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Non-Reductive Approaches to the Metaphysics of Powers: An Introduction

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ABSTRACT

Non-reductive theories of powers/dispositions/capacities/potencies/potentialities are of much interest within contemporary metaphysics. There have been many discussions that attempt to explicate their nature as well as numerous others which suggest their application. Here, I focus on providing an introduction to the former, the metaphysics of non-reductive powers, whilst briefly commenting on the latter, their applications. Therefore, the paper will offer a map of the debates and positions taken within present discussion.

1 | Introduction

Within recent years, work on non-reductive theories of powers/dispositions/capacities/potencies/potentialities[1] has grown significantly with various books being written on the topic (Harré and Madden 1975; Bhaskar 1978; Cartwright 1989; Crane 1996 Mumford 1998; Ellis 2001; Molnar 2003; Heil 2003, 2012; Bird 2007; Martin 2007; Vetter 2015; McKitrick 2018; Williams 2019; Dumsday 2019; R. D. Ingthorsson 2021; Tugby 2022; W. A. Bauer 2023; Friend and Kimpton-Nye 2023; Azzano 2024; Livanios 2025; Groff forthcoming) as well as innumerable papers.[2] As a result, after many years of powers being considered 'as shameful ... as pregnant spinsters used to be-ideally to be explained away, or entitled by a shotgun wedding to take the name of some decently real categorical property' (Mellor 1974, 157), many now take them to have a better reputation. Given this, much work has focused on providing a comprehensive metaphysics of powers and also in showing how they can be employed more widley within philosophy.[3] Here I'll largely concern myself with covering debates which focus on the nature of powers, yet since the literature on this is vast and ever-expanding, the aim will be to provide a brief and broad overview concerning the main areas of discussion and the major positions advocated.

2 | What Are Powers?

Perhaps the easiest way of getting a feel for what is meant by a power is by way of examples. Salt has the power to dissolve in water, my eyes have the power to see and an entity with negative charge has power to repel other negatively charged entities. These examples allow us to ascertain a few things. First, powers are *typically* thought of as being a type of property.[4] Second, powers are taken to at least be defined by the change they bring about, that is, their manifestations.[5] Third, manifestations are typically only thought to occur when a power is in certain circumstances. Finally, powers are thought to exist even when they are not manifesting. For instance, salt is thought to have the power to dissolve in water even if that power never manifests. Note from the outset that powers here are being taken to be non-reductive in that their causal nature or modality cannot be reduced to something else, such as categorical properties. These latter properties, by contrast, are not essentially defined by the change they bring about (Armstrong 1997, 69) and manifestation talk does not apply to them,[6] with being a shape (for instance being a triangle) and spatial relations (such as being to the left of) thought of as paradigm categorical properties.[7] Here, I use the terminology of 'power' to signify the

non-reductive nature of these properties and will leave the term 'disposition' for denoting those views who think that powers can be reduced to categorical properties (e.g., Lewis 1997; Armstrong 1996).[8] Although exploring these reductive views and the reasons why many power theorists have rejected these accounts is interesting, it is not the focus of this paper. Instead, I will explore the metaphysics of realist non-reductive accounts of powers.[9]

3 | How Do Powers and Categorical Properties Relate?

There are three main answers given to this question. The first, the dualist position, typically holds that there are both categorical properties and powers (Molnar 2003; Ellis 2001; Unger 2006; McKitrick 2018), and that powers in some way depend upon or are grounded in categorical properties (Tugby 2012, 2022; Friend and Kimpton-Nye 2023; Builes 2024). For instance, it might be that the structure of salt, a categorical property, grounds the power of salt to dissolve. On this view, powers are essentially derivative and incapable of independent existence. Nevertheless, one could hold a dualist picture where both powers and categorical properties exist with each existing independently of the other.[10]

However, the independence move provides us with another answer to the question, where categorical properties are no longer needed in order to have powers. One view which holds this is pandispositionalism (Bostock 2008; Mumford 2009),[11] or what we might call, given that our focus is on powers, the 'only powers' view, which claims that there is only one type of property, powers, and therefore, categorical properties are not required at all.[12] The 'only powers' view has the advantage over dualism in that it is monistic, since it says that only one type of property is needed.[13] However, the big question is whether it can give an adequate account of the *supposed* categorical properties in terms of powers. Another view, which also holds that powers can exist independently from categorical properties, claims something a little weaker, contending that whilst powers are all there is at the fundamental level, this may not be the case at the non-fundamental level, with the nature of these non-fundamental properties being left undetermined, but not requiring that they are powers (Bird 2007, 2016, 2018).[14] Although theorists who adopt this view have less to do in explaining everything in terms of powers, the virtue of parsimony may be lost, unless one thinks parsimony only really matters at the fundamental level.[15]

The final view, the powerful qualities view, tries to find a middle road between the two previous theories.[16] It claims that it is a mistake to think there can be 'pure powers', namely properties which are nothing more than powers, but rather that properties should be thought of as being in some way both categorical/qualitative and powerful.[17] So, for example, one form of the powerful qualities view claims that 'the qualitative and dispositional are identical with one another and with the unitary intrinsic property itself' (Martin 2007, 65; Heil 2003, 2012; Engelhard 2010; Jaworski 2016, 53–80; Jacobs 2011).[18] Note here that rather than speaking of categorical properties, proponents of this view prefer to call them 'qualitative' properties. The

thought is that thinking of a property as only powerful or only categorical/qualitative is to merely partially consider it (J. H. Taylor 2013, 95–96). However, once we fully consider what it is to be powerful and categorical/qualitative, we come to see a 'surprising identity' (Martin and Heil 1999, 47). Yet, some find this view extremely difficult to understand, since they take categorical/qualitative properties to just be different in kind to powers and cannot understand how they could be the same (Oderberg 2009). As such, another form of this view is called the compound view, which claims that 'properties are essentially compounds of *distinct* dispositional and qualitative parts' (H. Taylor 2018, 1438) and therefore these properties are complex (Williams 2019; H. Taylor 2023). Given that this is a recent view advanced in the literature, whether it is preferable over the identity view remains to be seen.[19]

4 | What Determines a Power's Identity?

There are two answers to this question. The first, most widely endorsed, is that both the conditions which are required in order for a power to manifest and the manifestation itself determine the identity of a power (Bird 2007, 19).[20] Hence, the identity of salt's power to dissolve is set by the conditions required for salt's dissolving, the manifestation conditions and the dissolving of the salt, the manifestation.[21]

However, there has been some pushback to this type of approach, leading to the second answer, in which the manifestation alone determines a power's identity. This proposal is partially motivated by several factors: semantic considerations, the fact that some powers seem to have no manifestation conditions, and since the manifestation conditions which bring about the manifestation of a single power vary widely (see Vetter (2014, 2015) for detailed discussion of these reasons). However, questions remain as to whether this can overturn the former position, because there are worries that on this latter account the manifestation conditions will still appear but merely by being built into the manifestation.

5 | What Makes Powers Manifest?

There have been two views which have become prominent in answering this question,[22] the first claiming that it should be thought of in terms of stimulus condition and response (Bird 2007), the triggers view. The idea here is that a given power D is characterised by manifestation M, which results in D's being stimulated by S. Hence, powers are inert, doing nothing, until they are triggered to do so.[23] Yet, one reason some give for preferring an alternative view is that they think this approach fits poorly with examples of manifesting powers. Thus, Heil writes of salt's dissolving in water, 'Where do you locate D? In the salt? In the water? And where is S? Is S the salt, the water, or something else?' (Heil 2012, 122).

Given this and other concerns, an alternative view, the mutual manifestation view (Martin 2007, 48–51; Anjum and Mumford 2018, 121–124; Baltimore 2022), has been formulated, with this perhaps being the most popular position today

(Marmodoro 2017a, 57, n.2). On this account, powers, which come together in appropriate conditions, bring about their mutual activation. So, for instance, when the power of water to dissolve salt and the power of salt to be dissolved are brought together the salt dissolves in water. Yet, McKitrick worries that all we are given here is a metaphor rather than a real account of a power's manifestation (McKitrick 2018, 126–128). However, McKitrick does suggest one way out of her predicament, although she herself finds it implausible (McKitrick 2018, 128), claiming that powers are constantly manifesting, such that no such activation is needed, and that powers are often suppressed in bringing about their characteristic effect due to other powers in their environment.[24] Yet, were one to remove those powers causing an interference, you would see the characteristic effect of the power. Although it seems some theorists have held something like this (Lowe 2006; Dumsday 2016, 79–101; Marmodoro 2022), it is unclear that many would want to go this far.

6 | What Happens to a Power When it Manifests?

A fairly uncommon answer to this is that when a power manifests, it produces a categorical property.[25] However, two other views are much more prominent. The first suggests that when a power manifests another power/s, albeit different, is/are produced (Mumford and Anjum 2011; Bird 2007). We can call this the jumping account, since one power through its manifestation jumps into being another power. This view seems subject to the always packing never travelling objection (Armstrong 1997, 80), which claims that if a manifestation of a power results in another power then there is never any motion since there is no movement from potency to act rather all we have is one potency after another. Although defenders of this view have offered responses to this type of objection (Bird 2007, 100–108), another view found in Aristotle (Witt 2003, 38–58; Marmodoro 2014, 13) has been given. This account, defended by Marmodoro (2017a), (2017b), claims that 'the activation of a power is an *internal* 'transition' from one state to another of the very same power: its manifestation is not the occurrence of a new power; rather it is simply a different state of the original power: an activated state' (Marmodoro 2017a, 59). This bypasses the always packing worry since powers move from a state of potentiality to actuality;[26] yet, it raises other questions such as what a state is (McKitrick 2017, 43) and whether we can understand how a power in these two states can be numerically identical.

7 | What Type of Modality Governs a Power's Manifestation?

Our assumption that powers are non-reductive precludes them from having a reductive analysis; however, there can still be a type of modality that governs their manifestation. So, what should we take this modality to be?

At present, two main answers have been given. The first is conditional necessity. On this view, when the conditions for a power's manifestation are met, it will necessarily manifest (Hüttemann 2013, 121–122; Marmodoro 2016, 2017a, 67–69). Therefore, if you put two powers in identical situations where

the manifestation conditions are met, both will necessarily manifest. By contrast, on the second view, what has been called the dispositional modality view (Anjum and Mumford 2018), if you have two powers in identical situations, where the conditions for manifestation are met, it is possible that one power manifest whereas the other not, or both manifest, or neither. The reason for this is due to the view claiming that 'connecting a causal power with its manifestation ... is neither pure necessity nor pure contingency but something in between' (Mumford and Anjum 2014, 106; 2011, 175).[27] However, a problem with this view is that it is difficult to make sense of something in-between necessity and contingency and some of the examples given in support of the view have been shown to be explainable on the conditional necessity position (Marmodoro 2016). Nevertheless, whichever view one adopts, it seems it ought to be compatible with probabilistic and indeterministic powers, given that some interpretations of scientific phenomena seem to require such things. Additionally, if one wishes to allow for what Lowe (2008, 176; 2013) calls spontaneous powers, namely, indeterministic powers where their manifestation is not brought about by the operation of prior causes, one will need to think about whether one can make either of the two options given above compatible with this view.

8 | Are Powers Relational?

Some take it that powers are relational entities, where a relation exists between a power and its manifestation (Bird 2007; Tugby 2013). However, there are others who think that the positing of a relation is unnecessary (Oderberg 2017, 2389–2404; Heil 2003, 80; Marmodoro 2017a, 65–67). One reason for positing a relation is that powers, contra Mumford (1999), 217, seem 'in some sense' inherently directed towards their manifestation (Place 1999, 227) and that we should think this directedness is relational. Thus, suppose you have *x* and *y* and a one-way relation holding between *x* and *y*, we would then say *x* is directed towards *y*, where the directedness is explained in virtue of the relation. However, those who wish to resist the relational account of powers attempt to explain this aspect of powers in terms of nonrelational features, since they are concerned that thinking of directedness as relational opens the way up to various regresses. For instance, take the Psillos (2006) regress against theories that posit that the directedness of a power towards its manifestation is a property of the power, or in other words that there is a relation between two different things, a power and its manifestation. From this Psillos suggests a regress ensues,

> The question I am interested in is what F does when it is *not* manifested ... Suppose we grant that when unmanifested, power F has the *power Q* to manifest itself, that is to ϕ. (As noted above, this would be meant to explain F's directedness to its manifestation.) Since *Q* is a power, it is also directed to its manifestation, but it may well be (actually) unmanifested. So *Q* must have the *further* power *R* to manifest itself in a certain way; but being a power, *R* must have the power *S* to manifest itself in a certain way, and so on. *Ergo*, if

> power F has the power Q to manifest itself in a certain way, then an infinite sequence of powers need to be posited to explain what F does when it is not manifested.
>
> (2006, 139)

However, one way out of this regress is to suggest that there is no relation between a power and its directionality, that is, 'a power *does not* have directionality as a property; a pure power is this or that instance of directionality towards ϕ-ing ... No division, no regress' (Marmodoro 2009, 348–349). However, the advocate of the relational view is likely to reply that although this might solve the regress, they struggle to see how any sense can be made of powers being directional entities whilst being nonrelational and might suppose that those who hold such a view will likely have to think of this directedness as somehow metaphorical, a position they would rather avoid.[28] As such, they will have to find another way out of the regress, for instance, by adopting some type of dualist theory, where categorical properties play a role, an option Psillos himself gives, although he thinks there are drawbacks to it.

9 | How Do We Explain the Directionality of Powers?

Although this question no doubt can be related to the former, it does seem as though it is often taken to be independent, with this being evident from the fact that some disagree as to whether powers are relational, but not about what explains their directionality.[29] Two options for answering this question have been the most popular. First is the physical or natural intentionality position (Molnar 2003, 60–81; Borghini 2009; Heil 2003, 221–222; Place 1999; W. A. Bauer 2023). This view holds that 'the most typical characterization of intentionality ... all fail to distinguish intentional mental states from non-intentional dispositional physical states' (Martin and Pfeifer 1986, 531). As a result, it is claimed that we can explain the directedness of powers in terms of intentionality. However, those who object to this view argue that there is not enough of a parallel to make this claim (Bird 2007, 114–126; Oderberg 2017; Barker 2013, 649). Although there has been some response to this (W. A. Bauer 2016), others have opted for a different way of thinking about the directionality of a power. On this, the second view, directionality is explained in terms of a very weak type of teleology (Kroll 2017; Feser 2014, 88–105; Oderberg 2017; Koons and Pruss 2017; Tugby 2024; Paoletti 2021), where the basic idea is that to be directed is to have an inherent end point. Some might also think that this view can encompass the intentional account of directedness, since teleology is sometimes thought of as prior to intentionality and employed in giving an account of it (Koons 2000; Okrent 2007).[30] Further, as teleology is usually linked with normativity (M. Bauer 2009, 239–241), some have suggested that powers can provide us with an account of what it means to be normative, 'An Aristotelian can give a straightforward account of normativity: a substance is supposed to produce E on occasions of C if and only if its nature includes a C–E power (one might also prefer more active terms like 'tendency' or 'striving')' (Koons and Pruss 2017, 198; Koons 2017, 6–7).[31]

However, there have also been objections raised against this view, with some suggesting they can get more of a handle on what we mean by directionality than what we mean by teleology (Manley and Wasserman 2017, 48). If that is right then perhaps, there is no explanation for the directionality of powers; it is just a primitive aspect of them.

10 | What Types of Powers Could There Be?

Many have suggested there could be multi-track powers, where this is a power with distinct manifestation types, with this postulation resulting from a perceived need to account for empirical data that we discover in the world.[32] A further distinction here has been made between qualitative and quantitative multi-track powers, where the former means the power has distinct kinds of manifestations, whereas the latter results in a power's manifestation differing only in degree or intensity rather than in kind. For instance, some think that the power of elastic to stretch is a quantitative multi-track power, since it can stretch to different lengths, whereas a ball's sphericity has the multi-track power to reflect light radiation in a definite way, produce a concave depression in clay and roll (Heil 2003, 198–199). Multi-track powers that posit different kinds of manifestation are usually considered more controversial than qualitative multi-track powers, with Lowe (2010) arguing that these views lead to problems for the identity conditions of these powers.[33] However, not everyone agrees with this, and some have gone on to suggest that the distinction between qualitative and quantitative multi-track is not as helpful as first thought (Williams 2011a).

Marmodoro (2014, 130–133) has suggested that Aristotle thinks there are multi-stage powers and that these should be postulated due to the work they can do in explaining perception. These are powers that have different stages of activation, for instance, 'perceptible qualities may be activated into their first actuality in the absence of any perceiver, if the conditions in the environment are appropriate; but, they are activated into their second actuality only when the corresponding perceptual capacity of a perceiver is co-activated' (Marmodoro 2014, 132). Providing an explanation of perception (Marmodoro and Grasso 2020; Marmodoro 2014), then, is one such reason to postulate this type of powers, but it might be that they have additional explanatory benefit elsewhere.

There are also many other types of powers that have been argued for, which I shall mention briefly, all of which have also been postulated so to explain a feature of the world the theorist thinks needs explaining. Hence, some suggest a distinction between active and passive powers (Oderberg 2024; Marmodoro 2017a, 72–75) so to explain the asymmetry of causation, whereas others deny there is such a distinction and also that causation is asymmetrical (Heil 2012, 118–120; R. Ingthorsson 2002). Marmodoro (2017b) has also made a distinction between structural and substantial powers so to explain the different types of unity and oneness power composition can deliver. The former is said to unite powers together, a weaker form of composition, where the latter is said to unify them, a stronger form. Additionally, we saw above that probabilistic and spontaneous

powers have been postulated so to explain probabilistic and indeterministic phenomena, such as the decaying of a radioactive isotope and a libertarian view of freedom (Lowe 2008, 2013). Additionally, sure fire powers, powers that always manifest, have also been posited due to their explanatory benefit. For instance, if one thinks the world is composed of powers all the way down, then perhaps some sure-fire powers are needed at the bottom level.[34] Finally, two other types of powers have been postulated, intrinsic and extrinsic, where the former are properties that are had regardless of anything external, whereas the latter are properties had in virtue of that which is external. For instance, the power of being lockable could be an extrinsic power since it is one a lock may acquire without undergoing an intrinsic change (McKitrick 2018, 158–177; Contessa 2012).[35]

11 | Are Powers Universals, Tropes or Nominalistic?

As powers are typically taken to be properties, we might ask if any conception of properties is best suited for powers. That is, are they best thought of as universals, tropes or nominalistically? Although there are power theorists who hold to each of these views, only some have contended that one should hold a certain view of properties more generally due to the nature of powers. For instance, Tugby (2013) and Bird (2007) contend that one should think of them as Platonic universals. A reason for thinking that this is the best option has to do with something discussed earlier, namely, the thought that a power's directionality is relational. If we think this then a Platonic theory can avoid having to say that there is some nonexistent manifestation that a power is directed towards, or that there is a relation with a nonexistent relata, since the relata do exist within the Platonic realm. However, others, such as Whittle, have argued that thinking of powers nominalistically is preferable since a powers theorist will not need to have properties as *sui generis* entities in their ontology since they can 'Ockhamize' their ontology by reducing properties to causal powers with no theoretical costs (Whittle 2009, 243; Vogt 2022). Nevertheless, there are other advocates of powers who take them to be either Aristotelian universals (Ellis 2001; Mumford 2004) or tropes (Heil 2012; Marmodoro 2017b, 110) and as such powers seem compatible with many different theories of properties. As of yet it has not really been systematically explored which, if any, view of properties is preferable to a powers metaphysic.

12 | Are There Any Arguments for Powers?

In the previous sections, I have tried to show what power theorists think powers are like, but now another question needs to be raised, namely, whether there are any good arguments for their existence. A number of arguments have been given, but here I'll only sketch two.[36] First is the thought that the reductive conditional analysis account of powers fails (Martin 2007, 12–23; McKitrick 2018, 15–41; Bird 2007, 24–41), where the analysis in its simplest form claims that an object has the power to bring about manifestation M when in conditions C if and only if it would M if in conditions C. Various counterexamples have been

proposed to such an analysis, with each seeming to focus on some form of intervention in the action of powers such that they do not manifest or manifest a different outcome, which the conditional analysis cannot capture.[37] The question then is whether the analysis can be repaired (Manley and Wasserman 2008, 2011; Choi 2009; Hauska 2015), with power theorists claiming that it cannot be (e.g., McKitrick 2018, 15–41).

The second argument for a realist view of powers holds that because powers are so useful, we should posit them in our ontology.[38] Although the list of what powers can do is constantly growing, let me give you a feel for what it has been already argued that they are helpful with: giving an account of laws of nature (e.g., Bhaskar 1978; Cartwright 1983; Mumford 2004; Bird 2007), modality (e.g., Vetter 2015; Pawl 2017; Pruss 2011; Yates 2015), causation (e.g., Mumford and Anjum 2011; Chakravartty 2007, 107–118),[39] free will (e.g., Vihvelin 2004; Steward 2012; Groff 2019), providing useful resources in philosophy of mind (e.g., Jaworski 2016; Heil 2012; Wilson 2014), ethics (e.g., Anjum et al. 2013; Page 2021; Robinson 2011, 2013, 2014; Paoletti 2023), philosophy of biology (e.g., Austin 2018) and philosophy of religion (e.g., Page 2015, 2017b, 2018a, 2018b, 2025; Leftow 2012). Supposing then that powers are *on the whole* helpful in explaining various phenomena, if one is attracted to a style of argument where explanatory usefulness provides reason for acceptance, then this seems like a fairly strong argument in favour of powers.[40]

13 | What Are Some Arguments Against Powers?

Although we've seen some arguments that can be given in favour of powers, arguments have also been given against them.[41] For instance, some think that if a conditional analysis of powers can be given, then they no longer need to be postulated. As we have seen above, whether this can be done or has been done has been strongly contested by power theorists. Another worry was made famous by Molière, the *virtus dormitiva* objection, which claims that powers are explanatorily vacuous and should not be posited. Needless to say, many power theorists have had much to say in response to this (Mumford 1998, 136–143; Feser 2014, 43–46; Michon 2007; Williams 2019, 195–216). Perhaps, the other major objection against realist views of powers is the Humean standpoint, where there are no necessary connections in nature and even if there were, there is an empirical problem as to how these connections can be detected. Although some power theorists have claimed that we can detect such connections, since they claim 'causation can be experienced directly' (Mumford and Anjum 2011, 196), the larger point is that power theorists just fundamentally disagree with the Humean metaphysical scheme (Ellis 2001; Mumford 2004; Lierse 1996; Williams 2019), although one theorist, Handfield (2008), has attempted to give a Humean theory of powers, the success of which has been challenged (Simpson 2018).

Although these are general objections to non-reductive views of powers, there have been objections to specific views of powers. For instance, some have worried that theories, which hold that powers, are the only fundamental entities, will result in a view where there can be nothing real since there are no categorical

properties to ground these powers. However, those wanting to say powers can account for the fundamental level have offered responses, such as claiming some powers always manifest (Marmodoro 2017b) or that some track of them always does (W. A. Bauer 2012). As I have already mentioned there is also the incoherence worry to the powerful qualities view and numerous types of regress worries (Swinburne 1980; Blackburn 1990; Armstrong 1997, 80; Psillos 2006; Lowe 2010; McKitrick 2013), some of which have already been mentioned, with some conceptions of powers seemingly more susceptible to these types of objections than others.

Nevertheless, whether or not any of the arguments for or against powers persuade you, hopefully you now have a greater understanding as to what powers are, and if that is the case, then this article has been as powerful as it was intended to be![42]

Endnotes

[1] I will briefly say something about this terminology later, but for now, these terms can be taken synonymously.

[2] Perhaps one of the first contemporary papers which aimed to revive advocating for powers was Maxwell's (1968).

[3] For some edited collections on powers, see: Kistler and Gnassounou (2007); Groff (2008); Handfield (2009); Damschen et al. (2009); Marmodoro (2010); Bird et al. (2012); Groff and Greco (2013); Jacobs (2017); Engelhard and Quante (2018); Meincke (2020); Jorati (2021); Austin et al. (2022); W. A. Bauer and Marmodoro (2024); Austin et al. (2024).

[4] Although recently Dumsday (2019) has suggested that powers might be able to 'cross-cut ontological categories' such that there can be substantial powers, what he calls 'substantial dispositions'. Marmodoro (2017b) also speaks of structural and substantial powers, but these seem to differ from Dumsday's usage.

[5] Here, the manifestation of a power and the change it brings about are taken to be the same thing, but, although not often noticed, this does not need to be the case, and there is some debate as to whether the two should be identified or not. For instance, Molnar (2003, 195), Anjum and Mumford (2017, 87) and Marmodoro (2022, 2) are all examples of power theorists who hold these to be distinct.

[6] However, Cross (2005) argues that it is a lot harder to draw the distinction than this.

[7] Although, as we will see, some power theorists would not think that these properties actually are categorical properties (Bird 2017).

[8] However, things are made more complicated since many who use the terminology of dispositions or capacities/potencies/potentialities refer to what I mean by power here. Yet, some theorists also try to make a distinction between powers and dispositions (Pruss 2011, 239–248; Bird 2013, 2016; McKitrick 2018; Maier 2018) although not always along the lines I have suggested.

[9] A slight caveat here. There are a group of theorists who hold to a non-reductive but deflationary view of powers, where this account holds that powers are nothing more than second-order properties, which means that having a power amounts to having the property of having certain other first-order properties (E. W. Prior et al. 1982; E. Prior 1985).

[10] Oderberg's (2007, 2017) view might be classified this way, since he seems to hold that when a power manifests, it becomes a categorical property, although he employs different terminology.

[11] This differs from dispositional essentialism, which claims that at least *some* properties have dispositional essences (Choi and Fara 2018), since pandispositionalism claims all properties have dispositional essences.

[12] An advocate of the 'only powers' view might still claim that powers require bearers, such as substances, but that the only types of properties there are powers.

[13] Those holding to pure categoricalism can also claim the virtue of parsimony, since they reject the need for powers.

[14] Mumford (2021) has provided a response to Bird, suggesting powers should not be restricted to the fundamental level. Vetter (2018) also responds directly to Bird's (2018) paper which is directed towards the same concern.

[15] Schaffer (2015) seems to suggest something like this.

[16] For a great and up-to-date overview of the literature on powerful qualities see H. Taylor's (2024) *Philosophy Compass* piece on this topic.

[17] Note that elsewhere H. Taylor (2018) has attempted to argue that the identity view of powerful qualities ends up saying the same thing as a 'pure powers' view and so the two are not distinct positions. Additionally, if one interprets the 'only powers' view as thinking that the powers in question must be 'pure powers' then the 'only powers' view is inconsistent with the powerful qualities view. However, if you interpret the 'only powers' view as saying all properties must be in some way powerful, then the 'only powers' view is consistent with the powerful qualities view. At the very least, the 'only powers' view and 'pure powers' view, as I have characterised them, need not be identical.

[18] Jacobs (2011) attempts to reformulate the view in terms of truthmaker theory in order to bypass various concerns.

[19] Note that sometimes the grounding theory of powers, discussed above, is also classified as a type of powerful qualities view (e.g., Coates 2020, 2023; Contessa 2019).

[20] There is a type-token ambiguity here (Lowe 2010). For Bird, it is the manifestation type and stimulus type that determines the identity of a power.

[21] Some have suggested that a power's nature is determined holistically, such that a power's identity is determined in terms of other powers (Williams 2010; Mumford 2004, 182–184).

[22] A further distinction has been made by some here, namely, powers that have an instantaneous manifestation and powers whose manifestation is a continual process. The latter 'have temporal duration rather than be an instantaneous transition from one power in potentiality to another' (Marmodoro 2017a, 75) as in the case of the former. For instance, the manifestation of a bomb exploding we shall say is instantaneous, whereas the power of a magnet to attract is a continual process.

[23] Jenkins and Nolan (2012) have also theorised about powers, which cannot possibly manifest, and the consequences this has for certain views of powers.

[24] This way of talking may give one reason to think that a power's manifestation and the characteristic effect it produces are different as noted in footnote 5.

[25] Note that when Oderberg (2007, 2017) speaks of this, he thinks of categorical properties and powers as synonymous or at least very closely related to Aristotle's act and potency, respectively. However, it has been argued that thinking this is a mistake since act and potency are applicable to more of Aristotle's categories than merely 'properties' and therefore cannot be identical to them (Clark 2015).

[26] This move also bypasses another regress worry (Marmodoro 2009), given by Psillos (2006).

[27] Mumford (2013, 19) mistakenly took the dispositional necessity view to be Aquinas', which is not the case (Page 2017a), although he no longer holds this (Anjum and Mumford 2018).

[28] Molnar (2003) tries to demystify the nonrelational view by positing physical intentionality, which we will look at in the next section, but it is controversial as to whether this is successful.

[29] For instance, Tugby (2013) takes powers to be relational and Marmodoro (2017a, 65–67) takes them not to be, but both think that teleology explains their directionality (Tugby 2024; Austin and Marmodoro 2017).

[30] This view might also be able to envelope functional accounts of directionality as well (Mumford 1998; Whittle 2008), since teleology is also usually linked to function.

[31] Some think Lowe (Mumford and Anjum 2011, 183–185) held that a power's directionality was explained in terms of a type of normativity, but if it is right that teleology grounds normativity, then Lowe's account might depend upon the teleological view.

[32] This differs from Vetter's (2013) use of multi-track since she seems to be primarily concerned with different stimulus conditions.

[33] Other prominent single-trackers include Bird (2007, 21–24) and Cartwright and Pemberton (2013).

[34] The supposed need for this has some relation to the well-foundedness of grounding.

[35] Note that this type of distinction is one drawn within the properties literature more generally, and therefore, I suggest that there might be other distinctions found within the general properties literature, which will also apply to powers.

[36] Other arguments in favour of powers have been that properties are best identified by their causal role (Shoemaker 1980), that quiddities are no longer required for identity (Bird 2007, 73–79), that science gives us reason to posit them (Mumford 2006; Williams 2011b), due to helping solve the problem of change (Feser 2014, 31–46), because of a dissatisfaction with Humean metaphysics (Lierse 1996; Ellis 2001; Williams 2019) and given pragmatic concerns regarding scientific inquiry (Chakravartty 2017).

[37] For the specifics on some of these counter examples, see Martin (1994) for a discussion of finks, Bird (2007, 27–29) on antidotes and Johnston (1992) on mimics.

[38] This line of argument is similar to one that Lewis gave when arguing for his realist theory of possible worlds (Lewis 1986, 135).

[39] Although some have wondered whether there can also be noncausal powers (Nolan 2015).

[40] Not all power theorists will like this argument or may at least restrict it, for instance, Bird (2016, 2018) claims that powers have overreached themselves and explain far less than is suggested by the list here, with Mumford (2021) replying to Bird by suggesting powers can do a lot more than he thinks. See also Vetter (2018).

[41] For some additional objections, see: Barker (2013) and Jaag (2014).

[42] For further introduction to powers, see: Choi and Fara (2018), Allen (2016, 139–190), Marmodoro and Mayr (2019, 47–89), Friend and Kimpton-Nye (2023), and Groff (forthcoming).

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