79), on which what is real includes both things that actually exist and those that do not. As I (Coates 2020a: 3) have previously pointed out, though, this

commitment comes at a substantial theoretical cost. Tugby (2013: 458–459), moreover, makes the point that this move undermines the important dispositional-essentialist idea that DE provides a particularly attractive account of metaphysical modality.

Rejecting (3), in turn, looks like an unattractive option, because, at least at face value, (3) seems obviously true. The token manifestation of a token power, in general, consists in some particular or particulars having a property or properties. For example, the token manifestations of a particular's *having charge* consist in that particular exerting force on some other particular. Similarly, the token manifestation of a vase's *being fragile* is that vase *breaking*. Where these powers are unmanifested, it seems clear that these token manifestations do not actually exist. If the particular's *charge* is unmanifested, at least relative to one of its token manifestations, then the particular does not stand in the relevant force relation. If the vase's *fragility* is unmanifested, then the vase is not broken.

Bird (2007: 111–114), though, can be read as trying to argue that (3) is, in fact, false. He argues that a general approach to unrealised possibilities, proposed by Williamson (1998; 1999; 2013) and Linsky and Zalta (1994; 1996), entails that unrealised possibilities actually exist. Because the token manifestations of unmanifested token powers are unrealised possibilities, it follows that they actually exist.

I have previously argued, though, that this strategy relies on an equivocation on 'unrealised possibilities' (Coates 2020a: §4). Where *it is possible that an entity, ϕ , exists* but ϕ does not actually exist, 'unrealised possibility' can refer either to ϕ or to *the possibility that ϕ exists*. It is plausible that unrealised possibilities actually exist just if 'unrealised possibility' has the latter meaning. However, the token manifestations of unmanifested token powers are unrealised possibilities in the former sense. An unmanifested token of charge is not directed at the mere possibility of an exertion of force but rather at an exertion of force, which might

have existed but, in fact, does not. Once it is clear that the token manifestations of unmanifested token powers are unrealised possibilities just in the sense that they possibly exist but do not actually exist, (3) follows immediately.

The only remaining option for the dispositional essentialist is to deny (2). (2) is motivated by the idea that, whenever a token power exists, it is directed at its token manifestation. Because a token relation is real only if its relata are, it follows that a token power exists only if its token manifestation is real.⁴ Furthermore, powers are widely taken to be metaphysically individuated by their directedness at their particular manifestations. So, if the token power exists but its token manifestation is not real, then that power's identity is indeterminate. It seems problematic, though, to think that tokens of natural properties lack a determinate identity.⁵

As I indicated in the previous section, dispositional essentialists have given two main responses to the motivation for (2). The first is to claim that dispositional directedness is a sort of 'non-relational' connection to a manifestation (Heil 2003: 80, 124; Molnar 2003: 61). There is, however, no immediately obvious, independent reason to think that directedness is somehow non-relational, and it is far from clear what it means, or if it even makes sense, to talk of a non-relational connection between entities. So, at least without further explanation, this claim looks ad hoc and objectionably mysterious (Tugby 2013: 460).

The only real extant attempt to further develop this non-relational conception of directedness is in terms of the notion of 'physical intentionality' (Place 1996; Molnar 2003). Mental intentionality, just like dispositional directedness, involves a kind of directedness at potentially non-existent entities. The guiding idea behind the physical intentionality view is

⁴ See Armstrong (1997:79) and Tugby (2013: 457) for this argument.

⁵ Tugby (2013: 457) and Bird (2007: 100) develop arguments along these lines.

that this similarity is indicative of the fact that dispositional directedness is, in fact, a kind of intentionality. So, a power's non-relational directedness towards potentially non-existent objects is actually a species of the intentional directedness that is familiar from mental states.

This view, though, does little to defuse the concern that the non-relational conception of dispositional directedness is objectionably obscure. The problem is that intentionality, and its capacity to be directed at non-existent entities, is widely taken to be mysterious and, so, in need of some non-mysterious reduction or grounding. For this reason, in simply assimilating dispositional directedness to a kind of primitive intentionality, the physical intentionality view does not provide a way around the apparent mysteriousness of the non-relational conception of directedness.⁶

Another possible way to try to clarify, and demystify, the non-relational understanding of directedness is to understand a disposition's directedness at its manifestation as a purely modal fact.⁷ A vase's being fragile, for instance, could be taken to consist in *the possibility of the vase's breaking* or the fact that *the vase would break, or would tend toward breaking, under the right circumstances*. These kinds of modal facts, though, need not involve any relation to the non-existent breaking of the vase.

I am not aware of any dispositional essentialist making this sort of move in response to the argument from unmanifested powers. I suspect that the reason is that this approach appears to seriously exacerbate concerns that power instances, particularly when unmanifested, lack

⁶ Both Armstrong (Armstrong et al. 1996: 16) and Barker (2013: 649) object to physical intentionality on these sorts of grounds. It is, moreover, controversial whether it is actually possible to assimilate dispositional directedness to intentionality. Bird (2007: 118–126), in particular, has argued in some detail that the characteristics of directedness differ significantly from those of intentionality.

⁷ I am grateful to an anonymous referee for pressing this point.

sufficient actuality or reality to constitute instances of natural or fundamental properties.⁸

Given the proposed approach, an object's actually having a fundamental or natural property sometimes consists just in a *mere possibility* or a *fact about what would happen, or would tend to happen, under certain conditions*. This result, though, lends credence to concerns that dispositional essentialism delivers a counterintuitively thin conception of actuality, or an inversion of the intuitive dependence or constitution relations between actuality and mere possibility.

It is worth noting in this respect that categoricists, unlike dispositional essentialists, have often accepted purely modal conceptions of dispositions, most influentially in the form of attempted counterfactual analyses of dispositions. I (Coates 2020a) have also proposed responding to the argument from unmanifested powers by invoking a version of the powerful qualities view, which combines a purely modal conception of dispositions with the idea that these dispositions are grounded in purely qualitative properties. Both of these views can employ a purely modal conception of dispositions to get around the problem of unmanifested powers without generating concerns about the robustness of actuality and its distinctness from mere possibility, just because they deny that fundamental or natural properties have dispositional essences. So, while a purely modal conception of dispositions does provide a non-mysterious way to deny that dispositional directedness is a relation, this conception fits poorly with DE.

⁸ Bird (2007: 100–101) gives a list of various philosophers raising the 'too little actuality' objection to DE, which Bird identifies as 'the common view that potencies (powers) do not have enough reality on their own to be all there is to the properties of things in the world' (2007: 100). Handfield (2005) considers the objection that DE leads to a kind of 'modal inversion' in which the actual is constituted by mere possibilities, while Psillos (2006) in a well-known discussion asks what powers do when they aren't manifesting.

It is difficult, then, to see how the dispositional essentialist can give a perspicuous non-relational account of dispositional directedness without generating significant difficulties for DE. So, adopting the non-relational conception of directedness, like the other responses to the argument from unmanifested powers just surveyed, comes with substantial commitments that appear to significantly increase the overall theoretical cost of DE.

3 The type-level response

The remaining response to the type-level response, and the second approach to undermining (2), is the type-level response. As I noted earlier, the key idea behind this response is that the directedness of token powers only requires that manifestation *types* rather than token manifestations stand in a genuine relation (Mumford 2004: 194–195; Handfield 2008: 119; Tugby 2013). The motivation for (2), then, is defeated because the directedness of token powers does not entail that they stand in a genuine relation with their token manifestations. Furthermore, if the manifestation type of a token power is a universal, then it can actually exist independently of that token power manifesting. So, given realism about universals, the directedness of unmanifested token powers does not come with any Meinongian commitments.

Two broad versions of the type-level response can be identified in the literature. The first and simpler version is based on the idea that token powers are directed at manifestation types rather than at token manifestations.⁹ Given that these manifestation types are identified with universals, it is possible to claim that any token power stands in the directedness relation just with a universal that actually exists irrespective of whether the token power manifests.

⁹ This approach is most clearly endorsed and defended by Mumford (2004: 194–195).

Unmanifested token powers then are directed only at actually existing entities and, so, do not come with any Meinongian implications.

The second version of the response accepts that token powers are directed at their token manifestations. However, it claims that any fact of dispositional directedness is grounded in the fact that power types stand in a second-order relation with their manifestation types.

When conjoined with the view that what is grounded is nothing over and above its grounds, this claim allows the dispositional essentialist to hold that facts of dispositional directedness involve no ontological commitments over and above second-order facts involving universals. As the latter facts involve a commitment only to actually existing universals, the inference to a Meinongian ontology is again blocked.¹⁰

The two versions of the type-level response just outlined differ in a couple of important ways. Firstly, while the first response holds that token powers are directed at manifestation types, the second holds that power types stand in a second-order relation with their manifestation types. So, the two approaches differ over whether it is power *types* or *tokens* that stand in a relation with manifestation types. Secondly, the approaches also differ over whether token powers are directed at their token manifestations. While the former approach denies that they are, the latter accepts that they are but claims that, because this directedness is grounded in a second-order relation, it is ontologically innocent.

¹⁰ This version of the response is most clearly endorsed and defended in Tugby (2013: 461–462). Bird (2007: 106–108) also seems to work with this sort of interpretation of the response. However, he ultimately rejects it, in effect, because he denies that explaining dispositional directedness in terms of a second-order fact renders dispositional directedness ontologically innocent.

These two points of difference, though, come apart from each other in a way that allows for further logical possibilities. The full set of possibilities is represented in the table below:¹¹

Version of the type-level response	Are token powers directed at token manifestations?	Do manifestation types stand in a relation with power types or with token powers?
The existence approach	No	Token powers
x	No	Power types
The token-grounding approach	Yes	Token powers
The type-grounding approach	Yes	Power types

According to ‘the existence approach’, token powers are directed at their manifestation types but not at their token manifestations. This view corresponds to the first of the two versions of the type-level response outlined at the beginning of this section. I have labelled this the existence approach, because it appeals to manifestation types in order to deny the *existence* of a directedness relation between token powers and their token manifestations.

‘The type-grounding approach’, in turn, corresponds to the second of the two views outlined above. This approach accepts that token powers are directed at their token manifestations, but grounds this directedness in a second-order relation between power types and manifestation types. The idea here is not that token powers’ directedness at their token manifestations does not exist, but rather that it is *grounded* in a way that renders it ontologically innocent.

¹¹ I’d like to thank an anonymous referee for suggesting this sort of taxonomy of positions.

This leaves the second and third rows of the table. The view represented on the third row, which I have labelled the ‘token-grounding view’, holds that token powers are *both* directed at their token manifestations *and* stand in a relation with their manifestation types. Positing that token powers stand in both of these relations may look like overkill, but this position actually generates a version of the type-level response that is worth considering.

Consider, in particular, a view on which being directed at its manifestation type is *constitutive* of a token power, and this constitutive directedness grounds the power’s further directedness at its token manifestation. Such a view could, like the type-grounding approach, support the conclusion that a token power’s directedness at its token manifestation is grounded in a way that renders it ontologically innocent. However, in this case, this directedness is grounded in a *token* power’s directedness at its manifestation type rather than in a second-order relation between a power type and a manifestation type.

This difference may be thought to deliver the token-grounding approach with an important advantage over the type-grounding view, as it is controversial whether the second-order fact can do the requisite grounding work.¹² While I am not going to engage with this issue here, it does mark the token-grounding view off as a distinctive version of the type-level response that may also have distinct prospects.

It should be noted, though, that both the type- and token-grounding approaches come with a controversial general commitment about grounding. Specifically, they both depend crucially on the controversial idea that grounded entities involve no ontological commitments in addition to those involved in their grounds. Here, though, I allow this idea for the sake of

¹² See Barker and Smart (2012) and Barker (2013) for arguments that the second-order fact runs into a kind of inference problem that keeps it from doing the necessary work.

argument. So, in considering the grounding versions of the type-level response, I will not question the ontological innocence of what is grounded.

Turning, finally, to the second row of the table, I do not think that the view depicted here constitutes a possible version of the type-level response. On this view, power *types* stand in a second-order relation with their manifestation *types*, while token powers are *not* directed at their token manifestations. While this view is consistent with token powers being directed at their manifestation types, as far as the type-level response goes, the resulting position would add nothing to the existence approach. The argument from unmanifested powers is blocked just by the claim that token powers are directed only at manifestation types, and, so, adding that power types stand in a second-order relation with their manifestation types is otiose in this context.

To constitute a genuine alternative to the other available positions, then, the view would have to be that power types stand in a second-order relation with their manifestation types, but token powers are not directed at either their token or type manifestations. I take it, though, that it is a defining feature of any form of DE, as opposed to the Dretske-Tooley-Armstrong view, that the instantiation of a power essentially involves *some* kind of dispositional directedness at a manifestation. So, as the position depicted on row two is either redundant or not genuinely dispositional essentialist, I will not consider it further.

We are left, then, with three possible versions of the type-level response. The existence approach works by denying that token powers are directed at their token manifestations and claiming, instead, that they are directed at their manifestation types. The token- and type-grounding approaches, on the other hand, work by claiming that token powers' directedness at their token manifestations is grounded in a way that renders that directedness ontologically innocent. On the token-grounding approach, this directedness is grounded in token powers'

directedness at their manifestation types, while, on the type-grounding approach, it is grounded in a second-order relation between power types and manifestation types.

In each of its forms, the type-level response appears to avoid the major drawbacks of the alternative responses surveyed in the previous section. Firstly, an appeal to universals looks less revisionary or radical than invoking ‘physical intentionality’ or a Meinongian ontology. Secondly, in not invoking possibilia to account for unmanifested powers, the response appears consistent with dispositionalism about modality. Thirdly, in invoking only fully actual relations with actually existing universals, the approach does not result in either a problematically thin conception of actuality or a commitment to the idea that the actual is constituted by the merely possible. Thus far, the type-level response has also not been shown to run into serious difficulties of its own. So, at this stage the type-level response looks to be the most promising dispositional essentialist response to the argument from unmanifested powers.

To adopt the type-level response, though, dispositional essentialists clearly need to accept universals. As Tugby (2013) has pointed out, these kinds of considerations seem to strongly motivate conjoining DE with realism about universals. Given that such realism is necessary for what appears to be the best response to the argument from unmanifested powers, dispositional essentialists have significant reason to accept it.

The argument from unmanifested powers and the prospects of the type-level response, then, have significant implications both for the overall prospects of DE and for the ontology that comes with DE. Regarding the former point, as the type-level response looks like the most promising and least costly response to a serious problem for DE, its prospects have an important bearing on the overall prospects of DE. On the latter point, the success of the type-level response would provide important motivation for dispositional essentialists to accept

universals, while its failure would also have important implications for what a dispositional essentialist ontology ought to look like. In particular, this failure would seem to leave the dispositional essentialist with a commitment either to a Meinongian ontology or to some version of the idea that directedness is not a genuine relation.

4 Charge as a power

Having clarified the possible versions of the type-level response, I am now going to consider how they might be applied to the case of *charge*. *Charge* is not only an archetypal example of a natural property but also one of dispositional essentialists' favourite examples of the sort of natural property that is well-suited to being understood as a power. Dispositional essentialists think that understanding *charge* as the power to exert *electrostatic force in accordance with Coulomb's law* provides a compelling account of the nature and nomic role of *charge*. *Charge*, then, provides an excellent test case for whether the views just outlined can adequately accommodate the properties that they ought to.

When applied to *charge*, though, the approaches run into an immediate complication. According to Coulomb's law, the electrostatic force between two charged objects is determined by the charge of the two objects and the distance between them. Force, charge and distance, though, are quantitative properties, and different quantities of charge and distance produce different quantities of force. So, to apply the accounts to *charge*, one needs to accommodate the fact that specific values of a power are directed at a specific value of the manifestation, given a specific value of the stimulus.

My goal here, however, is to clarify a different issue that arises when applying the accounts to *charge*. As clarifying this issue does not require adopting a particular approach to the

quantitative nature of the properties involved, I simplify the discussion by ignoring the complications that arise from the latter issue.¹³

With this qualification in place, the sort of facts of dispositional directedness that follow from Coulomb's law can be clarified. I have thus far alluded to facts of directedness as facts in which token powers are directed at token manifestations. This phrasing appears to indicate that it is the *state of affairs* of a particular's having a power that is directed at a manifestation. Given this general understanding of directedness and that C represents charge, F represents force-exertion and D represents distance, the facts of directedness involved in an instance of charge can be represented as follows:

[*Ca* is directed at *a* having F to *b*, when *Cb* and *a* has D to *b*]

The relevant sort of fact, then, is one in which *a*'s being charged is directed at *a*'s exerting force on *b*, when *b* is charged and *a* is at some distance from *b*. *b* here is, of course, chosen arbitrarily and could be substituted with any other particular. The key point is that *Ca* is

¹³ I think the most promising way for the dispositional essentialist to respond to this difficulty is to claim that each property occurring in Coulomb's law – charge, force and distance – is a determinable property, where each determinate of the property corresponds to a value of that property. The dispositional essentialist could, then, claim that the nature of the determinable charge consists in the directedness of each of its determinates at standing in a determinate of force, when standing in a determinate of distance with a determinate of charge. While this suggestion is similar to Armstrong's (1997: 242–248) response to this sort of difficulty, Bird (2007: 21–24) gives an alternative response to the problem by appealing to 'multi-track dispositions'. Vetter (2009: 324–327), however, raises seemingly serious problems with this approach. She (Vetter 2009: 327) also notes that 'the apparatus of determinate and determinable may enter in some way or other' into solving the problem.

directed at the relevant exertion of force on *any* charged particular that is at some distance from *a*.

In general, though, it does not seem true that the state of affairs of a particular's having a power is dispositionally directed toward a manifestation. Instead, this state of affairs *involves* or is *constituted by* the *particular's* being dispositionally directed toward its manifestation. To illustrate, the state of affairs of *a vase's being fragile* is not disposed toward the vase's breaking. Instead, the state of affairs is, at least partly, constituted by the vase's being disposed toward breaking.

This result suggests the existence of two closely related facts involving the directedness of a token power. The first is:

Disposition [If *Ca*, then *a* is directed at *a* having F to *b*, when *Cb* and *a* has D to *b*]

This fact appears to follow immediately from what I just said about the connection between token powers and their related dispositions. Because the token power involves or is constituted by the disposition, a particular's having the power implies that the particular has the disposition.

The second fact is:

*Disposition** [*a* is directed at *a* having F to *b*, when *Cb* and *a* has D to *b*]

Given what I just said about the connection between token powers and dispositions, this disposition is the sort of disposition that is had by an object when that object *is charged*.

Disposition, then, is a conditional fact about the sort of disposition that characterises *a*, *if a has charge*, while *Disposition** is the dispositional fact that obtains when *a* is, in fact, charged. The problem of unmanifested powers, though, concerns the dispositions that

actually exist when a particular has a power. Consequently, the sort of fact that is of direct concern in the context of this problem is *Disposition** rather than *Disposition*.

So, the challenge for the various versions of the type-level response is to adequately accommodate *Disposition**. For the existence approach, this means identifying a disposition that can provide an acceptable substitute for *Disposition** while being exclusively directed at manifestation types, while for the grounding approaches it means providing adequate grounds for *Disposition**. However, while the ultimate challenge is to accommodate *Disposition**, in what follows it will sometimes be useful to focus on *Disposition*. So, both *Disposition* and *Disposition** will feature in the ensuing discussion, even though the ultimate question is whether the type-level response can adequately accommodate *Disposition**.

5 The type-level approach and charge as a power

Over the next three sections, I am going to argue that no version of the type-level response can adequately accommodate *Disposition**. I start off in this section by arguing that the facts posited by each version of the response lack the requisite structure to accommodate facts like *Disposition* and *Disposition**.

I begin with the type-grounding approach. Recall that this approach posits that a fact in which a power type stands in a second-order relation to its manifestation type grounds the directedness of token powers (Bird 2007: 107–108; Tugby 2013: 461–462). Here I will work with Barker and Smart's (2012: 717) interpretation of the second-order relation as a 'stimulus-response' relation that connects a power with a stimulus property as well as with a manifestation property. Given this interpretation, where SR is this stimulus-response relation, P is a power, M is its manifestation and S is its stimulus, P essentially stands in the relation, SR(P, M, S).

P's standing in this sort of relation is supposed to determine the dispositional role of P by grounding the dispositions that P bestows on any of its bearers. Specifically, the idea is that, because P essentially stands in the relation $SR(P, M, S)$, anything that is P is disposed to M when S. While I noted earlier that it is controversial whether the second-order fact can, in this way, ground first-order dispositions, here I will allow for the sake of argument that it can.

The simplest way to apply this basic schema to *charge* would be to hold that charge, force-exertion and distance stand in the SR relation:

[SR(C, F, D)]

This second-order fact, though, is too simple to ground anything like either *Disposition* or *Disposition**. In the latter facts, F and D are relations that connect two specific bearers of C, but nothing about the second-order fact just introduced is apt to ground this aspect of these facts. To see the problem, assume that [SR(C, F, D)] can ground the fact that if Ca , then a both stands in F with some particular and stands in D with some particular. Even given this grounding fact, it is obscure how [SR(C, F, D)] could ground the further fact that if Ca , then a stands in F and D with the *same* particular, just when that second particular *is charged*. The underlying problem is that [SR(C, F, D)] lacks the requisite structure to ground the rich first-order structure of facts like *Disposition* and *Disposition**.

So, the immediate challenge for the proponent of the type-grounding approach is to produce a more complex second-order fact that is, in fact, apt to ground the relevant first-order facts.

The only clear way to try to do this would be to hold that the type manifestation and stimulus are second-order states of affairs rather than simple universals. The manifestation could then be identified with *the type, charge, standing in the force-exertion relation with the type, charge*, while the stimulus could be identified with *the type, charge, standing in the distance relation with the type, charge*. The result would be a fact along the following lines:

SR [C stands in *SR* to the manifestation, *C standing in F with C*, and the stimulus, *C standing in D with C*]¹⁴

SR is clearly closer than [*SR*(C, F, D)] to the structure of *Disposition* and *Disposition**, but it remains to be seen whether it can ground these sorts of facts. In addressing this question, it will be useful to focus initially on whether *SR* can ground *Disposition* rather than *Disposition**. So, for now I focus on the idea that:

SR [C stands in *SR* to the manifestation, *C standing in F with C*, and the stimulus, *C standing in D with C*]

grounds

Disposition [If *Ca*, then *a* is directed at *a* having F to *b*, when *Cb* and *a* has D to *b*]

This grounding claim, though, is implausible, as *SR* still lacks the requisite structure to ground *Disposition*. The difficulty is that, in *Disposition*, a *single* bearer of C stands in both F and D with a *single, distinct* bearer of C. It is obscure, though, how a second-order fact like *SR* can ground a fact with this sort of first-order structure. Even if *SR* can ground the fact that any bearer of C stands in F with *some* bearer of C and stands in D with *some* bearer of C, nothing about *SR* appears apt to ground the fact that any bearer of C stands in *both F and D* with the *same* bearer of C.

¹⁴ To be consistent with the type-level response, *C standing in F with C* and *C standing in D with C* must be states of affairs in which universals stand in relations with universals and not token-level states of affairs in which bearers of universals stand in relations. So, *C standing in F with C* would be the state of affairs in which the universal, C, stands in F with itself and not a state of affairs in which a bearer of C stands in F with a bearer of C. I am not sure that it is possible to make good sense of the universal, C, standing in F with itself, but I am going to argue that, even if it does, *SR* cannot do the necessary grounding work.

The key problem, then, is that

SR [C stands in SR to the manifestation, *C standing in F with C*, and the stimulus, *C standing in D with C*]

seems just as well-suited to ground

[If *Ca*, then *a* is directed at *a* having F to *b*, when *Cb* and *Cc* and *a* has D to *c*]

as to ground

Disposition [If *Ca*, then *a* is directed at *a* having F to *b*, when *Cb* and *a* has D to *b*]

Only the latter of these facts, though, is the sort of dispositional fact that follows from Coulomb's law. So, because it lacks the first-order structure necessary to ground the fact that *a single, determinate* bearer of charge features in both the stimulus and the manifestation of any instance of charge, it is obscure how *SR* can ground the kind of dispositional fact that actually follows from Coulomb's law.

A directly analogous difficulty arises for both the token-grounding approach and the existence approach. Both approaches begin with the idea that powers bestow dispositions that are directed at manifestation types rather than at token manifestations. In the case of *charge*, this disposition would have the following sort of form:

Disposition' [*a* is directed at standing in F with C, when standing in D with C]¹⁵

¹⁵ As a referee for *Synthese* has pointed out, this label might be a bit misleading as, in one sense, *Disposition'* plays the same role as *SR* rather than the same role as *Disposition* or *Disposition**. Specifically, *Disposition'* is supposed to provide the ontological grounds or replacement for *Disposition**. On the other hand, *Disposition'*, unlike *SR* but like *Disposition**, is supposed to provide an account of the sort of token dispositions that exist when a particular is charged. To avoid confusion, then, it should be noted that, while *Disposition'* is supposed

For the existence approach, *Disposition'* is the *only* kind of directedness that is bestowed by the instantiation of charge, while for the token-grounding approach *Disposition'* must ground *Disposition**. The problem for both views is that, even assuming that *a* can stand in D or F with C only by standing in D or F with *some* bearer of C, *Disposition'* lacks the first-order structure required to do the necessary work.

Take the existence approach first. Nothing about *Disposition'* entails that it manifests just if *a* exerts a particular force on a charged object, when *that* object is at a specific distance from *a*. Consequently, *Disposition'* is compatible with the relevant disposition manifesting when:

Cb & Cc & a stands in D with b & a stands in F with c

This, though, is obviously the wrong result.

The parallel problem for the token-grounding approach is that *Disposition'* is not apt to ground the fact that *a* is directed at standing in F with a bearer of C, when standing in D with *that* bearer of C. Nothing about

Disposition' [*a* is directed at standing in F with C, when standing in D with C]

makes it apt to ground

*Disposition** [*a* is directed at *a* having F to *b*, when *Cb* and *a* has D to *b*]

rather than

[*a* is directed at *a* having F to *b*, when *Cb* and *Cc* and *a* has D to *c*]

Of course, in both of the above cases, given that *Cc* and *c* is at some distance from *a*, it does follow that *a* exerts force on *c*. The problem, though, is that in neither case does a single

to provide an account of the sort of disposition that exists when a particular is charged, it is also supposed to act like *SR* in constituting the ontological grounds or replacement for *Disposition**.

particular stand in both D and F with *a*. Consequently, in both cases *Disposition'* fails to generate the sort of disposition that follows from Coulomb's law.

It is now possible to clearly state the difficulty that afflicts each version of the type-level response, when applied to a property such as charge. Coulomb's law entails that any charged particular, *a*, is disposed toward *a*'s exerting a specific force on any charged particular that is a specific distance from *a*. In general, however, this fact cannot be entailed by or grounded in any facts that involve only the *types*, distance and force-exertion. Such facts lack the first-order structure necessary to entail that *a*'s *being charged* manifests just if *a* exerts force on a *distinct* particular that *both* has a specific charge *and* stands at a specific distance from *a*.¹⁶

6 State-of-affairs types and the type-grounding view

Armstrong's conception of universals as state-of-affairs types, though, provides a potential way around this problem. According to this conception, universals are partly constituted by their argument places. As Armstrong (1997: 29) puts it, their natures include 'blanks' that are occupied by their bearers. So, while we might refer to a property as 'F', the ontological structure of the property is actually _ being F. For instance, assuming that fragility is a universal, its ontological structure is really _ being fragile.

Armstrong (1997: 229–230) claims, further, that the argument places that are constitutive of universals can be determinately for the same entity or for distinct entities. For example, a relation might have the structure _₁ having R to _₂ that differs from the structure _₁ having R

¹⁶ It also seems possible to extend the argument I have given here for *charge* to other paradigmatic examples of powers. Most obviously, a directly analogous argument could be given using the idea that *gravitational mass* is the power to exert *gravitational force*.

to $_1$. In the former relation the two places are places for distinct particulars, while in the latter they are places for a single particular.

While Armstrongian laws are usually depicted as having the structure $N(F, G)$, in his mature work Armstrong (1997: 229) explicitly incorporates state-of-affairs types into his account of laws. He then uses the following schema to depict what a law might look like:

$(_1 \text{ being } F \ \& \ _1 \text{ having } R \text{ to } _2 \ \& \ _2 \text{ being } G) \text{ causes } (_2 \text{ being } H)$

Applying this general schema to Coulomb's Law, Armstrong's theory would entail the existence of a second-order state of affairs of the form:

$(_1 \text{ being } C \ \& \ _1 \text{ having } D \text{ to } _2 \ \& \ _2 \text{ being } C) \text{ causes } (_1 \text{ having } F \text{ to } _2)$

Whatever one thinks of this account of Coulomb's law, it does appear to provide a second-order state of affairs that can accommodate the first-order structure of the law. In particular, it captures the fact that, when two particulars stand in the force relation, *those two* particulars both instantiate *charge* and stand at a particular distance *from each other*.

In a similar way, adopting the conception of universals as state-of-affairs types allows SR to be modified so that it has the requisite first-order structure to ground *Disposition*:

SR^* [If $C_{_1}$, then $_1$ stands in SR to the manifestation, $_1$ having F to $_2$, and the stimulus, $C_{_2}$ & $_1$ has D to $_2$)]

grounds

Disposition [If Ca , then a is directed at a having F to b , when Cb and a has D to b]

Allowing, as I am here, that the second-order stimulus-response relation can ground the first-order dispositional directedness relation, SR^* entails that, when something has a particular charge, *that* thing is directed at *its* exerting force on a *distinct* thing when that *second* thing

has a particular charge and is at a particular distance from the *first* thing. SR^* , then, gets around the difficulty that I raised for SR .

However, this result only allows SR^* to ground *Disposition*. As I noted earlier, to get around the argument from unmanifested powers, the type-grounding approach needs to provide the grounds not for *Disposition* but for

*Disposition** [*a* is directed at *a* having *F* to *b*, when *Cb* and *a* has *D* to *b*]

On its own, though, SR^* cannot ground *Disposition**, because it entails nothing about whether *a* is *C*, and, so, whether *a* is characterised by the relevant disposition. Instead, *Disposition** follows from SR^* just when the latter fact is conjoined with [*Ca*].

This point, moreover, does not depend on the specific conception of the second-order fact given in SR^* . However the fact that charge stands in an essential second-order relation with its manifestation is understood, it ought not to entail that any specific particular is charged. So, a particular's having a disposition that follows from its being charged cannot be explained just by this sort of second-order fact. Instead, what potentially explains the particular's disposition is the conjunction of the second-order fact and the fact that the particular has charge.

The consequence is that the grounding version of the type-level response leads to a view that is directly analogous to Armstrong's own attempt to get around the 'Meinongian' problem that he raises for DE. Armstrong (1997: 229–230) aims to render the directedness of dispositions benign by grounding them in the conjunction of second-order facts and facts

about the instantiation of properties.¹⁷ So, Armstrong would give the following sort of account of the grounds of *Disposition**:

[(($_1$ being C & $_1$ having D to $_2$ & $_2$ being C) causes ($_1$ having F to $_2$)) & Ca]

grounds

*Disposition** [*a* is directed at *a* having F to *b*, when *Cb* and *a* has D to *b*]

This grounding structure clearly parallels the structure that I just argued ultimately follows from the grounding version of the type-level response. In both cases, *Disposition** is jointly grounded in a second-order fact and [Ca].

There is, however, a crucial difference between the two cases. In Armstrong's case the putative grounds for *Disposition** involve a second-order fact and the fact that *a* has the *categorical* property, *charge*. Consequently, these grounds are not, themselves, in any way constituted or determined by directedness at a token manifestation. However, for the dispositional essentialist, *a*'s *having charge* is constituted just by *a*'s *having the sorts of dispositions that follow from Coulomb's law*. Given that these dispositions have a structure such as *a*'s *being directed at a having F to b, when Cb and a has D to b*, [Ca] is itself constituted or determined by directedness at a token manifestation.¹⁸

¹⁷ Armstrong actually appeals to truthmaking and supervenience rather than grounding to produce his deflationary account of dispositions. This difference, though, is not significant in this context. The key idea remains that dispositions are ontologically innocent, because they are nothing over and above the conjunction of the relevant second-order facts and facts of property instantiation.

¹⁸ This is true irrespective of whether facts are understood as true propositions or as objects having properties. In the latter case, [Ca] just is *a*'s *having charge*, while, in the former case, [Ca] is made true by *a*'s *having charge*.

The dispositional essentialist, of course, might deny that dispositions have this sort of structure either by denying that dispositions involve any sort of directedness or by denying that they involve directedness at a token manifestation. Neither approach, though, is compatible with the type-grounding view, as this view accepts that dispositions *are* directed at their token manifestations. Moreover, taking either approach would make the type-grounding view redundant as a response to the problem of unmanifested powers. To deny that dispositions are directed at all would block the problem without any recourse to claims about manifestation types, while to claim that dispositions are directed at their manifestation types is just to adopt one of the other versions of the type-level response.

The point, then, is that a token power, like *Ca*, is either constituted by no directedness, by directedness at a manifestation type or by directedness at a token manifestation. The first two options, though, are not compatible with the type-grounding view as they both make this view redundant. The third option, on the other hand, entails that [*Ca*] is constituted or determined by *a's being directed at its token manifestation*. The result is that the type-grounding view is committed to [*Ca*]'s being constituted or determined in this way. Because the response is also committed to the view that [*Ca*] partially grounds *Disposition**, it is committed to the conclusion that facts of dispositional directedness are partially grounded in facts that are constituted or determined by *that very directedness*. This result raises the threat of an objectionable circularity in relations of ontological priority.

Even if this sort of circularity is sometimes acceptable, it is incompatible with the key idea behind the grounding version of the type-level response. This idea is that facts of dispositional directedness are grounded in, and, so, are no addition in being to facts that do not involve dispositional directedness. This idea, though, is incompatible with the view that the grounds for facts of dispositional directedness are constituted or determined by *that very dispositional directedness*. Even if it is possible to ground facts of directedness in facts that

are constituted or determined by that directedness, doing so clearly cannot produce the desired deflationary account of dispositional directedness.

We are now in a position to see the fundamental problem with the type-grounding approach. A second-order fact like SR^* can only ground a fact like $Disposition^*$ in conjunction with $[Ca]$. However, grounding $Disposition^*$ in this conjunction cannot render dispositional directedness ontologically innocent, because $[Ca]$ is itself determined or constituted by the very dispositional directedness in question. So, this version of the type-level response fails, as the relevant grounding claim is tenable only if it fails to deliver the requisite deflationary account of dispositional directedness.

7 State-of-affairs types and the remaining views

It remains possible, though, that conjoining the existence or token-grounding versions of the type-level response with Armstrongian universals might generate a tenable version of the response. The idea would be that applying this conception of universals to

Disposition' [a is directed at standing in F with C , when standing in D with C]

could generate dispositions that, while directed at universals rather than first-order states of affairs, have the first-order structure to capture the dispositions that follow from Coulomb's law.

Plugging the conception of universals as state-of-affairs types into *Disposition'* results in the view that, when a is charged:

a is directed at $_1$ having F to $_2$, when ($C_{_2}$ & $_1$ has D to $_2$)

However, nothing in this dispositional state of affairs entails that, were the ' $_1$ ' places filled, they would have to be filled by a . For this reason, this dispositional state of affairs allows that the token of charge would be manifested if any two particulars, b and c , were such that:

$Cc \ \& \ b \text{ has } F \text{ to } c \ \& \ b \text{ has } D \text{ to } c$

Clearly, this is the wrong result, as it entails that a does not enter at all into the manifestation of the disposition.

The problem can be further clarified by beginning with the schema:

$_1 \text{ is directed at } _1 \text{ having } F \text{ to } _2, \text{ when } (C_2 \ \& \ _1 \text{ has } D \text{ to } _2)$

This schema appears to have the necessary structure to capture the dispositions that follow from Coulomb's law. Filling each slot in the structure with individuals does produce the right sort of disposition:

$a \text{ is directed at } a \text{ having } F \text{ to } b, \text{ when } Cb \text{ and } a \text{ has } D \text{ to } b.$

However, if unmanifested token powers are directed at state-of-affairs types, then only the slot on the left-hand side of the directedness relation is filled:

$a \text{ is directed at } _1 \text{ having } F \text{ to } _2, \text{ when } (C_2 \ \& \ _1 \text{ has } D \text{ to } _2)$

This dispositional state of affairs, though, loses the structure necessary to entail the dispositions that follow from Coulomb's law. Specifically, it fails to capture the fact that, once a instantiates C , a is directed specifically at a , *and no other particular*, standing in certain relations. This failure, moreover, follows necessarily from the idea that a is directed just at a state-of-affairs *type*. Such a type cannot involve a and, so, cannot capture the fact that it must specifically be a that stands in the relations F and D . So, even given Armstrongian universals, the dispositions entailed by Coulomb's law can still be accommodated only by rejecting the type-level response.

Nonetheless, it is still worth considering what happens if we allow that, when a instantiates $C_{_1}$, it fills the ' $_1$ ' places on the righthand side of the directedness relation. While the result

would not be a version of the type-level response, it may still be hoped that it would deliver an analogous response to the problem of unmanifested powers.

Given this approach, there are two possibilities. On the first, every place in the state of affairs is filled by a particular:

a is directed at a having F to b, when (Cb & a has D to b)

This result is clearly of no use, as it simply generates a standard version of the idea that token powers are directed at their token manifestations.

The only remaining option is that *a* occupies all of the $_1$ places in the structure but the $_2$ places are unfilled:

a is directed at a having F to $_2$, when (C $_2$ & a has D to $_2$)

On this approach, when *a*'s *having charge* is unmanifested, its manifestation is:

a having F to $_2$

Recall that the type-level response accepts that a token power's directedness at its manifestation entails that the manifestation actually exists. To reject this claim is to fall back on one of the other responses and, so, to render the type-level response, or any analogue of it, redundant. Consequently, the approach just proposed entails that, where a token of charge is unmanifested, a concrete particular actually exerts electrostatic force on an unoccupied argument place.

This idea, though, looks plainly bizarre. Even if we are willing to include argument places in our ontology, they surely are not the sorts of things on which concreta exert electrostatic force. In any case, I think it clear that accepting this idea is no improvement over responding to the argument from unmanifested powers by simply accepting that DE leads to a Meinongian ontology. Positing that unmanifested powers are directed at real, but non-

existent, states of affairs seems at least as plausible as positing that they are directed at actual states of affairs in which concrete particulars stand in relations, such as *exerting electrostatic force*, with unoccupied argument places.

Appealing to state-of-affairs types, then, does not provide a way to salvage either the existence or token-grounding versions of the type-level response. Given the obvious application of the idea, the resulting dispositions still lack the requisite structure to entail the dispositions that follow from Coulomb's law. The only alternative development of the idea leads to the objectionable result that concreta exert electrostatic force on argument places. Consequently, these versions of the type-level response still cannot accommodate the dispositions that follow from Coulomb's law.

8 Conclusion

I have argued that each version of the type-level response ultimately fails. The type-grounding version fails because it does not deliver grounds for facts of token-level directedness that could render that directedness ontologically innocent. The token-grounding and existence versions, in turn, fail because they cannot accommodate the dispositions that follow from Coulomb's law. I conclude that the type-level response fails in general.

The immediate consequence is that realism about universals does not have special resources for accommodating unmanifested powers, and, consequently, a significant argument from DE to such realism is defeated. A further consequence is that the dispositional essentialist appears to be committed to one of the other responses to the problem of unmanifested powers that I outlined in section 2. As I noted there, though, these responses seem to land the dispositional essentialist with a problematic commitment to either non-relational connections between entities or a Meinongian ontology. The failure of the type-level response, then, appears to leave dispositional essentialists with a costly ontological commitment.

It ought to be noted, however, that it does not immediately follow that powers theory or dispositionalism in general incurs such a commitment. As I mentioned earlier, I (Coates 2020a) have recently argued elsewhere that an alternative version of powers theory, discussed of late by a number of authors,¹⁹ can avoid this commitment without invoking the type-level response. On this alternative view, properties have purely qualitative essences but, nonetheless, are powerful because they ground the dispositions of their bearers. If this is right, then my argument here indicates that this alternative version of powers theory has a significant advantage over DE. More generally, the failure of the type-level response indicates that any version of dispositionalism that can accommodate unmanifested powers without incurring significant ontological costs gains an important advantage over DE.

So, whether the failure of the type-level response is problematic for dispositionalism, in general, or, instead, provides grounds for dispositionalists to reject DE depends on how alternative versions of dispositionalism handle unmanifested powers. Either way, though, invoking universals does not provide dispositionalists with an account of unmanifested powers. Consequently, the problem of unmanifested powers is a problem for realists about universals just as much as for trope theorists.

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¹⁹ See Yates (2018), Coates (2020b), Tugby (2020), Azzano (2020) and Kimpton-Nye (2021) for detailed recent discussion of the relevant view. For earlier versions of the view, see Jacobs (2011) and Tugby (2012).

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