Should David Armstrong be a Dispositionalist?

An Indirect Defense of Powerful Properties

Daniel Zander

I suggest that anything has real being that is so constituted as to possess any sort of power either to affect anything else or to be affected, in however small a degree, by the most insignificant agent, though it be only once (*Sophist*, 247$^{\text{d-e}}$).

Abstract

A well-known debate among proponents of natural properties concerns the very nature of such properties. On one extreme, known as Dispositionalism (or the 'powers' view), the essence of a property is given by the nomological or causal role(s) it plays. Properties are *powers*, existentially exhausted by how they affect the actual and potential behavior of their instances. On the other, known as Categoricalism, such nomological or causal roles are contingent features of a property, the essence of which is primitive and self-contained (called *quiddities*). David Armstrong famously holds a categorical conception of natural properties. I argue that, on the basis of some of Armstrong's ontological commitments and endorsements of certain metaphysical principles, he should himself give more credence to Dispositionalism. In defending this claim, I hope to concurrently lend indirect support for the aforesaid theory.

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1. Introduction

Ordinary experience tells us that a bowling ball and golf ball, when subject to the same force, will experience different magnitudes of acceleration – being the heavier of the two, the bowling ball will experience less acceleration in response to the same force. Science explains the pattern by pointing to a difference in *mass* between the objects: although directly proportional to the applied force, the acceleration of an object is *inversely* proportional to its mass. At the level of particles, electrons and protons will between them experience an attractive force. The phenomena is explained by an appeal to the *negative charge* of electrons and *positive charge* of protons; Coulomb's law governs charge as to make oppositely charged objects attract and uniformly charged objects repel each other. In both of these cases, the scientific explanation refers to a physical law which is directly concerned with the *properties* of *things* (e.g. the *mass* of the golf ball, the negative *charge* of the electron). Given that one treats such properties as objectively existing entities, a range of questions arise: what is their *nature*? Is there a division between what properties *are* and what they *do*? Are the tendencies towards certain patterns of behavior built in to the nature of properties, or are they somehow extrinsically imposed?

According to the Australian philosopher David Armstrong (1997), an important distinction is to be made between what properties *are* and what they *do*. On this view, known as *Categoricalism*, the nomic or causal roles of a property are *in*essential to it. In the actual world, the negative charge of an electron will *dispose* it to repel other negatively charged electrons. But in a possible world, where Coulomb's law is different, negative charge might instead dispose electrons to attract each other. The opposing view is known as *Dispositionalism*, according to which the *essence*[1] of a property is given by its causal or nomic role. On this view, to conceive of an *attractive* electromagnetic force between electrons is to conceive of electrons as having a property necessarily distinct from negative charge (say, negative *schmarge*). Properties have *dispositional* essences, which is to say: the way they affect the actual and potential behavior of their instances is invariable across all possible worlds.

The aim of this paper is to argue that Armstrong should himself, given some of his own metaphysical beliefs, give more credence to Dispositionalism. By defending this claim I hope to concurrently lend support for the aforementioned theory. I begin in sections **2–2.3** with a detailed account of the competing theories mentioned above. In addition, I present Armstrong's metaphysical theory of the laws of nature and its connection to the nature of properties. In sections **3–3.2** I intend to neutralize Armstrong's main reasons for a rejection of Dispositionalism. This is done by showing how Armstrong's two principal arguments against Dispositionalism can be levied against his own Categoricalist theory. Section **3.2.1** and **3.2.2** covers a unique concern for the Dispositionalist, stemming from what I believe is the most serious objection against the theory (the *regress objection*). To properly defend my claim I address this concern by presenting a reformulated version of a response due to Alexander Bird (2007). In sections **4** and **5** I offer positive arguments for my claim. Section **4** presents Armstrong's characterization of (categorical) properties as *ways*. I go on to argue that this characterization of properties fits better within a dispositional conception of properties. I end the paper in sections **5–5.1** with a discussion on Armstrong's adoption of the Eleatic principle. I argue that the principle stands in some tension with the rest of Armstrong's metaphysical system and that the tension is best alleviated by a full endorsement of Dispositionalism.

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[1] I will be using "nature" and "essence" interchangeably: the *nature* or *essence* of any *x* is what makes *x* what it is, it is the set of facts entailed by its existence.

2. The Nature of Properties – Two competing views

In setting the scene for the debate it will be useful to begin by stating assumptions held by the relevant competitors (e.g. Armstrong, Bird). The term "property" can be given an *abundant* conception, it is then that which gives semantic value to an arbitrary predicate. This understanding, however, would commit one to a set of properties equal in size to the set of meaningful predicate expressions. As indicated in the introduction, in discussing the nature of properties we are concerned with a much smaller set, namely, the set of *sparse* or *natural* properties. Natural properties are what grounds truths about the *objective* resemblances and causal patterns of particulars. They are meant to cut nature at its joints and are individuated *a posteriori* by our best physical theories. Mass, spin, and charge are possible examples of mind-independent natural properties, all postulated by current empirical science. The difference between abundant and natural properties is thus not merely conceptual, but reflective of a substantive ontological division (Bird 2007: 9 – 12).

David Armstrong (1997) in particular, takes these natural properties to be *universals*, i.e. repeatable entities that are strictly identical in their instantiations. As a naturalist, he posits existence to entities only within the spacetime system, and so consistently accepts Aristotelian realism: universals exist only in so far as they are *actually* instantiated in the concrete world (nothing transcends spacetime). In addition to particulars and universals, Armstrong (and Bird) takes the world to be a world of *states of affairs* (or facts). A state of affair exists *iff* some particular a_1 instantiates a monadic universal U, or some particulars a_1, …, a_n instantiate an n-place universal U*. a_1's being U is a state of affair we may symbolize as "Ua_1". Ua_1 is not identical to the sum of a_1 + U, for a_1 and U can exist independently of each other and so Ua_1 as a state of affair, is always ontologically additional to its constituents.[2] This is entailed by Armstrong's commitment to the world's furniture being contingent existents: "Each state of affairs, and each constituent of each state of affairs, […] is a contingent existent" (Armstrong 1997: 1, 21, 27).

The distinction between abundant and natural properties can equally be made by a trope theorist, which takes properties to be respectable but unrepeatable entities, each property instantiation corresponding to a distinct trope. Natural properties would then be equivalence classes of perfectly resembling natural tropes, ontologically distinct from non-natural ones (Bird 2007: 9 – 10). The dispute between properties as universals versus tropes is therefore largely independent of the question at hand, namely, what the *nature* of these properties are. One thinks of properties as bestowing dispositions upon the particulars that instantiate them. A proton with positive charge p, has in virtue of it instantiating p, a disposition to attract negatively charged electrons and repel other positively charged protons. What is the nature of p? Does p (and other sparse properties like it) have a nature *exhausted* by the dispositions it bestows on objects, or a nature that is self-contained and only contingently associated with its *powers*?[3] To affirm the first disjunct is to accept a form of *Dispositional Monism*. Affirming the latter gives you *Categorical Monism*. We begin by giving an exposition of Dispositional monism, following Bird's characterization in *Nature's Metaphysics* (2007).

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[2]However, neither a_1 nor U can exist outside state of affairs, a_1 must have some properties and U must be instantiated by some other particular.

[3]An important note on terminology: I will be using the term "power" to refer to the dispositional features of natural properties, which is roughly the features in virtue of which their instances have certain dispositions. Talk of the "powers" of a property is appropriate when abstracting away from any particular instantiation of that property. Another slightly different use of "power" will be introduced in the succeeding section.

2.1 Dispositional Monism

The thesis of Dispositional Monism is that every natural property has a *dispositional* essence:

(DM) Every *natural* property has some dispositional essence X.

What does it mean for a property to have a dispositional essence? Simply put, it means that one capture the essence of a property using only dispositional language. In accordance with (DM), any property F will have some dispositional essence or equivalently, an essential power X, where X is the power to *manifest* some property M in response to some *stimulus* property S. Objects instantiating F (will in virtue of F's power) satisfy $D_{(S, M)} x$ – which symbolizes "x is disposed to manifest M given the presence of stimulus S". In turn, it is often assumed that the relation between stimulus and manifestation is one of counterfactual implication, such that, $D_{(S, M)} x$ is true *iff were x* to undergo S, it *would* come to manifest M. The conditional analysis of dispositions stated more formally:

(CA) $\quad D_{(S, M)} x \leftrightarrow Sx \,\square\!\!\rightarrow Mx.$

where '$\square\!\!\rightarrow$' symbolizes the counterfactual conditional. As it turns out, (CA) is strictly speaking false as it fails to handle counterexamples in the form of *antidotes* and *finks*.[4] For our purposes however, (CA) can still function as a useful approximation (Bird 2007: 43 – 5).

Dispositional monism comes in two different versions, one form being weaker than the other. *Weak* Dispositional monism (WDM) takes any property F to *essentially* have some power X, such that, in every possible world, for any *x* instantiating F, *x* is disposed to manifest M given the presence of stimulus S:

(WDM) $\quad \square(Fx \rightarrow D_{(S, M)} x)$

where '$\square$' symbolizes metaphysical necessity. Take positive charge again: the essential power of *p* will ensure that in all possible worlds, if any *x* instantiates *p*, it will be disposed to *attract* negatively charge electrons. To make things lucid, briefly contrast (WDM) with a categorical conception of properties, the one to which Armstrong subscribes and to which our attention will be pointed in section **2.2**. If *p* is a categorical property it will have its power only contingently, and so may therefore have the inverse of its *actual* power in some other possible world: thus disposing any *x* to instead *repel* negatively charged electrons. Precisely this possibility is denied by (WMD), natural properties have the same dispositional character (i.e. the same set of powers) in every world in which they exist (Bird 2007: 44 – 5).

The following paragraph is consistent with Dispositional monism and it makes explicit the distinguishing mark of (WDM), the *weaker* form of the theory:

> Two possible worlds *w* and *w** may be identical in all respects except that: at world *w*, property F essentially has power X, and at world *w**, property G essentially has power X, and yet F and G are non-identical properties: F ≠ G (Bird 2007: 72).

To deny the above paragraph is to deny (WDM) and accept *strong* Dispositional monism (SDM). On this view, the *individuation* of properties is to be given by their powers. Properties F and G are thus *identical* in virtue of having an identical power. Formally we can capture this difference by replacing the conditional in (WDM) with a biconditional:

(SDM) $\quad \square(Fx \leftrightarrow D_{(S, M)} x).$

What strong Dispositionalism asserts is, in effect, that F is *identical* to X, the power to manifest M in response to S. A natural property just *is* its power(s), it has its nature *exhausted* by the disposition(s) it bestows on particulars – how it determines the potential and actual

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[4] For an account of *finks* and *antidotes*, see Bird (2007), *Nature's Metaphysics*, p. 25 – 29.

behavior of its instances. Thus, what separates (WDM) form (SDM) is the claim that properties *consist of* or is made up of powers – the former view is the one denying this claim (Bird 2007: 72 – 3). Strong Dispositionalism is advocated by Bird (2007), Mumford (2004) and famously by Shoemaker (1980). Armstrong denies the existence of powers. In section **3**, his arguments against Dispositionalism[5] are explicitly directed towards (SDM) and as I interpret him, the strength of these arguments is what makes him prefer a categorical understanding of properties (universals).[6] The next two sections are dedicated to laying out the view of Categorical Monism and its link to a certain metaphysics of the laws of nature.

2.2 Categorical Monism

The thesis of Categorical Monism (CM) is that: Every *natural* property is a categorical existent. What it means for a property to be categorical is summed up by Armstrong:

> Properties are self-contained things, keeping themselves to themselves, not pointing beyond themselves to further effects brought about in virtue of such properties (1997: 80).

To say that a property is categorical is to affirm the variability of the disposition(s) it bestows on particulars across possible worlds – properties do not have dispositional essences. (CM) holds that any property F which in world *w* has power X, can in another world *w** have power C, and still maintain identity across the worlds. If we from a given natural property abstract away its contingent power(s), we find a very bare nature consisting in *primitive* self-identity and distinctness from other natural properties. This primitive identity is known as a *quiddity*, and in virtue of quiddities flow *internal* relations of difference between fundamental properties. In addition, essential to a categorical property is its adicity. A monadic property F, which Armstrong takes to be a universal, is necessarily monadic. The same goes for dyadic, triadic and other n-adic universals (Bird 2007: 67).

The job for a Categorical monist is to explain how the powers of properties arise. If powers are inessential to the properties, then why do we still associate with them, in the actual world, certain causal roles? A further problem concerns unmanifested yet arguably *actual* powers. The power associated with the property of brittleness, ensures that a brittle object is disposed to *shatter* if suitably *struck*. But the brittleness of the object as a property is *not* conditional on the occurrence of its manifestation (shattering); the object remains brittle throughout its carrier without ever being suitably struck. Armstrong himself highlights the need for *truthmakers* regarding these dispositional truths. For the Dispositionalist, the truthmakers are simply the properties themselves, after all, properties are nothing but powers. The thing which Armstrong takes to be a feature of a property is for the Dispositionalist the property itself. Conversely, Armstrong takes powers to be contingent features of categorical universals, features which are had by universals only in relation to the laws of nature (Armstrong 1997: 70, 81). We will devote the next section to a presentation of this view.

2.3 Nomic necessitation

Armstrong (1997) claims that to be a law of nature is to be a second-order relation between first-order universals. The second-order relation is one of *nomic necessitation* or equivalently, a kind of *causal* relation holding between universals. To unpack this claim and to understand its implications for the nature of properties, I believe we should start from the bottom and work ourselves up.

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[5] I will use the term "Dispositionalism" to henceforth refer exclusively to (SDM).

[6] However, I take it that these arguments apply equally to (WDM).

Suppose some object **a** instantiates universal F, where $D_{(S, M)}$ characterizes F's power, that is, **a** is disposed to manifest M given the presence of S. Let us further assume that **a** at present manifests its disposition: **a** is exposed to stimulus S and so manifests M. According to Armstrong, such a manifestation is always a case of singular or token causation. It is a case of some state of affairs *bringing about* a second one, a case of *this* causing *that* (1997: 70). In this instance, the conjunctive state of affairs of $(Fa_1 \& Sa_1)$ *causes* Ma_2. The numerals are meant to indicate temporal succession: since cause precedes effect it cannot be the exact same particular which appears as constituent in both state of affairs. a_1 and a_2 are, let's say, successive temporal parts of "the same thing" (namely **a**), the former part bringing about the latter parts instantiation of universal M[7] (Armstrong 1997: 205).

Out of convenience I have so far, in a somewhat misleading way, referred to universals with capital letters. Armstrong wants to think of universals as state-of-affair *types* – as gutted state of affairs, the remainders of a state of affair when we in thought have abstracted away the particulars. To say that a particular **a** has a monadic universal F, is to say the same thing as **a**'s being F. But the universal F, by itself, should really be thought of as _'s being F. Similarly, for a dyadic universal we have _'s having R to_. Universals as state-of-affair types are really *unsaturated* structures, i.e. they have one or more blanks as part of their nature (Armstrong 1997: 28 – 9). Let us now apply this kind of abstraction to the singular causal sequence above, the one involving a_1 and a_2. What we get is a case of something's being F and S *causing* a further thing to become M; a special kind of *structural* state-of-affairs-type:

$$(L) \qquad (\__1 \text{ being } F \,\&\, \__1 \text{ being } S) \text{ } causes \text{ } (\__2 \text{ being } M)$$

What L symbolizes is a second-order *causal* or *nomic* relation between universals, that is, L is equivalent in structure to a Law of Nature. L is a case of a conjunctive universal, F&S, being *nomically* connected to a further universal M. Keeping the appropriate structure in mind, as illustrated by L, one can more conveniently symbolize the law as $\mathbb{N}((F\&S), M)$[8]. Every case of singular causation involves a relation between first-order state of affairs, but importantly, such a causal sequence is always governed by a law involving connections between the relevant universals. Nomic necessitation is a relation-type very similar to what we experience in cases of singular causation. In fact, Armstrong claims that particular cases of singular causation are *identical* with particular cases of law-instantiation – law's being themselves second-order universals which are strictly identical across instantiations (Armstrong 1997: 218, 227, 229).

As Armstrong (1997: 229) notes, an analysis of nomic connections between universals might need added complexity to fit actual cases. The purpose of L, in its simplicity, is primarily to communicate the *intelligibility* of the 'nomic relations between universals' concept.[9] Not to mention, it is certainly not necessary for the universals in the antecedent to be instantiated by a sole particular (as is indicated in L). For ease of exposition, allow the following *abundant* interpretation of the universals in L: let F refer to a certain microstructural property common to salt, S refer to the microstructural property common to water and M to the property of *dissolving*. F is nomically connected to S and M, such that F-things when subject to S, will manifest M. In this case, it would be counter-intuitive to say that S and F both are monadic

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[7] The required distinctness of particularity (at different times) presumes a perdurance theory of persistence; endurantism which takes particulars to be wholly present at different times, would not subscribe to this requirement. Armstrong (1997) falls in the perdurantist camp and argues separately in section (7.2) for the existence of temporal parts.

[8] "$\mathbb{N}$" denotes the second-order relation of nomic necessitation holding between first-order universals.

[9] See Armstrong (1997), *A World of States of Affairs*, p. 242 – 8, for his metaphysical interpretation of *functional* laws, laws which he takes to have a more realistic form and which moves beyond the so-called *ravens are black* paradigm.

properties instantiated by a single particular. More naturally, the antecedent involves some x (a grain of salt say) being F, where x has an external relation, R, to a further thing y (a particular patch of water) which is S and so subsequently brings about the consequent of x's instantiating M (dissolving). My intention is not to analyze this particular case further, but to simply point out how the distribution of particulars in universals, understood as n-placed structures, will vary depending on the features of those universals (such as adicity) and the laws that they figure in.

Continuing on with the above interpretation: **a**'s instantiating F is a matter of F bestowing on **a** the disposition of *solubility*. F's power, $D_{(S, M)}$, is an *inessential* feature of it that nevertheless ensures that in the actual world, for any x instantiating F, x *must* manifest M (dissolving) if subject to S (water). The "must" indicates a modal character which is extrinsically imposed on F by $\mathbb{N}$, or more specially, by $\mathbb{N}((F\&S), M)$. In this sense, the causal powers of categorical universals depend on the laws of nature – F taken apart from its nomic connections to S and M is causally *inert*. $\mathbb{N}$ introduces to the world a modal force that sits firmly in-between that of full-on metaphysical necessity and pure contingency (Bird 2007: 70, 91). I believe Armstrong's flavor of necessity is similar to what Popper calls *natural* or *physical* necessity. Laws of nature have a character akin to prohibiting principles, they set certain limits on what is *empirically* possible in the actual world (1959: 449). Laws are however metaphysically contingent, which means that the universals $\mathbb{N}$ relates is variable across metaphysically possible worlds. For example: there are worlds where $\mathbb{N}$ fails to relate universal F to S and M, instead relating it to S and Q, imposing on F the power $D_{(S, Q)}$, as opposed to $D_{(S, M)}$. This contingency of law results from the self-contained nature of categorical properties, that is, their lack of essential powers (Armstrong 1997: 82).

But in spite of the metaphysical contingency, Armstrong claims that his account of laws awards them with sufficient ontological integrity (1997: 82). In contrast with Regularity theories, laws are not *mere* summaries of the past and present behavior of the world. Armstrongian laws, as second-order state of affairs, takes an ontological distance from the first-order state of affairs. This supposedly grants them with the capacity to explain observable regularities, i.e. explain why certain patterns of first-order state of affairs manifests. For example: all spheres of uranium-235 fails to exceed a size of, say, two kilometers in diameter. Well before reaching that size, uranium spheres will meet their *critical mass* and undergo violent disintegration through a self-sustaining nuclear reaction. On a metaphysical level, Armstrong claims that one can *explain* this regularity (and individual instances of the regularity) by positing a nomic connection between universals. A particular quantity of uranium which reaches its critical mass, will instantiates a *repeatable* pattern, a complex state-of-affair-type or universal. This universal is in turn connected by $\mathbb{N}$ to a distinct complex universal (the 'disintegration-universal'), such that when the former is the case the latter is *necessitated* (1997: 223 – 4).

With certain qualifications,[10] Armstrong claims that a nomic connection between universals (as with the uranium case above) grants one with the corresponding regularity for free, it is *entailed* by the law (1997: 226). This amounts to giving $\mathbb{N}$ the essential feature of producing an exceptionless regularity with respect to any first-order universals it takes as relata. By letting ϕ and ψ denote any two universals, we can capture this feature in the general assumption of *extensional inclusion*:

$$\text{(EI)} \ \Box\forall\phi\forall\psi(\mathbb{N}(\phi, \psi) \rightarrow \forall x(\phi x \rightarrow \psi x)).^{11}$$

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[10] See Armstrong (1983), *What Is a Law of Nature?*, p. 147 – 150, where he distinguishes between *oaken* and *iron* laws.

[11] This formalization is given by Handfield (2005: 457). I use it to precisely capture $\mathbb{N}$'s entailment property.

Note that the entailment goes only in one direction, for the universal quantification can truthfully express an exceptionless but yet *accidental* regularity. What is true of uranium spheres is probably true of gold spheres: all spheres of gold fails to exceed a size of two kilometers in diameter. But this universal truth does not entail some particular nomic connection with respect to gold, the truth of it may simply depend on contingent initial conditions in our part of the universe (Armstrong 1997: 226).

I turn last to the case of unmanifested powers. If F never manifests its power (dissolving), then what is the truthmaker for $Fx \rightarrow D_{(S, M)}x$? With only categorical properties to work with, Armstrong must defer to a somewhat *deflationary* solution. There are no irreducibly dispositional properties (no properties which are to be identified with powers), only categorical properties governed by the laws of nature. Armstrong claims we need only the two latter things as truthmakers for dispositional ascriptions. Object **a** possessing F together with the law $\mathbb{N}((F\&S), M)$ entails the truth of **a**'s having disposition $D_{(S, M)}$. In other words: the unmanifested powers of a categorical property *supervene*[12] upon particular's having the relevant categorical property in combination with the relevant laws of nature.

Armstrong subscribes to the doctrine of *the ontological free lunch*, which states that whatever supervenes is not something ontologically additional to the subvenient – no addition of being (1997: 12). In the present context, this amounts to a refusal to *reify* powers, a refusal to admit of powers as real entities. By adopting what he calls a *soft* doctrine of powers (comparable to the soft determinism in the free will debate), Armstrong notably claims to avoid a Meinongian metaphysics, a metaphysics he claims a Dispositionalist is committed to (Armstrong 1997: 81 – 2).

3. Meinong and Unending Potentiality

This section covers two arguments from Armstrong, which are posed directly against Dispositionalism and, as I see it, acts as his primary reasons for a rejection of the theory. Both of Armstrong's arguments will be found wanting, for as I will argue, they pose concerns which are inherent to his own metaphysics. I end with a unique threat for Dispositionalism (the regress objection), a threat which is dealt with by appealing to Alexander Bird's graph theoretic response. The entirety of section **3** is intended to lay the ground work for a subsequent positive defense of my thesis, that is, for the claim that Armstrong should give more credence to Dispositionalism.

3.1 First objection: relations to non-existent states of affairs

According to Armstrong, if we conceive of properties as nothing but powers, fully characterized by their respective stimulus and manifestation conditions, we risk assimilating the physical to the mental. On Dispositionalism, the property of *brittleness*[13] has its nature exhausted by making objects 'disposed to *shatter* if suitably *struck*'. As a consequence, a brittle object will, so to speak, "point" (in an ontological sense) beyond itself to its manifestations. Crucially, even if the disposition is never manifested, the object will still at every time at which it instantiates the property (power) be in a mind-like intentional state, having *potential* manifestations of the disposition as intentional objects. The intentionality of mind is one of its defining features, but it is not a feature normally admitted of *physical* things. However, if the fundamental natural properties of physics are best understood as powers, then, says Armstrong, intentionality will turn up in everything there is. Even more

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[12] Throughout the paper I use the concept of *supervenience* as it is defined by Armstrong: "We shall say that Q supervenes on P if and only if there are P-worlds and all P-worlds are Q-worlds" (1997: 11).
[13] I use "brittleness" purely for illustration purposes. Brittleness is arguably not a natural property in the sense previously outlined, that is, as compared with mass, spin or charge.

objectionable: the ontological pointing is towards merely *potential* state of affairs. The being and essence of a power is dependent on possible yet non-existent manifestations, but claims Armstrong, "[…] how can a state of affairs of a particular's having a property enfold within itself a relation (of any sort) to a further first-order state of affairs, the manifestation, which very often does not exist?" This is possible only within the generous metaphysics of Meinong, which allows for non-existent entities being related to actual ones (Armstrong 1997: 79).

A plausible reply, called the *type*-response, comes from Mumford (2004). It is central, says Mumford, to ask what powers are powers *for*: powers are always for the manifestation of a further property, a universal. The Meinongian charge assumes that a power depends for its existence on a particular set, $\{Mp_1t_1,..., Mp_nt_n\}$, of spatiotemporally specified manifestations. Such is not the case however, for a power is ontologically dependent only on the existence of certain universals which figure in its stimulus and manifestation conditions. Power F has its nature exhausted by bestowing on any x, the disposition $D_{(S, M)}$, such that $D_{(S, M)} x$ is the case *when* and *wherever*. But the when and where of F's manifestations becomes *determinate* only in relation to occurrent manifestations. It is reasonable, therefore, to characterize the ontological pointing as being towards existing universals as opposed to non-existent or hypothetical token state of affairs (Mumford 2004: 194 – 195).

Bird (2007) has questioned whether the intentionality of powers has the necessary and sufficient features of ordinary *mental* intentionality (the kind of intentionality Armstrong is objecting to). If Mumford's type-response is adequate, then there is in fact a clear distinction between the two: for intentionality of the mind does *not* exclude non-existent intentional objects. Conversely, the type-response does exclude non-existent intentional objects, for it stresses the fact of powers being ontologically *directed* towards *existing* universals and not towards non-existent token state of affairs (2007: 108). But even to the extent that Armstrong's worries are justified, intentionality will be shown not to affect Dispositionalism uniquely. The same kind of ontological pointing turns up even for Armstrong, in connection with the relation of *nomic necessitation*. In this manner, I hope to demonstrate how theory choice is underdetermined by the Meinong argument, thus ultimately neutralizing one of Armstrong's reasons for a rejection of Dispositionalism.

3.1.1 Response: Nomic Intentionality

On Dispositionalism, properties are intrinsically modal, meaning they function by themselves as truthmakers for counterfactuals. Or as Mumford puts it: "Properties are powerful. In virtue of being powerful, they provide natural necessity and possibility and are fit to be truthmakers of modal truths" (2004: 170). Categorical monism holds conversely that properties are extrinsically modal, having as they do, their contingent dispositional character thrust upon them by the laws of nature. Conjointly with categorical properties, however, *nomic necessitation* equally enriches the world with natural necessity and possibility. I am suggesting, that regardless of how the modal status of properties are enforced, whether it is extrinsically or intrinsically, the non-trivial modality will generate relations to non-actual but *possible* state of affairs. Thus, Armstrong will be shown to be susceptible to a Meinongian metaphysics.

Consider Armstrong's (1983) go-to example of a nomic connection between universals, a very simple law involving two sparse universals, F and G. We can symbolize the law as $\mathbb{N}(F, G)$, while keeping in mind that the appropriate structure involves universals as state-of-affair-types. Assuming that $\mathbb{N}(F, G)$ is deterministic, instantiation of F *must* bring about instantiation of G (Armstrong 1997: 228). As mentioned in **2.3**, the "must" denotes a flavor of necessity in between that of metaphysical necessity and pure contingency. Crucially, $\mathbb{N}$ has enough modal force to support counterfactuals and so truths about what is non-actual but

possible. As I interpret Armstrong, it is the non-actual possibilities associated with *powers* that makes them bestowers of intentionality – they endow things with a *directedness* towards merely potential manifestations. I base my interpretation on the following passage:

> [...] a disposition as conceived of by a Dispositionalist is like a congealed hypothetical fact or state of affairs: 'If this object is suitably struck, then it is caused [...] to shatter'. It is, as it were, an inference ticket (as Ryle said), but one that exists in nature (as Ryle would hardly have allowed). That is all there is to a particular disposition. Consider, then, the critical case where the disposition is not manifested. *The object still has within itself, essentially, a reference to the manifestation that did not occur.* It points to a thing that does not exist. This must remind us of the *intentionality* of mental states and processes, the characteristic that Brentano held was the distinguishing mark of the mental, that is, their being directed upon objects or state of affairs that need not exist (Armstrong 1997: 79).

I will contend that on Armstrong's theory, the same kind of non-actual possibilities in virtue of $\mathbb{N}$, show up in union with *actual* first-order state of affairs. Given nomic necessitation, actual existents are equally susceptible to physical intentionality, i.e. a *directness* or ontological pointing towards non-actual potentiality.[14]

Consider an Armstrongian world w (call it the actual world). It has a finite set of categorical universals, a subset of which includes F, G and the already introduced second-order universal $\mathbb{N}$(F, G). $\mathbb{N}$'s entailment property, as expressed by the assumption of extensional inclusion (EI), ensures that $\mathbb{N}$(F, G) will produce a regularity of co-instantiation between F and G in every world in which it exists. In w exists also a set of objects or particulars, each with a varying number of distinct properties. Pick some particular **a**, which at time t (in w) instantiates some number of properties, but neither of which are F. Object **a** and $\mathbb{N}$(F, G) are then joint truthmakers for the following at w:

(1) $t_{\text{Fa}} \,\square\!\!\rightarrow t'_{\text{Ga}}$, which entails (2) $\Diamond t'_{\text{Ga}}$.

I am saying of **a**, that (1) if it *were* to instantiate F at t, it *would* at some later time t', come to instantiate G, which (2) entails the *possibility* of it being G at that later time. Stated on the standard Lewisian similarity semantics: (1) is true in w, for in the smallest antecedent-sphere, S, containing the set of t_{Fa}-world's most similar to w, $t_{\text{Fa}} \rightarrow t'_{\text{Ga}}$ holds at every world.[15] Or equivalently: there is no t_{Fa}-world within S at which the consequent t'_{Ga} fails to hold. The truth of statement (2), once again, is trivially entailed by (1). Now, in entertaining t_{Fa} as a counterfactual assumption we keep certain nomic factors fixed. As suggested by Armstrong himself, "[...] we go to near worlds. Laws of nature, if considered as contingent relations between universals, are important and it is easy and natural to keep them fixed" (1997: 262). To make things concrete: t_{Fa}-worlds are exactly like w, with identical world histories and nomic facts true at them, except that in the immediate past of t, some minor localized law violation takes place as to ensure **a**'s instantiating F at t. From that point onwards, the same deterministic laws true of our world takes over, and so $\mathbb{N}$(F, G) will nomically necessitate **a**'s being G at some later time t'.

Thus, in the actual world at time t, object **a** conjointly with the law makes true or entails the non-actual possibility of **a**'s being G at t'. A modal realist (like Lewis) has no problem with this possibility, for it is "placed" in worlds outside the actual one – more precisely, t'_{Ga} is

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[14] My argument is in large part congruent with other *tu quoque* responses given by Bird (2007: 106) and Handfield (2005).

[15] "t_{Fa}-world" abbreviates "world at which **a** is F at t". Furthermore, I'm adopting here what Lewis calls the *limit assumption*. See David Lewis, *Counterfactuals* (1973: 20).

realized in every t_{Fa}-world inside S, the set of possible t_{Fa}-world's most similar to w.[16] Armstrong, however, is not a modal realist. He posits existence only to the actual spacetime system and therefore has no choice but to give existence to t'_{Ga} in w, the actual world. But then t'_{Ga} can exist in the actual world only as an *unrealized* possibility. Furthermore, since t is an arbitrarily chosen time, we can generalize the case and say of **a**'s being G that it is at all times during which **a** exist (and fails to instantiate F), an unrealized possibility associated with $\mathbb{N}(F, G)$ and *it*. The story is, I think, analogous to the one Armstrong tells about particulars having unmanifested dispositions.

An object can instantiate a dispositional property which remains unmanifested indefinitely. But says Armstrong, "[that] object still has within itself, essentially, a reference to the manifestation that did not occur. It points to a thing that does not exist" (1997: 79). I conclude that the combination of **a** and $\mathbb{N}(F, G)$ equally *refers* or is in some sense related to something non-existent, namely, the possible state of affair of **a**'s being G. Given that Armstrong takes such non-actual possibilities to be indicative of mental intentionality, his own ontology is no less shielded against the objectionable assimilation of the physical to the mental. The same kind of non-actual possibility is associated with other existing objects (in combination with the law), objects which likewise fails to instantiate F. In general, $\mathbb{N}$ confers on first-order state of affairs relations to other *counterfactual* state of affairs, it acts as a distributor of possibilities on existing things. Thanks to the modal force of $\mathbb{N}$, the world is, as it were, partly constituted by how it *could* have been constituted. We have thus an Armstrong-induced Meinongian metaphysics, where actual things are non-trivially related to non-existent things.

3.1.2 The type-response again

In section **3.1** I mentioned Mumford's (2004: 194) *type*-response as a reply to Armstrong's Meinong-argument. Powers do essentially relate to entities beyond themselves, they are powers *to do* or powers *for* something else. However, the 'something else' is a further universal, a certain manifestation type and *not* some set of potential but non-existent token manifestations. In light of my argument, can Armstrong exploit a similar type-level response? To answer this question I must first examine more closely how the type-response is meant to parry Armstrong's argument. This allows for a subsequent comparison between my argument and the challenge put to the Dispositionalist, a comparison meant to illuminate whether the type-response is apt for deflecting my argument against Armstrong.

The challenge for the Dispositionalist is to explain the nature of a certain kind of state of affairs, a state of affairs involving a particular with an unmanifested disposition, and to do this without thereby invoking relations to Meinongian entities. According to Armstrong, objects with unmanifested dispositions will point or otherwise be related to potential yet non-existent manifestations. A brittle wine glass may never *shatter* due to being well protected against suitable *striking*, but the glass will still, at any time, point to a *hypothetical* shattering, a non-actual state of affair. The type-response avoids this conclusion by claiming that we can explain the phenomena, *not* at the level of particulars, but at the level of types. It is not the object, *per se*, which is pointing or has a directedness, but rather the *power* (as instantiated in the object). The pointing of a power is then said to be towards its respective stimulus and manifestation property, entities which are both spatiotemporally located. The 'pointing to' phrase could be seen as no more than a metaphor for capturing the *internal* nomic relation a

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[16]There are certainly t_{Fa}-worlds outside the smallest antecedent-permitting sphere, i.e. outside S. Every such world is however less similar to w then anyone inside it. In these worlds we may see divergence from w with respect to nomic facts, such that the consequent fails to hold.

power has to the properties which make up its dispositional character.[17] If brittleness is a natural property and thus a power, its *essence* will involve a relation to the stimulus property of *striking* and manifestation property of *shattering*. The precise way for the power to manifest such shattering (at any given time and place) is however among its *in*essential and contingent features and in explaining the nature of the state of affair, we need not invoke any relation to these contingent features.[18]

Contrast this case with my argument against Armstrong. To shortly reiterate: let **a** be some non-F object with a number of other categorical properties. Object **a** exists in a world where universals F and G are linked up by $\mathbb{N}$ to form the second-order universal $\mathbb{N}(F, G)$. If object **a** *were* ever to instantiate F, it *would* out of nomic necessity come to instantiate G. **a**'s being G is therefore at any time a substantive possibility, a possibility which is made true by parts of the actual world. This possibility, which happens to be non-actual, is made true by $\mathbb{N}(F, G)$ in combination with object **a**; together they are somehow related to this possibility, comparable to how unmanifested powers supposedly relate to their possible but non-existent manifestations. At any given time, $\mathbf{a} + \mathbb{N}(F, G)$[19] are pointing (in an ontological sense) towards a non-existent outcome. The same result is obtained if we pair the law with other non-F objects. I thus put the following challenge to Armstrong: explain the nature of a certain combination of *actual* facts, $\mathbb{N}(F, G) + \mathbf{a}$, but without thereby invoking relations to the *merely possible*.

Can Armstrong avoid having $\mathbf{a} + \mathbb{N}(F, G)$ be related to *particular* non-existent manifestations and instead explain the nature of this fact at the type-level? In principle, yes. One can argue that the only substantive relation (as with unmanifested dispositions or powers) is the one holding between existing universals. At the type-level, universal F is related by $\mathbb{N}$ to universal G and so, in a sense, F is pointing towards it (wherever G happens to be instantiated). However, a peculiar detail of this case separates it importantly from the former one: neither term of the nomic relation is instantiated by the relevant object (or if you like, is a constituent of the relevant state of affair). The entity credited with a relation to a certain type-manifestation is absent from part of the fact whose nature we are trying to explain, that is, universal F is *not* among the totality of **a**'s intrinsic properties. A Dispositionalist can move from token to type-level *within* the same token state of affair – she can abstract from the brittle wine glass to the power itself (which remains intrinsic to the object). This explanatory move functions to dispense with the purported relation holding between object and non-existent token-manifestation, since at the type-level, we need only invoke the relation a power has to its *type*-manifestation (an existing universal). Such a move is made impossible in the present case, by virtue of universal F being, as it were, inappropriately *located*. Since object **a** lacks property F, nothing in its nature can *anchor* (in a spatiotemporal sense) the type-manifestation relation. I shall call this obstacle the *location problem*.

With all this being said, I still take the present obstacle to be artificial and that the type-response therefore is open to Armstrong in general. In my argument I intentionally make use of a rather unrealistic and abstract case, centered around a law whose nature is such as to determine the *potential* behavior of objects irrespective of their intrinsic properties. Suffice to say that no concrete example of this kind occurs to me. Usually, if not invariably, objects whose potential behavior is determined by a second-order universal, will instantiate a categorical first-order *base* with respect to that universal. In these standard cases the location problem never occurs, for the categorical base is a categorical universal – intrinsic to its

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[17] On SDM, the nomic relation is *internal* since it supervenes on the intrinsic nature of its relata. Contrast this with Armstrong's external nomic relation between categorical universals, which is non-supervenient on its relata.

[18] See Bird (2007: 107) for this kind of response to the problem of unmanifested powers.

[19] From now on I will use "$\mathbf{a} + \mathbb{N}(F, G)$" as an abbreviation for "the combination of **a** and $\mathbb{N}(F, G)$".

bearer. Such a universal can help us anchor the type-manifestation relation and thus dispense with the problematic token-level relation (between object and *merely* possible manifestation). What this discussion amounts to then, is a critique of Armstrong's use of unrealistic and excessively abstract examples when presenting his theory. '$\mathbb{N}(F, G)$' is a formulae Armstrong uses extensively in his writings, especially throughout *What Is a Law of Nature*?, which constitutes his primary work on the metaphysics of the laws of nature. I hope to have shown that such a simple formulae will result in some unintended and admittedly unexpected consequences.[20]

3.2 Second objection: Power shifting

Armstrong takes his second objection to be of even more concern for the Dispositionalist. However, the argument comes in different versions and so the strength of it will vary. We begin with Armstrong's formulation of it in *A world of states of affairs* (1997). I follow Bird (2007) in calling this formulation the *too little actuality* version (TLA).

A thoroughgoing Dispositionalism, by which I mean *strong* dispositional monism, takes *all* sparse properties to be nothing but powers: (SDM) $\square(Fx \leftrightarrow D_{(S, M)}x)$. There is nothing to a property except its possible manifestations in certain antecedent conditions. The same goes for the properties figuring in stimulus and manifestation conditions. If x were subject to stimulus S, it would come to manifest M; S and M being sparse properties with a dispositional structure analogous to F, and so equally exhausted by stimulus-dependent manifestations.

Is it tenable, asks Armstrong, to describe happenings in the world as mere shifting around of potencies (i.e. powers)?[21] When one object *acts* upon another, the change in properties by both or one of the objects can be no more than the re-packaging of bags, but for a journey that remains a mere *potentiality*. Manifestations of powers "[...] can be no more than the acquiring of further purely dispositional properties by the particulars involved, potentiality can never pass over into genuine act, genuine non-potentiality" (1997: 250). To bring sufficient actuality into the world, we need some non-dispositional properties (some non-powers) which can *substantialize* a powers manifestation. Maybe this can be achieved, says Armstrong, by uniquely accepting spatiotemporal properties as categorical (1997: 80).

At the face of it, it looks as if Armstrong is begging the question against the Dispositionalist. According to Armstrong, we can truthfully predicate dispositions of particulars, even if those dispositions never come to manifest. What makes the ascriptions true however, is categorical properties *plus* the laws of nature. As far as Armstrong is concerned, no real powers exist in nature. We ascribe no real property to **a** when we say of **a** that it is *soluble*. It is rather a convenient way of stating how **a**'s categorical properties are governed by laws as to ensure its *dissolving* when subject to a *solvent*. This deflationary attitude towards powers is conspicuous in the argument. Implicit in the argument is the assumption that powers are non-actual

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[20] I have decided to not evaluate the type-response itself. I take it to be one possible reply to the Meinong argument. But like any other philosophical argument it is not without its problems. In response to his own argument, Armstrong considers something like the above type-response: "Is there any alternative to a relation to non-existent manifestations? A relation to existent manifestations elsewhere may be suggested. But what guarantee is there that all the required manifestations exist? And even if they did, it is the unmanifested manifestations of the object, and not that of other four-kilo objects, which are relevant" (1999: 29 – 30). I am inclined to agree especially with the latter part of Armstrong's consideration. Even if one points to a type-level relation between the power and its manifestation property, why should this negate the token-level relation between object and non-existent token-manifestation? In explaining the nature of states of affairs involving particulars with unmanifested dispositions, it could be argued that one needs to posit both kinds of relation. In any case, if the type-response fails for the Dispositionalist, it fails for Armstrong and so these considerations have no bearing on my argument in section **3.1.1**.

[21] Armstrong's use of "potency", I take it, is synonymous with "power".

potentialities, an assumption which makes trivial the inability of powers to *actualize* things, for it is no wonder that non-actual things struggle to bring about actuality. Powers are however not mere potentiality, but real constituents of the world in virtue of which particulars are causally efficacious. There is no problem of never passing over into genuine act if what's doing the acting are *actual* or real powers. In articulating my instinctive response, I'm largely echoing the words of Mumford (2004: 174): "while powers are powers to do or be other things, they are also things in their own right." My response differs only in explicitly accusing Armstrong of begging the question.

A second kind of response, given by both Mumford and Bird, consists in turning the tables on Armstrong. We thus ask, is there sufficient actuality in the ontological system of categorical monism? Mumford appeals here to the *causal criterion* of property existence: roughly, a property F exists if and only if there are circumstances in which instantiation of it has causal consequences (2004: 190). On Dispositionalism, properties are essentially causal and so passes the actuality test with ease. Categorical properties passes the test with less ease, for taken in isolation they are causally *impotent*. Properties on Armstrong's conception are dependent on laws for their having effects on the world. This point ought to be worrisome for Armstrong. He uses himself a variation of the *Eleatic principle* in arguing against the existence of uninstantiated universals, seeing as he does, no good reason for postulating causally inert entities (1997: 41). We get back to the causal criteria of property existence in section **5**.

Bird (2007) sets out a direct degree-of-being comparison between powers and categorical properties. A property F exists or is real *iff* $\exists x(x = F)$, "$\exists x$" ranging over sparse properties. The being of F is exhausted by all its *essential* features, features that are entailed by its existence (2007: 100). If F is categorical, its essential features are:

> (Distinctness) F is necessarily distinct from any other property G.
> (Universality) F is a universal and thus multi-locally instantiated.
> (Adicity) If F is *n*-adic, it is necessarily so.

Nothing on this list, claims Bird, is lacking from the essential features of a power. Take G to be an essentially dispositional property (i.e. a power). Given that one accepts the necessity of identity, any property differing in dispositional character from G, will be non-identical to it, and so therefore necessarily non-identical. Powers are universals and so multi-locally instantiated. A powers stimulus and manifestation conditions are essential to it: if G is a multi-track power with a two-part stimulus and a single possible manifestation, then G is necessarily 3-adic. Distinctness, Universality and Adicity are therefore equally essential to a powers existence, making it no less real than a categorical property. Moreover, on Dispositionalism, properties have an essentially dispositional character, and so says Bird, "[...] there is *more* to the being of an essentially dispositional property than there is to that of a categorical property" (2007: 103). Contrary to Armstrong then, powers have at least as much, if not more claim to being actual or real when compared to categorical properties.

3.2.1 Regress objection

I opened the previous section by stating how the above objection comes in different versions. The TLA argument as presented by Armstrong, highlights the purported lack of *actuality* in a system containing only powers. I argued that Armstrong assumes what he sets out to show and that one can raise similar concerns for a system containing only categorical properties, as is contended by both Bird and Mumford. In this section, I present a more serious version of the argument known as the *regress objection*. Its seriousness stems from uniquely affecting Dispositionalism and its ability to give powers determinate *identities* – a threat too hefty to be ignored. In the succeeding subsection I present a shortened and somewhat reformulated

version of Bird's (2007) graph theoretic response; inspired also by the work of Dipert (1997). My reformulation is centered around a more direct interpretation of the graph theoretic structures as they pertain to the possible structures of powers. In addition, I will in greater detail illustrate important features of example-graphs, and by doing so make it easier for one to follow the argument to its conclusion. We turn first to a presentation of the regress objection.

The essence of a power is given by its dispositional character, its stimulus and manifestation property. The essence of a power is also what determines its identity. Since all properties are powers, stimulus and manifestation properties will in turn have dispositional essences. If the essence of power F is given by $D_{(S, M)}$, then F's identity is fixed by its relation to S and M, which are both powers and thus essentially identified by some further dispositional character. The crux is then the following: a power depends for its identity on its relation to other properties, which are themselves powers and so depends for their identities on further relations to other properties, and so on. We are left either with an infinite regress or with vicious circularity, and both disjuncts results in *indeterminacy* with regards to the identity and distinctness of powers (Bird 2007: 137).

Consider first the circular case: F's identity is, by extension, determined by its relations to a set Γ of further sparse properties. The ith element of Γ, call it F_i, depends for its determinate identity on the succeeding element F_{i+1}, which in turn depends on F_{i+2}, and so on. Now, assuming that Γ contains a finite set of elements, at some point in the dependency chain we will reach a property F_n, which depends for its identity on F itself. Thus, in trying to fix F's identity we eventually circle back to our starting point, leaving F and every other property in Γ with indeterminate identities. We can break out of the circle by adding an *infinite* amount of properties after F_n, which then ensures that we never again reach F. In that case, however, F is followed by an infinite descent of properties, and so at no point will the regress be halted by some entity which depends on nothing further for its identity. Therefore, the regress option removes none of our worries, for we can never cash out what constitutes F's identity, and the same goes for any other property in the sequence (2007: 137 – 8).

3.2.2 Response: asymmetric structures

Bird sets out his response by framing the regress objection as the well-known and general problem of how to characterize a set of entities in only *relational* terms. According to Dispositionalism, the identity and distinctness of any power supervenes upon its second-order relations to other properties (powers).[22] The second-order relation may be called the *manifestation relation*, and it holds between a power and its manifestation property (2007: 139). Thus, the challenge for the Dispositionalist, as stated by the regress objection, concerns a defense of the following thesis:

> (I) The identity and distinctness of any power, which is member of set Γ of powers, supervenes on the set of instantiations of manifestation relation $\mathfrak{R}$ on the elements of Γ.

The challenge is straightforwardly met by an appeal to graph theory: the study of graphs, which are mathematical structures involving a set of entities (*vertices*) being related by a single two-place relation R (each instantiation of which is an *edge*). By putting sufficient constraints on the *edge*-relation, R, such that its properties correspond to $\mathfrak{R}$, we can easily find

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[22] This is to be contrasted with Categorical monism, which takes properties to have intrinsic and *primitive* identities.

graphs that lets each *vertex* have its identity supervene upon the structure of that graph, i.e. on the pattern of its edges. We can illustrate this possibility by comparing two graphs:
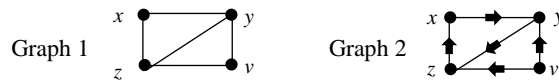
Our first graph (G1) is one with four vertices and five *symmetrical* edges (each an instantiation of R) connecting the vertices. G1 has a set of *automorphisms*, where an automorphism of any graph G, is an *isomorphism* between G and itself. One such (*non-trivial*) automorphism[23]is evident by a 180-degree rotation of G1 in either direction. Such a rotation will map every vertex onto different vertices, and yet the resultant graph will be isomorphic to G1, i.e. the structure of G1 is preserved throughout the swapping of vertices. The more automorphisms a graph has, the more symmetric it is, and crucially, such symmetries disables the graph in letting the *identity* of each vertex supervene on its structure. We can see this clearly by looking at the individual features of each vertex in G1:

> *x*: Two edges incident from it (degree 2).
> *y*: Three edges incident from it (degree 3).
> *v*: Two edges incident from it (degree 2).
> *z*: Three edges incident from it (degree 3).

By ignoring the labeling and solely focus on the *relational* features of each vertex we can see that *x* and *v* and *y* and *z* are *identical*, respectively. *x* and *v* (as well as *z* and *y*) have what Randal Dipert calls *graph-structural symmetry*: "they occupy places in a graph that cannot be described, using only structural features, in any way that distinguish them" (1997: 354).

If we want to have the identity of each vertex supervene on the structure of a graph, that graph needs to have no (*non-trivial*) automorphisms, i.e. it needs to be *asymmetric*. We get the requested asymmetry by adjusting the properties of R, such that R no longer *symmetrically* relates two vertices. This makes R more akin to the manifestation relation ℜ, which holds *asymmetrically* between a power and its manifestation property.[24] Our second graph (G2) is desirably asymmetric. It has as indicated by the arrows a *direction*, resulting from directed edges known as *arcs*. In fact, the asymmetric arcs of G2 allows us to distinguish each vertex from every other in *relational* or structural terms. Or in other words: the *identity* of each vertex supervenes on the structural asymmetry possessed by G2 (Bird 2007: 140). Let's look at a unique and purely relational description of each vertex:[25]

> *x*: Unique vertex of outdegree 1 and indegree 1.
> *v*: Unique vertex of outdegree 2.
> *z*: Of outdegree 1 and indegree 2, adjacent to a vertex of outdegree 1 and indegree 1 (vertex *x*).
> *y*: Also of outdegree 1 and indegree 2, but *not* adjacent to a vertex of outdegree 1 and indegree 1 (vertex *x*).

Now, let vertex *x*, *y*, *z* and *v* represent the powers contained in Γ, and each arc represent an instantiation of ℜ on the elements of Γ: G2 then makes (I) true, for it represents a way for each power to have its identity supervene on its second-order relations to other properties, the identity of each power in Γ supervenes on the asymmetrical pattern generated by the

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[23] Every graph has a *trivial* automorphism, namely, the *identity* mapping, which maps every vertex to itself.

[24] Bird (2007: 141) notes further that we should want R to be non-irreflexive, since there is no reason to exclude reflexive powers. The manifestation property of a power F, might in some cases be another instantiation of F.

[25] The outdegree of a vertex is the number of arcs leaving it. Conversely, the indegree is the number of arcs joining or "pointing" towards it. When the edge-relation is asymmetric, adjacency holds only in one direction; this is why *y* is non-adjacent to *x*, for *y* has no arc leaving it which points towards *x*.

instantiations of ℜ. This neatly answers the regress objection, for structures of powers may be circular (or even involve indefinitely many powers), but as long as the structure is desirably asymmetric, none of the powers will have indeterminate identities (Bird 2007: 146).[26]

3.3 Intermediate Conclusions

To sum up, Armstrong's two principal arguments poses no unique threat to Dispositionalism. The Meinong objection, in particular, cuts just as deeply against Armstrong's own ontology. In general, I believe one ought to be skeptical towards *tu quoque* arguments. In this context however, it serves to illuminate the specious motivations behind Armstrong's categorical monism. As Bird notes, any metaphysician accepting unrealized possibilities, who is neither a modal realist nor a Megarian actualist, will have to wrestle with the unification of *actuality* and non-actuality: "After all, if other possible worlds are not real, the non-actual possibilities, since they exist, must exist in the actual world" (2007: 109). However, against the Meinong argument in particular, both parties can apply the type-response. Although, in Armstrong's case, certain qualifications has to be met with respect to the structure of the second-order universal.

Armstrong's second objection, the *too little actuality* version, is at worst question begging and if reformulated, a concern for Dispositionalism which nevertheless applies equally to categorical monism. Bird and Mumford, I think, successfully establish an even standing with regards to the comparative actuality or reality of powers and categorical properties. The more pressing *regress objection* is directly aimed at Dispositionalism and is of non-forgettable concern. I am however content with my formulation of the graph theoretic response, which gives the impression of being instinctive and *non-ad hoc* in nature. If all is good, the preceding subsections have successfully neutralized Armstrong's main reason for a rejection of Dispositionalism and has therefore given my thesis indirect backing. The two succeeding sections will give positive reasons for why Armstrong should gravitate towards a *powerful* conception of properties.

4. Universals as Ways

In this section, based on Armstrong's preferred characterization of universals, I present the first positive reason for him to give more credence to Dispositionalism. The notion of *ways* when given a proper analysis, will be shown to conform exceptionally well to a powers only ontology. At first glance the concept (intuitively understood) stands in tension with a categorical view of properties. And if one tries to alleviate the tension by, as it were, making the concept more categorical, it will no longer be able to serve its desired function, namely, to *de*-substantialize properties.

Armstrong (1989, 1997) follows David Seargent in characterizing universals as ways. As opposed to *thing*-like entities, properties are the ways things are, relations the ways things stand to each other. To think of properties in a thing-like manner is to *substantialize* their being. Conceiving of properties as ways is to *de*-substantialize them and to make their connection to particulars more intimate. The mass or charge of an electron are not some distinct metaphysical nodules glued to its otherwise thin particularity, rather it is the way that electron *is*. There are as I interpret Armstrong three related motivations for this characterization: 1) defense of the Principle of Instantiation, i.e. universals having existence

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[26] For simplicity and conciseness I have left out one rather important part of Bird's response; for I have considered only the relationship between a power and its manifestation. Equally essential to a power is its stimulus property and so we should really be considering the three-place relation between a power, its stimulus property and characteristic manifestation. I encourage the reader to see Bird's (2007: 144 – 145) original formulation, where he satisfactorily addresses this complication.

only if they are at some point in spacetime instantiated and thus a constituent of a state of affair. 2) Defense of the Principle of the Rejection of Bare Particulars. A bare particular would be a structureless thing without a nature and such entities must be rejected if the *totality* of state of affairs is to encompass everything (1989: 94). 3) Avoidance of Bradley's regress (1997: 30).

In Armstrong's book *Universals: An Opinionated Introduction* (1989), he mentions a problem by John Quilter called the "Antinomy of Bare Particulars". In saying that particular **a** is F, we are not asserting identity between **a** and F. The "is" is rather the "is" of instantiation and so expression of a fundamental tie between property and particular. Consideration of **a** taken apart from F seems to then leave us with a propertyless bare particular and F in some sense outside it – much akin to a platonic transcendental form. Armstrong responds to the worry by distinguishing between the *thin* and *thick* particular. A thin particular is a particular, in thought, abstracted away from its properties. It is no more than a mental act of "partial consideration" where **a**'s particularity is uniquely considered. Ontologically, **a** is not bare, for it exists only within state of affairs connected to properties. Normally we think of particulars as having their properties, and thus conceived, **a** is a thick particular. A thick particular has its properties "contained within it" and is in fact identical to a state of affair with the relevant thin particular and its properties as constituents. Distinguishing between these two senses is sufficient to meet Quilter's problem (1989: 94 – 5). Armstrong is however not fully satisfied with his response, for as he states:

> It still leaves us with a picture of the thin particular and its properties as distinct metaphysical nodules that are linked together in state of affairs to form the thick particular. This makes the Principles of Instantiation and of the Rejection of Bare Particulars seem a bit arbitrary. Why must the nodules occur together? Could they not come apart? But would they then not be those unwanted creatures: uninstantiated universals and bare particulars? (1989: 96)

Universals characterized as ways puts both principles on firmer ground. If F is a way that **a** is, then the two entities engage in a closer connection then one of mere relation. This conception makes for a unity between particulars and properties that renders the notion of uninstantiated universals implausible. It is only by treating properties (and relations) as things that we can conceive of them as floating free from particulars (1989: 97). Furthermore, properties as ways may altogether avoid Bradley's regress. If properties and relations are thing-like, there is a need (on pain of inconsistency) for an equally substantive relation of *instantiation* (call it R), connecting properties (or relations) to particulars. This generates a regress, for a further relation of instantiation, R*, is then needed for connection of R to its relata – to the properties and particulars, and so *ad infinitum*. Universals as *n*-adic ways makes them non-thing-like entities and avoids regress through *de*-substantiation. As Armstrong puts it, "One begins to see the force in talking about the copula ["is"] as a 'non-relational tie', self-contradictory as it sounds" (1997: 30).

Armstrong insists on understanding the talk of ways as in no way denigrating universals from ontological reality. Sparse universals are, so to speak, real joints in reality and maintained still is the distinction between property and the thing instantiating it (1997: 30). However, no explicit analysis of the concept is given, and it leaves one wondering how to understand it in the positive sense. Is the concept of ways primitive, similar to Armstrong's conception of singular causation? Or is the notion used to simply underscore the fact that universals cannot exist uninstantiated? If so, how does introduction of this concept differ from a trivial reiteration of the principles to be defended? To avoid triviality there must be some difference in meaning between "universals are the ways things are" and "universals can only exist if instantiated".

The concept, I take it, is not primitive. It is perfectly reasonable to ask what it *means* for a property to be a *way* a certain thing is. The property of negative charge is a way certain particles are, but in what way are they? How do we, as it were, specify the ways of particulars in virtue of their properties? It is natural, I think, to characterize the ways of things in terms of their behavior (or potential behavior). The negative charge of **a** is a way that **a** is, which consists in its disposition to repel negatively charged and attract positively charged particles. The gravitational mass of **a** is the way in which it is disposed to exert a force of size Gmm'/r^2 in relation to any other massy object. A particular *way* of an object is simply exhausted by one particular causal pattern it engages in.

However, if understood in this manner, the notion of ways stands in conflict with a categorical view of properties. Categorical properties endow objects with dispositions, but only if said properties engage in relations of nomic necessitation. The dispositional characters of properties are contingent and so the phrase "properties as ways" will fail to capture their essence. Universals are only *ways* (if understood as delineated above) relative to the laws of nature. It is therefore wrong to make any kind of *identification* between ways and categorical properties. It may be objected however, that I beg the question against Armstrong by equating "ways things are" to "the causal powers of things". Is there a plausible alternative open to Armstrong?

As stated in section **3.2**, the essential features of a categorical property are distinctness, universality, and adicity. Instead, the correct analysis might thus be: **a**'s having property F, is a way that **a** is, which means, **a**'s F-ness is multi-locally instantiated, of a determinate adicity and distinct (in virtue of its quiddity) from other properties. Is this what we have in mind when we think of properties as "the ways things are"? If it is, then the notion of ways, I will argue, no longer serves to de-substantialize properties. The present analysis undermines the intimate connection between property and particular and instead it exaggerates the distinction between them. To demonstrate what I mean, it will be useful to introduce a certain notion of *intrinsicality*. The following characterization is due to Lewis:

> A sentence or statement or proposition that ascribes intrinsic properties to something
> is entirely about that thing; whereas an ascription of extrinsic properties to
> something is not entirely about that thing, though it may well be about some larger
> whole which includes that thing as part (1983: 197).

On the present "categorical" analysis of ways: "F is a *way* that **a** is" is a statement not entirely *about* **a** (the thing), but to a greater extent about F itself. We are told about a *whole* of which object **a** is a part, how it relates via instantiation to property F, a multi-locally instantiated entity, self-identical and distinct from other properties. In ascribing F to **a**, we are told of **a**'s "way" as a thing, only *indirectly* through its connection with F as a causally inert quiddity. The manner in which **a** goes about existing is somehow very distant from F itself. In this sense, the seeming unity between *ways* and the things which are that *way*, dissolves. The loss of unity amplifies the distinction between the entities and in turn it *substantializes* the property (universal). I am claiming that ways (categorically understood) fails to satisfy the above characterization of intrinsicality, and that the intimate connection between universal and particular is lost as a result.

I want to stress that I am not arguing that "categorical" ways (in general) somehow are extrinsic to their bearers.[27] I am simply using one of Lewis' characterizations of intrinsicality as a tool, a tool for expressing how the present analysis does away with part of the unity or

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[27] For one, how to properly understand *intrinsicality* is a highly contention issue. Second, "ways" on the present analysis arguably satisfies other criteria for intrinsicality, Lewis' duplication criteria being one example. See Lewis (1983), *Extrinsic Properties*, p. 197.

intimate connection that one desires between property and object. Implicit in my argument is the assumption that the talk of "unity" and "intimate connection" is related to the notion of intrinsicality. I do not know how to separately argue for this assumption. However, Armstrong gives two examples of *ways*: mass and charge (1989: 96). Suffice to say, I do not believe it to be coincidental that these properties often are used as canonical examples of intrinsic properties. I think my point can be made clearer by evaluating the initial analysis in a corresponding fashion.

On the initial analysis, the *ways* (i.e. properties) of an object tells us about its pattern of potential interaction – how *it* is disposed to act in various circumstances with other objects. To reveal the properties of a thing is to reveal its *ways*, which is to reveal the many varied and detectable fashions for *it*, the *thing*, to be in the world. If properties are ways, and ways are characterized as the behaviors (or potential behaviors) of objects, then any sentence which ascribes a way to a thing will be (to a greater extent) *about* that thing. Thus, "ways" understood in this manner satisfies the above characterization of intrinsicality. Importantly, I argue, it also restores the function of the concept: to de-substantialize properties and create a more intimate connection with the things involved.

Now, as mentioned already, talk of "ways" does not make properties (universals) less real, for as Armstrong states, "They are real features of things, [...] some of which are grasped in approximate fashion by everyday perception and others of which are uncovered *a posteriori* by deep scientific investigation" (1997: 30). But if the ways are real features of things, uncovered *a posteriori*, then the *ways* had better be causally efficacious, as to let our sense organs register their existence. This takes us to the main point of my argument. There is no conflict between properties and the notion of *ways* (as presently understood) if one conceives of properties as powers. On Dispositionalism, the notion of ways captures the essence of properties. Powers are the *ways* things are, whose existence is exhausted by making objects disposed to act or be acted upon in certain conditions.

I conclude that Armstrong's preferred characterization of properties conforms very well with a *powers* only ontology. If sound, this conclusion ought to nudge Armstrong in the direction of Dispositionalism.

5. The Eleatic Principle

The Principle of Instantiation is central to the naturalistic metaphysics of Armstrong. If universals can exist outside states of affairs, then they can exist nowhere and nowhen, necessarily transcending the spacetime system and thus contradicting naturalism. A cogent argument is put forth by Armstrong against the existence of uninstantiated universals; the essential premise being what Graham Oddie (1982) calls the *Eleatic principle*:

> (EP) Everything that exists makes a difference to the causal powers of something.

The 'something' quantifies over spatiotemporally located entities. Uninstantiated universals are non-spatiotemporally located and can supposedly not make any sort of causal contribution to entities within the spacetime system. Therefore, uninstantiated universals are incompatible with (EP). As expressed by Armstrong, the principle is largely pragmatic or epistemic: "If an entity makes no difference to the causal powers of anything, then there would never be any good reason for postulating that thing's existence. Our whole experience, including all our thinking, would go on in exactly the same way whether or not the entity existed" (1997: 42). A distinct but related question concerns what deeper reason we have to accept the principle. If the Eleatic principle is true, what in the world makes it true? Armstrong settles on no definite

truthmaker as he finds the question too difficult. However, on his assessment, one attractive proposal would be to take it to be a basic *law* of the world that no epiphenomena exist, for as he later adds, "[...] we really want to outlaw things that have no causal power, actual or potential, *in relation to the actual world*" (1997: 42).

Now, as I see it, there is an obvious tension between categorical monism and the Eleatic principle. As noted in section **3.2**, categorical properties are *not* essentially powerful entities. Only through extrinsic imposition by second-order nomic relations can properties be casually efficacious. I agree with Bird (2007: 54) in that there is nothing inherent in Armstrong's metaphysical system that excludes epiphenomenal properties. A universal *must* be instantiated by some particular but *may* fail to engage in any nomic connection to other universals. Therefore, one is given the sense that (EP) is an *ad hoc* adoption, only for the purpose of outlawing uninstantiated universals. The nature of Armstrongian universals grants no independent justification for the Eleatic principle. If categorical universals are self-contained things, keeping themselves to themselves, not pointing beyond themselves to further effects brought about in virtue of such universals, then what stops them from being *actionless* existents?

On Dispositionalism, there is a straightforward and deep-seated justification for the principle. Natural properties are powers, *identified* with their causal roles, existentially exhausted by the dispositions they bestow on particulars. A power contributes causally to the world in virtue of its *intrinsic* nature. As Mumford (1998: 123) notes, on a powers only ontology, the causal criterion of property existence is entailed by the theory, it is true analytically.[28] One can argue about the differences between (EP) and Mumford's causal criterion; I take the only relevant difference to be a difference in scope, Mumford's criterion being uniquely concerned with property existence. At any rate, if Armstrong were to embrace Dispositionalism, he could instinctively adopt the Eleatic principle. It would allow him to move away from an epistemic treatment and instead let the principle assert something substantial about how the world *is*. The tension between the principle and the nature of universals would disappear, since by definition Dispositionalism excludes epiphenomenal universals. Overall, the Eleatic principle would cohere better with the rest of Armstrong's metaphysical framework (in turn removing the seeming *ad hockery*).

In Armstrong's (2010) *Sketch for a Systematic Metaphysics*, he addresses the causal status of properties in a way that potentially goes beyond a merely epistemic or pragmatic treatment of (EP):

> I have already suggested that the 'fundamental tie' might be construed as an objective necessity that universals must always be instantiated somewhere, and particulars must have properties. They need states of affairs to live in. It would be nice to have a further addition. Universals must be subject to laws, so must link up with universals in nomic (law-like) fashion in the way we have just discussed. But, at the same time, what particular laws the world obeys would be contingent. The attraction of introducing *this* necessity into the world is that it would outlaw *epiphenomenal* universals—universals that exist, are instantiated, but have no nomic links to other universals, and so, according to my theory of laws of nature, no power in the world. How would we know of their existence? (Armstrong 2010: 46 – 7)

The 'fundamental tie' refers here to the Principles of Instantiation and of the Rejection of Bare particulars. By "objective necessity" I assume the strongest form is intended, that is, metaphysical necessity. In the strongest of sense, it is *impossible* for a universal to exist

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[28] This is how Mumford expresses the criterion: "for any intrinsic non-abstract property P, P exists if and only if there are circumstances C in which the instantiations of P have causal consequences" (1998: 122).

uninstantiated, and likewise impossible for a particular to have no properties. Armstrong suggests we now introduce a further principle, a principle which I shall call the *principle of nomicity* (PON): it is metaphysically necessary, that for any universal to exist, it must be nomically connected to some further universal. Let ϕ and ψ stand for any two universals, '□' stand metaphysical necessity and the monadic predicate 'E' for existence. I suggest we then express the principle as:

$$\text{(PON)} \qquad \Box \forall \phi (E\phi \leftrightarrow \exists \psi \, (\mathbb{N}(\phi, \psi)))^{29}$$

This principle excludes epiphenomenal universals from ones ontology. It therefore brings with it much of the same benefits that an endorsement of Dispositionalism would (pertaining to what reason we have to accept the Eleatic principle). To adopt (PON) is however to shift the justificatory burden from (EP) to *it*. I leave the question of how Armstrong might justify or find a truthmaker for the principle and instead move on to consider some interesting consequences if he were to actually endorse it.

5.1 Nomic connectivity as metaphysical necessity

The first thing to notice with respect to (PON), is that it *prima facie* preserves the contingent dispositional character of categorical universals. No universal depends for its existence on being a constituent in any *particular* law, but only on being subject to *some* law. Take any first-order universal F: in a possible world *w*, there is a law $\mathbb{N}(F\&G, H)$ imposing on F the power $D_{(G, H)}$, and in another *w**, a law $\mathbb{N}(F\&G, Q)$ imposing on F the power $D_{(G, Q)}$.

But let's now abstract away from any particular law and consider $\mathbb{N}$ by itself, the nomic necessitation relation. How are we to characterize it? According to Armstrong, $\mathbb{N}$ is a second-order universal, that is, a second-order state-of-affairs-type which takes first-order universals as its constituents. Armstrong in *What is a Law of Nature?*, wants to think of $\mathbb{N}$ as a *determinable* universal. He mentions in passing the difficulty of establishing the ontological status of determinables, but then avoids any further discussion (1983: 91 – 2). Anyhow, I think Bird (2007: 92) is correct in saying that Armstrong must treat $\mathbb{N}$ as a *genuine* universal. '$\mathbb{N}$' cannot be an empty predicate but must correspond to some real ontological item. If not, then laws cannot be mind-independent parts of reality, they would lack explanatory power and collapse into some form of Humean regularity.

To argue for this claim I suggest we make note of an objection against the Regularity theory. An objection raised by Armstrong himself, pertaining to a lack of *internal* connection in individual law-instantiations. On a Regularity theory, "[t]he necessity which obtains when *a*'s being F necessitates *a*'s being G is purely external. It is *constituted* by the fact that all the other Fs (if any) are Gs" (1983: 102). And as further expressed by Armstrong:

> We think that if *a's* being F is nomically to necessitate *a*'s being G, then at least part of what must exist is some direct, dyadic relation holding between the two particular states of affairs. (This is part of what Hume was saying when he demanded a necessary connection between particular cause and particular effect over and above the fact that they instantiate a regularity) (1983: 40).

The above reference made by Armstrong to a *direct* and *dyadic* relation has, as I see it, only one conceivable referent: the second-order determinable universal, $\mathbb{N}$. Thus, if Armstrong were to disregard the reality of $\mathbb{N}$ (as a determinable), he would simultaneously remove the *inner* nomic necessity which supposedly obtain in every particular instantiation of a determinate law. This would make him vulnerable to the very objection he levies against the

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[29] I intend for there to be no significant difference in meaning between predicate 'E' and the ordinary existential quantifier. I am not sure that this formalization serves to best express the principle, but hopefully it still gets my point across.

Regularity theory. Avoiding this untenable conclusion requires treating $\mathbb{N}$ with full ontological seriousness.

Having established $\mathbb{N}$ as a genuine universal, we are now ready for an exciting plot twist. With help of (PON), I will argue that $\mathbb{N}$ is a *supervenient* entity. Any first-order universal must be subject to a law, and so must be linked up by $\mathbb{N}$ to some other universal. Thus, in every world in which universal F exist, it is impossible for $\mathbb{N}$ *not* to exist. In fact, given the necessary truth of (PON), we can say that for any first-order universal ϕ, universal ϕ *entails* the existence of $\mathbb{N}$:

$$\Box\forall\phi(E\phi \rightarrow E\mathbb{N}).$$

On the doctrine of the *ontological free lunch*, whatever supervenes is not something ontologically additional to the subvenient, 'nothing over and above' the base (Armstrong 1997: 12). As a consequence, $\mathbb{N}$ is an *internal*[30] relation exemplified by any first-order universal. Or in other words: the nature of $\mathbb{N}$ resides in the *nature* of categorical universals, it is not some distinct entity. Notice however, that we are dealing with asymmetrical supervenience, for F (or any other universal) does *not* supervene on $\mathbb{N}$; there are possible $\mathbb{N}$-worlds which are not F-worlds.

Already in section **2.3**, it was mentioned that Armstrong identifies particular cases of singular causation with law-instantiation. On a more general level, he *identifies* nomic necessitation with the causal relation itself (call it 'C'), such that $\mathbb{N} = C$ (1997: 235). In a very trivial sense then, any first-order universal is *essentially* capable of bringing about or causing something. But 'the something' will vary between worlds as it remains a contingent matter which universal is nomically connected to which. Every universal has, as it were, an *essential* but very *generic* causal power. Notice that this paragraph asserts nothing in addition to the principle of nomicity. (PON) requires for the existence of any universal that it be nomically connected to some universal, which is more or less equivalent to saying that every universal is *essentially* capable of causing *something*. Once again, what that "something" is, is a contingent matter. So far then, (PON) seems consistent with Armstrong's commitment to Categorical monism.

Problems arise if we consider the entailment property of $\mathbb{N}$. It is of the nature of $\mathbb{N}$ that for any two universals ϕ and ψ, $\mathbb{N}(\phi, \psi)$ entails $\forall x(\phi x \rightarrow \psi x)$. $\mathbb{N}$ is essentially such that it entails an exceptionless uniformity with respect to the first-order universals it relates.[31] Now, take universal F again. As delineated above, $\mathbb{N}$ supervenes on F: all possible F-worlds are $\mathbb{N}$-worlds. $\mathbb{N}$, the supervenient entity, is not something ontologically additional to F, and so all the features of $\mathbb{N}$ must reside or be part of F's *nature*. This gives F a non-trivial modal character. In all possible worlds where F exists, F has the *power* to produce a regularity R (a distinct state of affairs) when subject to a *determinate* nomic connection with one or more properties. In a sense, F is essentially disposed to make *itself* and other properties dispositional. If F *were* nomically connected to G and H, such that $\mathbb{N}(F\&G, H)$, then F *would* manifest itself as having power $D_{(G, H)}$ and property G as having power $D_{(F, H)}$. *Any* first-order universal is disposed to produce exceptionless regularities as well as impose dispositional characters on properties (including on itself). Thus, categorical properties are no longer *categorical*, they all have an essential second-order dispositional character.[32] What this shows

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[30] Tobias Hansson Wahlberg has pointed out to me that $\mathbb{N}$ might be *super*internal as opposed to internal. See, for example, Bennet (2011), for an account of superinternal relations.

[31] For simplicity I adopt the extensional inclusion assumption and ignore the case of oaken laws.

[32] Talk of "dispositions" on a second-order level breaks down rather quickly. I hope I have expressed my point in a relatively clear manner, despite the limitations of natural language terms.

then, is that *the principle of nomicity*, when taken to its logical conclusion, is inconsistent with categorical monism.

In the previous section I proclaimed a tension between categorical universals and the Eleatic principle. It was concluded that a powerful conception of properties (i.e. Dispositionalism) would remove this tension. Furthermore, (EP) would seem like less of an *ad hoc* adoption in relation to the rest of Armstrong's metaphysical system. In this section I have examined the consequences of a principle never officially endorsed by Armstrong, what I call *the principle of nomicity*. The principle, if independently argued for, would bring much the same benefits as Dispositionalism, in that the nature of universals would independently justify the Eleatic principle. The problem, I argue, is that (PON) is inconsistent with Categorical monism, as it gives universals a non-trivial modal character. In light of all this, why not go all the way and accept the more pronounced and parsimonious position of Dispositionalism?

6. Concluding Remarks

In this paper I sought to argue that David Armstrong, who officially endorses Categorical monism, should give more credence to Dispositionalism. My claim is based on considerations of his ontological commitments and endorsements of certain metaphysical principles. I began by addressing the alleged Meinongian and intentional character of powers. My response is *tu quoque*, Armstrong's ℕ-relation (together with first-order universals) brings with it the same Meinongian and intentional character. With help of arguments from Mumford (2004) and Bird (2007), a corresponding rebuttal is made against the *too little actuality* argument: an appeal to the causal criteria of property existence in conjunction with a direct degree-of-being comparison shows powers to be just as real or actual in comparison with categorical properties.

Having turned Armstrong's main reasons for a rejection of Dispositionalism against him, I end with two separate discussions, both indirectly concerned with the Principles of Instantiation and of the Rejection of Bare Particulars. To think of properties as *ways* is to put both of these principles on firmer ground. However, if the concept is to properly serve its function, I argue that it must be understood in a manner which fits exceedingly well with Dispositionalism. Finally, the same theory serves best to bring *some* independent justification for the Eleatic Principle, and so in turn for the Principle of Instantiation. Thus, to the extent that one is sympathetic to the aforementioned views of Armstrong, this paper aspires to bring indirect reinforcement to a powerful conception of fundamental properties.[33]

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