

Do Categorical Properties Confer Dispositions on Their Bearers?



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Abstract

Categorical Monism (that is, the view that all fundamental natural properties are purely categorical) has recently been challenged by a number of philosophers. In this paper, I examine a challenge which can be based on Gabriele Contessa's [10] defence of the view that only powers can confer dispositions. In his paper Contessa argues against what he calls the Nomic Theory of Disposition Conferral (NTDC). According to NTDC, in each world in which they exist, (categorical) properties confer specific dispositions on their bearers; yet, which disposition a (categorical) property confers on its bearers depends on what the (contingent) laws of nature happen to be. Contessa, *inter alia*, rests his case on an intuitive analogy between cases of mimicking (in which objects do not actually possess the dispositions associated with their displayed behaviour) and cases of disposition conferral through the action of laws. In this paper, I criticize various aspects of Contessa's argumentation and show that the conclusion he arrives at (that is, only powers can confer dispositions) is controversial.

Keywords: *powers, dispositions, laws of nature, categorical properties, mimicking*

1 Introduction

To set the stage for the subsequent discussion, let me assume at the outset that metaphysical disputes about the nature of properties concern only the fundamental natural ones. Following Bird [5], I hold that *natural* properties are those which correlate with some subset of the predicates that will be found in a complete, correct scientific description of the world. Though there is no widely accepted definition of the notion of fundamentality for natural properties, there is a relatively broad consensus that paradigmatic examples of currently accepted fundamental

natural properties are electric charge, inertial–gravitational mass, spin, colour (of quarks), and so on, while instances of fundamental relations are most probably the spatiotemporal relations.

Now, one of the main distinctions in the metaphysics of fundamental natural properties is the distinction between powers (that is, genuine fundamental dispositional properties irreducible to categorical bases) and fundamental categorical properties. A number of different criteria have been proposed as appropriate to capture the essential differences between the two (possibly existing) types of properties¹; my favourite (for reasons which I cannot explain here) criterion is the following *truthmaking* one:

The first-order state of affairs of an object instantiating a power is *by itself* (part of) a minimal truthmaker for specific modal truths (expressed by specific non-trivial counterfactuals) which concern the bestowal of specific dispositions on the object. The first-order state of affairs of an object instantiating a fundamental categorical property is not by itself (part of) a minimal truthmaker for specific modal truths (expressed by specific non-trivial counterfactuals) which concern the bestowal of specific dispositions on the object. In order to be (part of) a minimal truthmaker for the aforementioned truths, it must be supplemented with a nomic fact relating the property in question and other properties and/or relations.²

Given the above criterion, the metaphysical question that naturally arises is this: Do all fundamental properties have the same nature or not? Identity theorists (and double-aspect/dual-sided theorists) hold that all properties are both powers and qualities (i.e., categorical), while neutral monists remain agnostic on that issue. Dualists argue that some fundamental properties are powers, while others are categorical. Finally, monists hold that all fundamental properties have the same nature but disagree whether they are all powers (dispositional or power monists) or categorical (categorical monists).

Categorical Monism has been challenged both directly (through argumentation for the existence of actual powers) and indirectly (by stressing the ‘unpalatable’ consequences of adopting the existence of fundamental categorical properties). As far as the former challenge is concerned, philosophers such as Harré and Madden [14], Cartwright [8], Ellis ([12], [13]), Shoemaker [29], Molnar [24], Mumford [26], Chakravartty [9] and Bird [4] have provided various arguments for powers and thus directly

rejected Categorical Monism. As far as the latter challenge is concerned, the discussion has *inter alia* focused on the putative difficulties related to *quidditism*, a way of de re modal representation of properties (traditionally associated only with the categorical ones) which is completely independent of their causal/nomic roles. Philosophers such as Bird [4], Black [6], Hawthorne [15], Shoemaker [28], have argued that embracing quidditism has disastrous epistemic and metaphysical consequences.³

Given that much philosophical ink has been spilled on the various arguments falling under the above-mentioned projects against Categorical Monism, I do not intend here to discuss any of the well-known points so frequently appearing in the literature. I would rather like to examine another challenge Categorical Monism faces; a challenge which can be based on Gabriele Contessa's recent [10] defence of the view that *only* powers can confer dispositions. (To avoid misunderstandings, I should point out at the outset that Contessa himself does not explicitly relate the conclusion of his argument to the rejection of Categorical Monism.) Briefly, the challenge is this: Given what Contessa calls *a minimal realism*⁴ about dispositions, all theorists can agree that all fundamental natural properties confer dispositions on their bearers.⁵ So, if Contessa's argument is sound and only powers can confer dispositions, then the fundamental natural properties *cannot* be categorical features.

The view that only powers can confer dispositions stands in opposition to another view which is the main target of Contessa's argument, the Nomic Theory of Disposition Conferral (henceforth, NTDC). According to NTDC, in each world in which they exist, properties⁶ confer specific dispositions on their bearers; yet, which disposition a property confers on its bearers depends on what the (contingent) laws of nature happen to be. Advocates of NTDC are categorical monists such as Armstrong [1] and Lewis [19]. My aim in this paper is to show that Contessa's view is controversial and, consequently, the argument against Categorical Monism based on his view is weak. To this end, after reconstructing Contessa's argument in Section 2, I question two main claims of his argumentation: first, the claim that intuition can undeniably support an analogy between the (according to NTDC) role⁷ of laws in the determination of the dispositions properties confer on their bearers and cases of mimicking in the literature about dispositions (§ 3); and, second, the claim that the intuition itself is supported by the fact that, in the context of NTDC, laws are extrinsic to objects (§ 4). In § 5, I further undermine the aforementioned analogy by presenting a possible interpretation of the role of laws in which, though extrinsic to objects, laws do not 'generate' a

scenario of disposition-mimicking. Given the remarks of Sections 3 to 5, Section 6 casts doubt on the two most significant premises of Contessa's argument. In Section 7, I show that by understanding NTDC as a theory about the *truthmakers* of some modal truths, we can plausibly claim that objects possessing categorical properties have various dispositions to do specific things in various circumstances and the presence of nomic relations delineates some of those circumstances. Finally, in Section 8, I summarise the main conclusions of the paper.

2 Contessa's Argument

In contrast to NTDC, Contessa's view is that *only* powers can confer specific dispositions on their bearers and in fact they confer the *same* dispositions in all worlds in which they exist. In order to avoid begging the question against categorical monists and dualists⁸ about properties, Contessa presupposes a *minimal* realism about dispositions that is compatible with the rejection of the thesis that all properties are powers. According to his minimal realism about dispositions, to say that an object *x* is disposed to *M* when *S* or that it has a disposition to *M* when *S* is simply to say that the disposition ascription “*x* is disposed to *M* when *S*” is true. As Contessa himself explains, his view is minimal in the sense that it does not presuppose an *analysis* of disposition ascriptions or set out any requirements on the nature of the *truthmakers* of such ascriptions. In his own words:

So, according to minimal realism, to deny that there are dispositions is to deny that there are any true disposition ascriptions and to accept that some disposition ascriptions are true is to accept that there are dispositions. [10, p. 162]

Given the minimal realism about dispositions, Contessa's argument runs as follows:

- P1** If NTDC is true, properties confer dispositions on their bearers.
- P2** If properties confer dispositions on their bearers, then either they confer intrinsic dispositions on them or they confer extrinsic dispositions on them.
- P3** If NTDC is true, properties do not confer *intrinsic* dispositions on their bearers.

P4 If NTDC is true, properties do not confer extrinsic dispositions on their bearers.

P5 If NTDC is true, properties do not confer dispositions *simpliciter*.

Conclusion NTDC is incoherent.

Before embarking on the task of criticising the above argument, let me first examine how Contessa himself defends the truth of its premises. P1 is not controversial since it follows directly from NTDC's definition; recall that according to NTDC, in each world in which they exist, properties *do* confer specific dispositions on their bearers, albeit ones which are dependent on the laws of each world.

P2 is a bit controversial because (as Contessa himself admits [10, p. 163]) it follows from his preferred definitions of intrinsic and extrinsic dispositions. For him, a disposition is intrinsic if it supervenes on the intrinsic properties of the object that has it (or, more informally, an intrinsic disposition is one that an object cannot acquire or lose without acquiring or losing some intrinsic property) and extrinsic *otherwise*. Given these definitions, the terms "intrinsic disposition" and "extrinsic disposition" label mutually exclusive and jointly exhaustive categories and, consequently, if a property confers some disposition on its bearers, then that disposition must be *either* intrinsic *or* extrinsic. Of course, if Contessa's preferred definitions are wrong (or, more general, if there are no adequate definitions that secure that dispositions must be either intrinsic or extrinsic), then P2 is not true. In that case, one has to do much more in order to save Contessa's argument than merely modify P2 to be an *inclusive* disjunction (that is, dispositions must be either intrinsic or extrinsic or both). For, as we shall see in the sequel, the defence of premises P3 and P4 that Contessa provides *depends* on his favourite definitions of intrinsic and extrinsic dispositions. Hence, a potential falsity of P2 would raise the need for a different defence of P3 and P4 than the one Contessa provides.⁹

Let me now briefly reconstruct the defence Contessa offers for premises P3 and P4. Given his favourite definition of intrinsic disposition, Contessa proceeds to argue that if which dispositions a property confers on its bearers depends on what the laws of nature happen to be, then something could lose a disposition without losing the property that conferred that disposition on it—all it would take would be for the laws of nature to be different from what they actually are. For Contessa, then, given the assumption that his favourite definition of intrinsic disposition holds, the premise P3 is true.

Having established that, provided that NTDC is true, properties do not confer intrinsic dispositions on their bearers, Contessa proceeds to show that they do not confer *extrinsic* dispositions either. His argumentation at this point relies heavily on the so-called *mimicking* cases. A case of mimicking is one in which, though an object does *not* have a certain disposition, due to some external interference, it would *mimic* the behaviour of an object that has it if the right sorts of circumstances were to obtain (see, for instance, [30]). Based on his account of *extrinsic* dispositions (namely, that extrinsic dispositions should rely on some *intrinsic* dispositions of the object that have them), Contessa argues that the alleged extrinsic disposition conferral via laws is in fact similar (in all relevant to the present discussion respects) to the interference taking place in cases of mimicking. Provided that this is true, and given that cases of mimicking seem to be prototypical scenarios in which objects do *not* actually possess the dispositions associated with their displayed behaviour, premise P4 is true.

Given the truth of P2, P3 and P4, P5 follows: If NTDC is true, properties do not confer dispositions *simpliciter*. But recall that P1 says that, if NTDC is true, properties *do* confer dispositions on their bearers. Hence, the joint truth of P1 and P5 yields the conclusion that the notion of NTDC is incoherent (and so NTDC *cannot* be true). For Contessa, this upshot is tantamount to saying that only powers can confer dispositions on their bearers.¹⁰

On the basis of Contessa's conclusion about the incoherence of NTDC, one may build an argument against the view that there exist fundamental categorical features (and, a fortiori, against Categorical Monism). The line of reasoning could be the following: First, assume that NTDC is the *only* account of disposition conferral that fits the case of fundamental categorical features and, furthermore, is *exclusively* associated with them. Given this first assumption, Contessa's conclusion amounts to saying that categorical features *cannot* confer dispositions because the only account of disposition conferral that is proper to them is incoherent. (The requirement that NTDC is exclusively associated with categorical features is necessary in order to avoid the possibility that non-categorical features cannot confer dispositions too.) Second, assume that all properties (at least the fundamental ones) *should* confer dispositions in Contessa's minimal sense. (In order to remain as neutral as I can, I follow here Contessa's [10, p. 163] suggestion that to say that a property, P, confers a disposition, D, amounts to saying that (i) anything that has P has D, (ii) if something that has P were to lose P,

it would lose D, and (iii) if something that does not have P were to acquire P, it would also acquire D.) Finally, combine the two assumptions with the conclusion of Contessa's argument and you have an argument against the existence of (fundamental) categorical features.

My aim in this paper is to undermine the argument presented at the previous paragraph. One way to do that is, of course, to challenge the two assumptions needed to arrive to its conclusion. I do not, however, intend to follow that route. Rather, I shall focus on Contessa's original argument and cast doubt on its conclusion. Since Contessa's conclusion is necessary for the success of the argument against the existence of fundamental categorical features, my critical points about the original argument, if successful, will undermine the conclusion of the latter as well.

3 *Intuition and the laws-mimicking analogy*

To begin with, I take it as a truism that disposition ascriptions are *modal*¹¹ sentences and, so, Contessa's minimal realism about dispositions amounts to claiming that *some* modal sentences are true in the actual world. Consider, then, a world w_C which for reasons of convenience (in order to avoid any difficulties emerging from the relationship between nomically related powers and categorical features) we suppose as having no powers. Such a categorical monistic world has only intrinsically non-modal categorical features. But obviously specific modal sentences are true in this world. How can that be? The answer is that there are other sources of modality for a categorical monistic world, either 'internal' (the laws of nature of that world) or 'external' to it (entities inhabiting other possible worlds). Contessa is surely right when he says that his minimal realism about dispositions is *compatible* with Categorical Monism. He argues, however, that, though compatible, minimal realism about dispositions is not *true* in a categorical monistic world. What then is Contessa's worry?

Consider the case of a categorical feature P in w_C . Laws of w_C 'determine' (in a sense which deliberately is left here unspecified) that specific modal sentences associated with P are true in this world. Contessa does not deny that; he argues nonetheless that an object possessing P is not *disposed* to act according to what laws 'dictate'. Before examining his main reasons to claim that, let us see why he thinks that the burden of proof is on the nomic theorist¹² to show that properties can confer dispositions via the laws. To defend the latter claim, Contessa appeals

to a putative *intuitive* analogy between cases of mimicking and cases of disposition conferral via laws. In cases of mimicking it seems that we can know¹³ by our previous experience or by what our best current science tells us, that some objects are *not* disposed to do what they actually do (in those cases). The intuition Contessa appeals to is that the disposition conferral via laws and the mimicking-interference ‘act’ in a similar way. The reason supporting this intuition is (according to Contessa) that in both cases there is something *extrinsic to the objects* that ‘tells’ them what to do. He claims that:

Regardless of whether the laws are established by God or by chance, the problem is that they are *extrinsic to the objects* that fall under their jurisdiction and, more specifically, to the properties of those objects. [10, p. 167], *emphasis added*

But it is (at least) not clear why the necessary presence of an external factor that ‘tells’ objects what to do strongly (and uniquely) supports an intuition that *precludes* any genuine disposition ascription to them. To illustrate that, consider the scholastic *concurrentist* view (advocated by Aquinas and Suarez) according to which any worldly effect can be ascribed both to God (who is the *primary* cause of the effect) and objects (which are the *secondary* causes of the effect). Aquinas explains the contributions of God and secondary cause through the metaphor of a craftsman and the tool she uses to carve a wood [27, p. 21]. The tool by itself is not a *sufficient* cause of the wood being carved because its capacity to carve *depends* on the capacity of the craftsman using it. According to concurrentism, any worldly effect depends partly on God’s concurrence and partly on the properties of objects involved. In the concurrentist theoretical context, God works *via* the objects He creates and conserves and, so, objects have dispositions for certain behaviours even though the presence and contribution of an external agent (God, in this case) is always needed.

Given concurrentism, one may build a neo-concurrentist scenario which is parallel to Contessa’s “LAWBOUND” scenario [10, p. 166]. In analogy with the latter, in the neo-concurrentist scenario God has established a law of nature according to which negatively charged particles annihilate any positively charged particles within a one-foot radius of them. Furthermore, in line with concurrentism, God necessarily *con-curs* to the effect of annihilation *via* the relevant (established by Him and external to the particles) law.¹⁴ In that case, I suggest, there is nothing which can intuitively preclude the law, though external to the

particles, from conferring (partially or implicitly) dispositions to them. In my view, our intuition here is that the negatively charged particles have the disposition to annihilate positively charged particles partly due to laws' contribution and partly due to the properties they possess. The neo-concurrentist scenario shows that only under an *occasionalist* interpretation (according to which God is the *only* true cause of any worldly effect and objects have *no* dispositions), Contessa's "LAWBOUND" scenario vindicates the claim that the necessary presence of an external factor (i.e., the law established by God) that 'tells' objects what to do precludes any genuine disposition ascription to them.¹⁵ Of course, from the fact that concurrentism is a consistent metaphysical position that one may adopt, it doesn't follow that in *any* situation in which external factors are involved we may have the intuition that their involvement does not preclude objects from having specific dispositions. Yet, this general claim is not needed for the argument.¹⁶ For, if there are contrasting (to what Contessa suggests) intuitions for just one case, then the claim that the presence of external factors *per se* vindicates his view is undermined.

There are at least two potential objections to the appeal to concurrentism in the context of the present discussion. The first objection is that the intuition that in the neo-concurrentist scenario particles have a disposition partly due to their properties is supported by another intuition which shows that the very appeal to the scenario in question is irrelevant to the purpose of this paper. More precisely, says the objector, the intuitive thought that properties contribute to the conferral of dispositions on objects seems to 'stem' (in the context of the neo-concurrentist scenario) from their role in the *production* of the worldly effects. Yet, in order for properties to contribute to a process of production they should not be construed as categorical; they should rather be interpreted as powers. Hence, the best we can do by invoking the neo-concurrentist scenario is irrelevant to our task which is to defend that *categorical* features can confer dispositions. The only thing we can show is what Contessa himself argues for, namely, that only powers can confer dispositions. In response to that objection, I contend that it is question-begging in the context of the present discussion to hold that only powers can be involved in production processes. Categorical properties cannot *by themselves* produce an effect, but that does not mean that they cannot *contribute* to the production of the effect. This fact is acknowledged by dualists about properties who think that categorical features are in a sense *causally relevant* either because powers are 'sensitive' to them

[24] or because they set the stage for the causal action of powers and so (in Ellis' [12] terminology) are "relevant causal factors". Hence, even if, as the objector claims, our intuition about the disposition-conferral in the neo-concurrentist case 'stems' from the role of properties in the *production* of effects, the intuition itself does not seem to presuppose (as the original thesis of medieval concurrentism does) that properties should be powers; hence, it is independent of the nature of properties.

The discussion thus far presupposes of course that we *do* have intuitions about the neo-concurrentist scenario. It might be objected, however, (and this is the second objection I mentioned previously) that this scenario (qua being supported by a 'far-fetched' metaphysical position) is not a case one may have intuitions about.¹⁷ In response, I would first say that Contessa himself appeals to intuitions we allegedly have for cases which are no less 'far-fetched' than the concurrentist view (for instance, cases of globally applied spells). In addition, the metaphysical details of concurrentism (on the basis of which one might characterise concurrentism as a 'far-fetched' position) do not in fact play a crucial role as far as the support of intuition under scrutiny is concerned. What really matters is that in a case where we hold that several factors contribute to the production of an effect, there is nothing unintuitive in supposing that *all* factors confer dispositions on the object (or objects) that produce the effect. The case of concurrentism is just such a case which, furthermore, serves our purposes since it acknowledges laws of nature as contributing factors.

Perhaps, in spite of all the above remarks, there are no intuitions (or, at least, there are no *strong* intuitions) either about my neo-concurrentist scenario or about Contessa's neo-occasionalist scenario. In that case, the issue of whether the presence of something extrinsic to objects that governs their behaviour (both in cases of disposition-mimicking and 'law-mimicking') precludes the ascription of dispositions to them should be adjudicated by philosophical arguments and not by appeal to intuitions.

Be that as it may, and for the sake of the argument, in what follows I shall take it for granted that what supports the intuition that we have a case of analogy between disposition-mimicking and 'law-mimicking' is that in both cases there is something extrinsic which governs objects' behaviour. For those who are not convinced by the reasons I have already offered (and for the skeptics about the appeal to intuitions in the case under consideration) I shall now proceed to challenge other aspects of Contessa's argumentation.

4 *Laws extrinsic to objects?*

Even if we agree with Contessa that what supports the intuition that we have a case of analogy is that there is something extrinsic which governs objects' behaviour, it is not clear why, in the case under consideration, laws *should* be regarded as extrinsic to objects. To illustrate that, let us examine whether in our case laws can be plausibly construed as extrinsic to objects, first, on an intuitive and, second, on a certain technical understanding of the term "extrinsic". Intuitively, an entity is extrinsic to an object if it is 'outside' the object. Given that, it is not clear whether in *all* metaphysical accounts of laws,¹⁸ the latter can be plausibly regarded as extrinsic to objects. In an Armstrongian context [1], where nomic relations are external relations between physical properties, the former are ontologically robust, wholly distinct from properties, entities that 'tell' the latter what to do. Under that perspective, it is *natural* to see laws as governing the objects' behaviour (which depends on what the properties instantiated by those objects do) from 'outside'. Things are not so clear, however, in the context of (sophisticated) regularity accounts of laws (see, for example, [19]). In that context, nomic relations supervene on the spatiotemporal distribution of natural intrinsic properties and *ontologically* laws are nothing more than regularities (that is, sub-patterns of the global pattern of the distribution of properties among the actual objects). Each object which is subject to a law is a constituent of a state of affairs that, in turn, is a part of the regularity a law ontologically is. By being a constituent of a part of the law 'governing' it, an object is in a sense 'in' the law in question. So, even though a large part of the law is 'outside' the object, we cannot (in this case) unquestionably claim that the law is wholly extrinsic to the object.

It might be objected that supervenient (on a base of categorical properties) laws are *determined* by their categorical base and so *cannot* confer any dispositions on base-properties' bearers. If that is true, it is irrelevant (for the case under consideration) whether such laws are intrinsic or extrinsic to objects. This objection, however, relies on a 'strong' notion of disposition conferral according to which an entity can confer dispositions on an object only if it can *determine* its behaviour. Given that supervenient laws do not determine objects' behaviour they cannot confer dispositions on them in the aforementioned 'strong' sense. Recall however that Contessa's argumentation context presupposes (for reasons I have already stated) a minimal realism about dispositions according to which an object x has a disposition to M when S if the disposition ascription " x is disposed to M when S " is true. Crucially, Contessa's

minimal realism does not set out any requirements on the nature of the *truthmaker* of the disposition ascription. Hence, it leaves room for the claim that even a supervenient law (plus the relevant property or properties) can make a disposition ascription true and so, in this sense, can (partly or implicitly) confer a disposition on an object.

Contessa's 'extrinsicness' claim can be also understood in technical terms by invoking a criterion for the intrinsic/extrinsic distinction between properties. For, though Contessa's claim concerns the relation between an object and a law that 'governs' it, we may plausibly examine whether laws are extrinsic to objects by examining whether the *property* of an object to be subject to some specific law is extrinsic or not. And in that case, once again, we find out that not all accounts of intrinsicity/extrinsicity of properties support an interpretation of the property in question as an extrinsic one. To see that, consider Langton and Lewis' [18] famous definitions of the notions of intrinsic and extrinsic properties. As Langton and Lewis themselves explain [18, p. 339], it is not always the case (i.e., it is not true under all conceptions of laws) that the above-mentioned property is extrinsic. For instance, in the case where laws are contingent and able to vary independently of whether a thing subject to them is accompanied or lonely it turns out that, according to Langton and Lewis' criterion of intrinsicity, the aforementioned property is not extrinsic but basic intrinsic. To illustrate that, let me first present Langton and Lewis' definitions:

A property P is independent of accompaniment iff an accompanied object may have P or lack P and an unaccompanied object may have P or lack P.

A property P is basic intrinsic iff P and not-P are non-disjunctive and contingent and P is independent of accompaniment. [18, p. 333]

Now consider an object *x* and its property of being subject to some specific law (call it SL). SL and not-SL seem to be non-disjunctive¹⁹ and, given that according to NTDC laws are contingent, SL is a contingent property of *x*. Furthermore, there is at least one NTDC-friendly metaphysical account (the one defended by Armstrong [1]) according to which laws are contingent and able to vary independently of whether a thing subject to them is accompanied or lonely. Hence, SL is also independent of accompaniment. It turns out then that, according to Langton and Lewis' criterion, SL is a basic intrinsic property of *x*. But if the law were extrinsic to *x*, we would expect SL to be an extrinsic property of *x*. So,

in the case under consideration, and given the adequacy of Langton and Lewis' criterion of intrinsicity, laws cannot be extrinsic to the objects subject to them. Of course, one may think that this upshot is weird and so see it as a basis of a reductio of Langton and Lewis' criterion. So the cogency of my argument here ultimately depends on the strength of the reasons one has to think that the criterion in question is indeed adequate.

5 *The case of laws as triggering conditions*

Even granted that laws are extrinsic to the objects the behaviour of which they 'govern', the case for lawful mimickers²⁰ can be undermined by the following possibility. It is compatible with Contessa's assumed minimal realism about dispositions that (granted NTDC) objects *do* possess dispositions provided that laws are not extrinsic (to the objects) *interference-conditions* but rather global *triggering* ones. For, though one may imagine a scenario where the triggering-condition for a disposition is also the interference-condition that 'generates' mimicking, in general the two conditions can be conceived as distinct. So if there is a consistent with NTDC scenario in which laws are (partial) stimuli rather than interferers of the behaviour of objects, then the latter can be construed as having the relevant dispositions 'responsible' for that behaviour.

Let me now put some flesh to the bones of a view a defender of NTDC might propose for fulfilling the aforementioned possibility: Think of categorical properties as features that bestow different dispositions if they are subject to different triggering conditions and suppose that laws are always parts of the *stimulus* that trigger the manifestation of dispositions possessed by objects instantiating those categorical properties. The latter supposition is inspired by Troy Cross' [11] suggestion to treat possible laws of nature as circumstances which, together with a categorical property, would *trigger* an effect. On this view about laws and the dispositions categorical features may confer, laws are *necessary global* conditions for the manifestation of the relevant dispositions, but not *sufficient* by themselves; *local* triggering conditions (for example, the instantiation of properties by other objects properly related to the ones under consideration) are also *needed* in order for the manifestation to occur.²¹ Given the above assumptions, an object *x* instantiating categorical properties in a world with laws *L* does have dispositions since for it Contessa's minimalist requirement for disposition conferral holds: the

disposition ascription “x is disposed to manifest M when subject to stimulus S” is true, where S has a nomic-part (a relevant law or laws) and a non-nomic part (a relevant triggering condition consisting of the instantiation of properties by other objects properly related to x). Surely, x has different dispositions in worlds with different laws even if the non-nomic part of S remains the same. The crucial point, however, is that, on this view, there is no reason to think that x does not have dispositions in each world in which it exists since laws can (when construed as triggering and not interference conditions) be regarded as unable to set the stage for a mimicking scenario. Hence, Contessa faces the following dilemma: If, on the one hand, he keeps insisting on the analogy between laws and spells, he should admit that spells (just like laws) can be triggering conditions and, consequently, the appeal to them cannot definitively support the mimicking-scenario. If, on the other hand, he decides to withdraw the analogy, he is left with no compelling reason to reject the view that categorical properties (in tandem with laws) can confer dispositions on the bearers.

6 Casting doubt on P3 and P4

Casting doubt on the extrinsicness of laws to objects has also an important impact on the premise P3 of Contessa’s argument. This premise (as Contessa himself admits) depends on the rejection of an *alternative* notion of intrinsic disposition embraced by a defender of NTDC. According to this alternative notion, an intrinsic disposition is one that an object cannot acquire or lose without undergoing any intrinsic change *while keeping the laws of nature fixed*. Contessa claims that his definition is preferable to the alternative one because it is consistent with the ordinary use of the term “intrinsic” in (analytic) metaphysics. The main reason supported this claim, however, is that nomic theorists *agree* that laws are something that “goes on outside of” the objects and so they are intuitively extrinsic to them [10, p. 171]. In Contessa’s own words:

[given that laws are extrinsic to objects] why should we take the laws into account when trying to determine what an object is *intrinsically* disposed to do? [10, p. 172]

Hence, the assumed extrinsicness of laws to objects has a crucial role to Contessa’s rejection of the fixed-laws notion of intrinsic disposition. Therefore, if (as I argued) it is (at least) not clear whether under all conceptions of laws the latter are extrinsic to objects, then a considerable

support of P3 seems to be lost. To be fair, Contessa presents another argument in order to show that the defenders of NTDC do not offer us a convincing reason to believe in the conferral of dispositions via laws even granted *their* criterion of intrinsic disposition [10, pp. 172-4]. His argument, however, rests again on the analogy between cases of mimicking ('generated' in this time by God's spells) and cases of disposition conferral via laws. Since, in Section 4, I cast doubt on the basic intuition underlying the analogy (that is, that in both cases there is something extrinsic to the objects that 'tells' them how to behave), I find the reasoning behind the argument controversial.

As far as P4's truth is concerned, Contessa claims that it does not depend on any *other* reasons he has to prefer his own suggested notion of extrinsic disposition because the rival property-based account²² classifies intuitively clear cases of mimicking as cases of genuine extrinsic disposition conferral. So, one might claim, P4 is not controversial (or, at least, is less controversial than P3). As far as I can see, however, this claim is not true. For, Contessa may either classify the alleged disposition conferral via laws as non-extrinsic disposition conferral *because* he has already *proved* that there is no intrinsic disposition conferral via laws or he may classify it as non-extrinsic on the basis of *intuitions* about whether some objects are intrinsically disposed to act in a specific way. In the former case, the truth of P4 is dependent on the truth of the (controversial) P3. In the latter case, the premise in question is controversial in a 'direct' manner because it rests on contentious intuitions.

7 NTDC as a truthmaker account

If, despite the arguments of the previous sections, a proponent of NTDC accepts that her suggested disposition conferral via laws is *prima facie* a case of mimicking, does she *have to* deny that objects possess dispositions *in Contessa's minimal sense*? I think not and in the sequel I explain why.

Recall that according to Contessa's minimal realism about dispositions, an object has a specific disposition if the associated with it disposition ascription is true. So, the only thing a proponent of NTDC has to do in order to show that the object has a disposition in the context of a *prima facie* law-mimicking case is to secure the truth of the ascription associated with that disposition. One way to do that is by interpreting NTDC as a theory about the *truthmakers* of some modal truths. Under such an interpretation, the basis of NTDC is nothing other than the

truthmaking criterion of categoricity: recall that, according to this criterion, categorical properties cannot *by themselves* be truthmakers for some modal truths but they need instead to ‘act’ in tandem with laws of nature to be such.

Given the above interpretation, the advocate of NTDC can claim that even if the (putative for Contessa) extrinsic disposition conferral via laws is a *prima facie* mimicking case, objects nonetheless possess dispositions in Contessa’s minimal sense. To argue for that conclusion, a defender of the NTDC-as-a-theory-of-truthmakers needs three conditions to hold: a) there must be modal truths related to the law-mimicking cases in each world in which certain objects exist; b) there must be truthmakers for those truths related to the (categorical) properties objects possess in each world in which they exist. And c) those truthmakers must necessitate the modal truths in question.

The first condition obviously holds; the relevant modal truths can be expressed by appropriate counterfactuals in each world. These counterfactuals do not need to include nomic relations (as contingent ‘circumstances’); it suffices that nomic relations are indispensable parts of the minimal truthmakers for the relevant modal truths. The second condition holds as well since, according to the truthmaking criterion of categoricity, the truthmakers for the aforementioned truths are the relevant properties *plus* the relevant nomic relations of the world. The third condition (the so called Truthmaker Necessitarianism) is a view quite popular among truthmaker theorists²³ and states that an entity is a truthmaker for a claim only if it is metaphysically impossible for that entity to exist, and yet the claim be false. Provided then that Truthmaker Necessitarianism is true, a proponent of NTDC can plausibly claim that it is not the case that what an object would do in lawful circumstances does not determine what dispositions it has. On the contrary, the object would do what it is *supposed* to do when found itself in those circumstances. Hence, objects have various dispositions to do specific things in various circumstances and the presence of nomic relations delineates some of those circumstances (other circumstances have to do with facts about the instantiation of properties by other objects and about the holding of certain relations (such as spatiotemporal ones) between the former objects and the latter).²⁴

The conclusion I’ve reached in this section surely looks weird. How can objects possess dispositions in some mimicking cases (i.e., those involved laws as external factors) when *by definition* in *all* mimicking cases objects do not possess the dispositions that may (falsely) be ascribed to

them? In what follows, I shall explain why, despite first appearances, there is no contradiction here.

Recall that the definition of disposition-mimicking requires that the object does not in fact have the disposition we ascribe to it. Yet, for the definition to be theoretically adequate, one has to specify the conditions under which the object lacks the disposition. In ‘ordinary’ cases of mimicking scenarios (as, for instance, in cases where sturdy objects become ‘fragile’ due to the action of an external agent or mechanism), the conditions are *implicitly* given by comparing the behaviour of the object in the presence and absence of the interference-factor respectively. Yet, in the case of laws, and if NTDC is true, there is no such possibility of comparison: laws necessarily and continuously interfere to the behaviour of objects and so no sense can be given to a law-interference-free behaviour of objects. It might be objected that the possibility of the aforementioned comparison is not needed because the definition of mimicking does not have to be a *contrasting* one; in particular, it might be argued that an object can be involved in a mimicking scenario without exhibiting behaviour *different* from the one it would have in the absence of interference. For an object may exhibit *no* behaviour in the absence of the ‘interference-factor’. This objection, however, has no strength against my previous remarks because even under such an interpretation it is still true that the definition of disposition-mimicking needs the existence of an interference-free possibility. And there is no such possibility if NTDC is true.

Hence, given the truth of NTDC, the very definition of disposition-mimicking scenarios in the case of laws is problematic. This fact removes in part the air of paradox from the conclusion of this section. The appearance of absurdity evaporates when, in addition, we see that the *minimal* requirements for disposition possession that Contessa has to assume in order not to beg the question against the proponents of NTDC make room for an interpretation of NTDC under which objects possess dispositions in the ‘law-mimicking’ cases. Hopefully, the remarks of the present section help us to see exactly that.

8 Conclusion

Contessa has recently argued that only powers can confer dispositions on their bearers. This paper has challenged the two main claims of his argument; the claim that intuitively there is an analogy between the (according to NTDC) role of laws in the determination of the disposi-

tions properties confer on their bearers and mimicking scenarios in the literature about dispositions as well as the claim that the intuition itself is supported by the fact that, in the context of NTDC, laws are extrinsic to objects. Furthermore, it has been argued that laws, even granted that they are extrinsic to the objects they ‘govern’, do not necessarily act as interferers in a mimicking scenario. Finally, it has been shown that even if we accept the analogy that Contessa suggests, there is an interpretation of NTDC (as a theory about truthmakers) which enables its defender to reasonably claim that in a certain sense objects possessing categorical properties do have various dispositions in ‘law-mimicking’ cases. Given all that, I conclude that Contessa’s view is controversial and, consequently, cannot be used as a plausible premise in any argument (like the one I have suggested) against the existence of fundamental categorical features.

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Notes

- 1 That does not mean that the majority of metaphysicians agree on the possible existence of two clearly distinct kinds of natural fundamental properties. According to some philosophers, the distinction in question is not ontological and concerns either the predicates we use [22] or the ways we represent and characterise properties [25].
- 2 See [20, chpt. 1] for further details. For a kindred account, concerning however only the dispositional properties, see [7] and [17].
- 3 For a defence of the quiddistic way of de re modal representation, see [16] and [20, chpt. 4].
- 4 See Section 2 for a clarification of Contessa’s notion.
- 5 Of course, there is a consensus of opinion on this issue only provided that the having of a disposition does not *presuppose* the possession of a power. As we shall see in the sequel, in order not to beg the question against all non-power theorists, Contessa’s minimal realism about dispositions ensures that this proviso holds.
- 6 From now on, for reasons of convenience, I shall use the term “properties” to refer to fundamental natural properties.
- 7 As I have already remarked, according to NTDC, laws determine which dispositional properties confer on their bearers.

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- 8 As stated in the introduction, dualists argue for the actual existence of two ontologically distinct and mutually exclusive *kinds* of fundamental natural properties, dispositional and categorical. Philosophers who recently advocated dualistic theses are Ellis [12], Molnar [24] and McKittrick [21].
 - 9 To be fair, Contessa also offers a defence of P3 that does not assume his preferred definition of intrinsic disposition. Nevertheless, as we shall see in Section 6, this alternative defence is controversial. I would like to thank an anonymous referee for raising the issue of the potential falsity of P2.
 - 10 As far as I can see, the conclusion that *only* powers can confer dispositions can be reached only provided that NTDC is the only account of disposition conferral that fits the case of fundamental categorical features and furthermore is associated only with them (and not with powers). See also the role of the same assumption in the argument against Categorical Monism presented at the next paragraph.
 - 11 Here I am not committed to any view concerning the analysis of disposition ascriptions in terms of counterfactuals. I am also not committed to any view regarding the truthmakers of dispositional ascriptions. Irrespective of whether dispositions ascriptions can be analysed or not and regardless of whether their truthmakers are actual entities or not, disposition ascriptions tell us what *would* happen in specific counterfactual circumstances (in absence of certain interferers) and *in that minimal sense* are obviously modal.
 - 12 Following Contessa's terminology, I use the expression "nomic theorist" to refer to the proponent of NTDC.
 - 13 Here I sidestep a sceptical worry concerning our very ability to know that some objects are disposed or not disposed to a specific behaviour under the appropriate circumstances.
 - 14 In making that move we should discard that part of God's role associated with the creation and conservation of objects since the contemporary notion of laws seems that it has nothing to do with these 'actions'.
 - 15 Hence, it is surely not an accident that Contessa suggests [10, p. 162] that we may call NTDC neo-occasionalism.
 - 16 I would like to thank an anonymous referee for pointing this out.
 - 17 I would like to thank an anonymous referee for raising this issue.
 - 18 Here we exclude the dispositional essentialist account of laws (according to which laws 'express' the dispositional essences of properties) because a nomic theorist cannot embrace it.
 - 19 According to Langton and Lewis' definition, disjunctive properties are those properties that can be expressed by a disjunction of natural properties but that are not themselves natural properties. In case that naturalness is not an all-or-nothing affair but rather admits of degrees, disjunctive properties are much less natural than the disjuncts in terms of which they can be expressed [18, p. 336]. In neither case do SL and its negation count as disjunctive in Langton and Lewis' sense.
 - 20 I borrow the phrase from Umut Baysan's [3] paper which criticises Contessa's argument.
 - 21 Granted that all worlds inhabited by categorical properties have laws and there also always exist the relevant local triggering conditions, the categorical properties are continuously manifested.

- 22 As Contessa explains “[according to the property-based account] in order for an object to have a certain extrinsic disposition, some (intrinsic) property of the object must be part of the causal basis for that disposition (i.e. the causally operative sufficient condition that would bring about the manifestation of that disposition, if the stimulus condition were to obtain).” [10, p. 168]
- 23 Armstrong [2] and Merricks [23] are among those who defend Truthmaker Necessitarianism.
- 24 Of course, the fact that mimicking cases can be accommodated in the context of the truthmaking construal of NTDC does not eliminate the *epistemic* problems that cases of mimicking create. For, given mimickers, there is always a difficulty related to how we *know* that some objects are in fact disposed towards specific behaviour.

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