

# Singular Causation without Dispositions\*

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ABSTRACT: Singular causation may be best understood within a dispositionalist framework. Although the details of just how a claim that this is in fact the case have not yet been fully worked out, different philosophers have made some positive contributions in this direction. In opposition to such suggestions, I claim that any possible account of singular causation in terms of real, irreducible, dispositions contains unresolvable flaws in its metaphysical foundations.

First, I present two main constituents that I take to be necessary for any possible dispositional account of singular causation: (i) the possibility of causation without laws, which is a necessary condition for causal singularism, and (ii) a conception of dispositions as real, irreducible entities or properties. This results in a minimal dispositionalist view of singular causation. Second, I argue that, even if minimal, this view already has to face up to serious difficulties: (i) an ontological problem concerning the individuating conditions for dispositions in causal contexts, (ii) an instance of infinite regress, (iii) the loss of the relational character of causation and, as a corollary, (iv) the loss of the asymmetry of causation. Third, I argue that dispositionalists tend to misrepresent causal modality when proposing and solving a modal choice between Humeanism and dispositionalism that is becoming commonplace but which, I claim, is in fact a false choice. Finally, I sketch a possible picture of causality without laws and without dispositions.

Keywords: causation; dispositions; singularism; humeanism; relation; modality.

## *I. Two constituents of singular and dispositional causation*

### *1. First ingredient: singularism*

The universalist, lawful and Humean account of causation is that causal facts are possible only because there are laws – where laws can be conceived of as natural laws or just as regularities of some privileged kind. Such a universalist conception of causation is not only of an epistemological nature – it does not only say that we cannot know of causal facts unless we know of appropriate laws – but it is essentially a metaphysical view. The universalist considers causality to be, not a primary relation between particulars, but either a kind of universal itself (like Armstrong's nomological relation) or ontologically dependent upon some other relation between types (like Humean or Lewisian similarity). There is causation at the singular level only if, and only because, there are appropriate universalities or laws.

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The singularist opposes this view. Singularism regards causality as a local relation between singulars. The nature of these singulars is not particularly relevant: one could claim that particular facts, or states of affairs, or events, or individual properties, or even individual substances, form the ontology of singular causation. Whatever else they might be, the terms of the causal relation are singular entities in the world. In consequence, a singularist believes that there could be singular causation without universalities or laws – that is, laws supervene on singularities, not the other way round. For laws, whatever else they might be, are universal. Thus, contrary to M. Moore's suggestion (2009, 5), it does not suffice to define singularism as the view that there are singular causal facts even if singular causal facts all supervene upon some kind of regularity or instantiate some law of nature. For if this were right, nobody could fail to be a causal singularist, and obviously universalist views such as Humean or Platonic views should count as singular – remember, both Hume and Plato claim that the sensible world is made of singularities. For the singularist, causal relations cannot be instantiations of universal patterns of any kind. Causation is, in essence, a local singular matter: that is the mark of singularism.<sup>1</sup>

## 2. *Second ingredient: real dispositions*

Dispositions are attributed to substances by virtue of their possible behaviour: when one ascribes a disposition to a substance, one indicates how the substance would behave if the appropriate circumstances pertained. Solubility, fragility, intelligence, strength, aggressiveness, are some common examples of dispositions. Thus, for instance, fragility is a disposition of glass: in appropriate circumstances, glass breaks if struck. Aggressiveness is a disposition of lions and psychopaths: in appropriate circumstances, lions attack if hungry, and psychopaths attack if ...

There are different accounts of the conditional element necessarily embedded in the concept of a disposition, but this does not concern us here. For if you are a singularist about causation within a dispositionalist framework, you are committed to the view that dispositions are real.<sup>2</sup> That is, the conditional element involved in having the disposition should not be explained in turn either in terms of natural laws (as, for instance, Mellor (1974) has claimed) or in terms of regularities (as happens in counterfactual analysis, as in Lewis (1999)). If you follow either of these paths, you will not be a causal singularist because the causal facts accounting for the truth of the conditional will eventually be explained by, and be dependent upon, natural laws or certain kinds of regularities. However, if dispositions are real, the conditional element in the disposition is secondary to the possession of the disposition. In fact, laws themselves could be understood in dispositional terms (Cartwright 1989, Ellis 2001, Bird 2005), or even eradicated from ontology as Mumford (2004; 2005) has proposed. The position that

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<sup>1</sup> Leaving aside for a moment dispositionalist philosophers, support for singularism in this sense has notably come from: Ducasse (1993), Anscombe (1993), Deutsch (1982), Tooley (1984) and Ehring (1997, 2009), among others.

<sup>2</sup> I am calling “real dispositions” what other authors call “pure dispositions” or “pure powers” (e.g., Bird 2007, Psillos 2006).

dispositions are real is a non-reductionist, non-eliminationist stance. So even if in essence dispositions have a conditional nature, dispositional behaviour is not fully explainable in conditional terms. It is, rather, the other way round: the conditional nature of dispositions grounds certain conditionals. Dispositions are thus introduced as basic and efficient ontological elements in their own right.

Like other real properties, dispositions are abstract entities that exist in ontological space; and they are entities with latent efficacy. This is a definitional characteristic of dispositions. There is an irreducible potentiality built into the identity of any disposition; its identity is (or is in part) a potential to behave. So a disposition includes in its essence all its possible manifestations. For instance, Shoemaker (1980, 114), who thought that all properties are dispositional, defined a property saying that what “[...] makes a property the property it is, what determines *its identity*, is *its potential for contributing to the causal powers of the things that have it.*” (My italics.) This irreducible conditionality or potentiality built into the identity of real dispositions explains why they are sometimes called modal properties, e.g., by Mumford, who also affirms that: “a power *is for a certain manifestation*” (2009, 95. My italics.) Furthermore, in Molnar’s terms (2003), a power is essentially intentional: its identity is “its pointing to” its manifestations. In short, a disposition is a type of abstract entity whose essence and identity is a potential to behave. All its possible actions and passions, all manifestations, actual and possible, belong to the essence of the disposition.<sup>3</sup>

### 3. *A minimal dispositional account of singular causation*

With these two ingredients – singular causation and real dispositions – we are ready to outline a minimal picture of singular causation within a dispositionalist framework. The general idea is simple enough: dispositions are causal powers. Or: in appropriate circumstances, given appropriate stimuli, dispositions causally explain their manifestations. Thus, when a cup shatters, the cup’s fragility is a (partial, at least; and in any case, fundamental) cause of its particular shattering. In dispositional terms, causation becomes a dispositional mechanism or, much better, a *dispositional activity*. Particular effects in the world are the realization/manifestation/result of the actions of dispositions, under certain circumstances and/or stimuli. As Molnar says: “Causation is generative behavior of objects that is governed by their [dispositional] properties” (2003, 187). The dispositional nature of substances makes things happen; and a particular instance of causation, a singular causal fact, is a particular deployment of powers.

One must note that even if stimuli (or appropriate circumstances) are to be counted as causes, they can never be the (whole) cause of the manifested effect; for then no role whatsoever would be left for the disposition itself, and the causal account would not be dispositional. Moreover, that stimuli and circumstances could be accepted as causes with a non-dispositional nature makes it hard to understand the dispositional character of causation itself. So the idea must be that whenever there is a

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<sup>3</sup> In section II, as a third difficulty for the minimal dispositional account of singular causation, I will argue that this idea is incompatible with the distinctness of power and manifestation that is necessary to establish a causal relation between the two.

causal link, it is dispositional in character. Mumford makes the view that causation is dispositional clearer when he writes that: “Causation is to be equated with the manifestation of a power” (2009, 102). In any realist dispositional account of causation, the relation between  $c$  and  $e$  must be dispositional in the sense that there is an irreducible conditionality between the occurrence of  $c$  and  $e$ , where the real disposition consists of this irreducible conditionality.

However, the dispositional view – the view that in causation, substances deploy or exercise their powers – faces some important difficulties from a “causal” point of view. First, for a particular view on dispositions, there is a problem concerning the individuation conditions for substances in causal contexts. Then, for any realist dispositional account, there are three related problems concerning the nature of the causal relation itself: an infinite regress; the disappearance of the relation in favour of something like substantial causation; and as a symptomatic consequence of this, the loss of the asymmetry of causation. In the following section I detail these difficulties.

## *II. Problems for dispositional singular causation*

### *1. First difficulty: dispositions in substances*

Dispositions are capacities of substances to behave or to change in a certain way under given circumstances. So dispositions exist in substances. This is generally acknowledged by all dispositionalists. The concept of disposition includes a necessary reference to a subject, for there is no action without agency and no agency without an agent. Cartwright (1989) maintains that substances have irreducible capacities to make changes in the world. Ellis (2001) claims that dispositions are essential properties of substances, for dispositions define natural kinds. In Bird’s view (1998), the dispositional character of the properties of substances explains the necessary relations between a certain substance and others. In Molnar’s account (2003), powers are individuated by their bearers: a power is the individual power it is, and no other, because it is a power of its substance, and of no other.<sup>4</sup> In Mumford’s view (2004) substances are required for instantiation purposes – and appliances or artefacts have dispositional essences.

Thus, despite views such as those of Cartwright or Mumford in which natural dispositions are “only” existence-dependent on their bearers, many dispositionalists maintain that dispositions are also identity-dependent on their bearers: other bearers would make other dispositions. In this stronger position there is no room for the possibility that the same substance has two indiscernible dispositions at the same time – at different places – and this seems to be an important difficulty. For instance, if both Jeremiah’s eyes are equally capable of seeing, it is true that the same entity, Jeremiah,

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<sup>4</sup> Molnar is a trope theorist. He believes that there are individual properties, i.e., properties that, not being universal, cannot wholly exist in more than one place (or substance), at the same time. But it is also a main claim of his view that the individuality of a property is provided by its substance-bearer. For instance, the individual power of the Earth to rotate, its capacity to be heated by the Sun, and all such individual powers of the Earth, are individual because the Earth is individual.

has two indiscernible capacities; but then Jeremiah cannot provide the individuality of the two indiscernible powers.

An immediate reply would be that the relevant entity here is not Jeremiah but each of his two eyes, which has its own individual power to see. Hence, parts, not wholes, are the relevant entities for the individuation of dispositions. But now the difficulty is that parts do not have clear-cut conditions of identity. Consider the progressive transformation of an egg into a chicken. It should be possible that some disposition, *D*, of the egg remains throughout its development from a given stage, *S*, into a later stage, *S\**. Yet, if the identity of *D* depends upon the identity of a substance, *D* remains the same disposition if and only if *S* and *S\** are stages of the same subject. But why should we impose this condition upon the identity of *D*? Still worse, if we accept that parts and not wholes are the entities that count, the disposition in *S\** would necessarily be other than the disposition in *S*, contrary to our original presupposition. In the end, we seem to feel more confident about the identity of *D* than about the identity of the substance(s) or part(s) in which it exists.

This difficulty seems to count directly against Molnar's view, in which dispositions are individuated by their bearers; but Ellis and Bird would reply that substances do not individuate dispositions, nor do substances determine the identity of dispositions in any sense. According to Ellis and Bird, dispositions define natural kinds: so dispositions dictate the identity of substances, not the other way round. If *D* remains throughout the development of the egg into a chicken, then the developing entity is the same substance: at some point called an egg, at another a chicken, but one substance as a whole, belonging to the same natural kind.

However, if dispositions essentially belong to substances, there must be other, non-dispositional properties that explain the natural changes that a substance could undergo without it becoming another substance. A primary substance changes when it loses or acquires properties, but not all such changes should entail a change in kind. So, if dispositions are essential to substances, natural but contingent change requires categorical properties: either it could not count as causal change or it would not be wholly explained in dispositional terms.

Thus, no matter the direction of dependence – whether the identity of dispositions depends on their substances, or the identity/essence of substances depends on their dispositions – dispositionalism faces difficulties when accounting for natural change over time of a given substance.

## 2. *Second difficulty: infinite regress*

A second difficulty is an infinite regress. In the minimal dispositional account of singular causation, causes are dispositions towards possible manifestations. Causation is dispositional in the sense that dispositions are causally connected to their manifestations or in the sense that the relation between a disposition and its manifestation is causal. Now a cause is, by definition, something that brings about a change: it makes a difference to reality. So if causes are dispositions, possibilities also count as causal changes, for dispositions make certain manifestations possible. But if their making possible is causing, then to make a manifestation possible, a cause must also make it

possibly possible and then the cause must make the new possibility also possibly possible, and so on *ad infinitum*. Thus we fall prey to an infinite and vicious regress – vicious, because every step requires the previous one, which never comes. In other words, if you include potentialities among what are to count as effects, the effect never happens. For any thing to become, it must be previously possible; but if potentialities are also part of what is being made, then they must previously be possibly made, etc.

Place (1996, 112) and Mumford (2004, 174; 2009, 100) have replied to a rather similar regress posed by Armstrong (1999b, 31; 2005, 313) that the regress rests on the assumption that a disposition is only a potential. If the reality of a disposition resides only in its manifestations and it is never an actuality in its own right, then, they argue, nothing is ever actualized. However, they go on to say, this assumption is wrong: dispositions are real, substantial entities in their own right. Dispositions are real, even if potential, because their potentiality is not to be contrasted with actuality but with factivity (Mumford 2009, 100).

However, this possible reply does not apply to my regress above. The problem in the regress I see resides precisely in the understanding of dispositions as real entities in their own right. Remember that the identity of a real disposition essentially embraces its possible (non-factual, if you prefer) manifestations. But then, if the connection between disposition and manifestation is the causal connection, potential (non-factual) manifestations are real effects, thus requiring “previous” potentialities *ad infinitum*. For whatever it is to be or exist must also be (metaphysically “previously”) possible. If effects equally belong in the potential mode of being, reality is never (f)actual.<sup>5</sup> So the relation between a disposition and its manifestations cannot be the causal relation. Neither is it adequate to say that dispositions only cause their factual or “given” manifestations, but not their manifestations when in a non-factual state; for that would make dispositions nothing but categorical properties. Categorical properties cause certain occurrences; nothing irreducibly hypothetical/dispositional is needed here.

### 3. Third difficulty: substantial causation

More important than the regress is the third difficulty I consider. Those who think of causation as a relation see power realists at the opposite end of the spectrum; blind to the relation itself. For in dispositional terms, causality becomes a substantial form, an exercise of the substances involved in the act of production. One can picture the dispositional world as something like a world of monads where monads incorporate – or in Leibniz’s metaphor, “mirror” – other monads in terms of possible (including actual) facts. This is a world deprived of causal relations.

The relationalist envisages causation as a relation – between natural properties or bundles of them, or between events, or states of affairs, etc. Causation is a link, not a (substantial) act. For the relationalist, the causal “power” resides in the causal relation

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<sup>5</sup> This infinite regress has the form of a Bradleyan regress, where necessary conditions for the accomplishing of each step reside in the “previous” accomplishment. See Bradley (1897, 27-28) for this type of regress applied to relations.

itself, not in its terms: the nature of the *relata* does not consist of their contribution to causation, as happens in the dispositional picture.

For, if the nature of the *relata* is their contribution to causation, that is, if the nature of *c* consists of causing *e*, and the nature of *e* consists of being caused by *c*, then you are bound to lose the relation between *c* and *e*. As Peirce objected (*Notes on Symbolic Logic*, 642) powers finally fail to reveal the relational structure that is ultimately present in the world.<sup>6</sup> If you think of, say, acceleration as the disposition to undergo a change in motion, it is probable that you will miss the relational aspects involved in the change itself.

This is a serious worry. For without a relation, it becomes difficult, or very difficult, to maintain that cause and effect are distinct entities. Distinctness of cause and effect is necessary if there is to be causation. But in realist dispositional theories, all manifestations, actual and possible, belong to the essence of a disposition. In Molnar's view, "each power gets its identity from its manifestation" (2003, 195), or from Mumford's position, "a property's identity is fixed by the (causal) role it plays in relation to other properties" (2004, 171). But if the formal identity of a disposition is provided by its manifestations, then the disposition is not causally related to its manifestations, for they are not distinct entities. It cannot be properly said that the disposition causes its manifestations. In the dispositional picture, causation is pushed into a form, an internal activity of substances. And effects (possible manifestations) are part of this internal activity.<sup>7</sup>

Mumford (1998) replied to this difficulty by claiming that the link between the disposition and its manifestation is a *conceptual* link. The manifestation is, so to say, only used to refer to or describe its disposition; so this does not exclude the disposition being the cause of its manifestation:

[I]f by a disposition term *D*, we mean the cause of *G*-ing upon being *F*-ed, as I claim we do by a disposition term, then it would be nonsense to claim that the cause of *G*-ing upon being *F*-ed was not the cause of *G*-ing upon being *F*-ed because it is logically connected to *G*-ing upon being *F*-ed. (Mumford 1998, 140)

The general idea, I think, is that a disposition is a term we use to refer to a cause by what would be, under given circumstances, its effects. For instance, the term *soluble* is predicated of entities that, under certain circumstances, are caused to dissolve. Solubility is thus equivalent to a definite description, where effects are used to pick out their cause uniquely. However, this reply succeeds only if dispositions are not real, irreducible entities. If dispositions are predicative terms with more or less well-established conditions of meaning, then a disposition term could refer to a cause by pointing at its possible effects. The disposition term would be equivalent to a definite description

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<sup>6</sup> Also noticed by Tiercelin (2007, 96).

<sup>7</sup> Molnar (2003, 195) might say that one manifestation does not make an effect. An effect (a new event in the world) is always the actual result of more than one power, so that effects are not isomorphic with the exercise of a power. Rather, many powers contribute to one effect, for powers can work together or even against each other. However, this clarification, also made by Mumford (2009, 103), does not suffice to make manifestations and dispositions distinct entities, which is what we need here if causality is to be understood as the exercise of (many) powers.

such as “whatever causes  $e$ ”, or “the  $x$  that causally mediates between such-and-such stimulus events and so-and-so manifestation events”, or some other description of the sort with wide scope: a term used to denote the  $x$  that does the causing. The effect and its cause could then be different entities, while disposition terms mean a conceptual link. But this cannot be what realist dispositionalists claim if they want to account for causation in dispositional terms.

If the link between the disposition and its manifestation is conceptual in the sense given above, then the disposition does not cause its manifestations. For to say that a substance has a disposition would be just a way of describing (categorical) properties of the substance by means of their role in a causal fact. If you believe that there are “brute”, ungrounded dispositions, as Mumford does (1998, 133), such a response does not succeed. For a realist, the link between the disposition and its effect (manifestation) cannot be only of the conceptual type described above. To refer to solubility using a definite description that mentions its manifestations is not like referring to Venus by saying that it is the morning star, but like referring to 8 by saying that it is the successor of 7. The realist dispositionalist does not refer to an entity by using a definite but contingent description that mentions its effects or its functional/casual role. Rather, the definition is a formal definition: a definition that captures essential properties of the defined entity. Real dispositions *are* functional/causal properties that substances possess. So a disposition is *what* causes, not just a denoting term for some thing that causes. Its essence consists of its having certain manifestations. If a disposition is ungrounded, to ascribe it to a substance is not just a way of describing a property through its causal role: the causal role is the property. But then, there is no ontological distinction between the disposition and its (possible) manifestations.<sup>8</sup>

Neither does it help to say that “dispositions, it seems, can certainly be said to exist without their manifestations thus pass the test of being distinct entities” (Mumford 2004, 169). Because, even if a disposition can exist despite not being manifested and, when manifested, certainly not all of its possible manifestations are manifested, it is still the case that all its possible manifestations are where and what the disposition is. Solubility is wherever there is possible solution. This is what it is for the disposition to be real, even if non-manifest.

To conclude, if dispositions have a place in the ontological space, possible manifestations are not just conceptual parts of a disposition term. Possible manifestations belong to the *real* definition of a dispositional reality. However, if possible manifestations

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<sup>8</sup> McKittrick (2005) uses the term “The Analyticity Argument” for a common line of reasoning in the literature that concludes that dispositions cannot be causally relevant because disposition terms mean their manifestations: “being fragile” means “being prone to break”. So there is a necessary link between the manifestation and its disposition. But causation is contingent. So dispositions are not causally relevant for their manifestations. In opposition to such reasoning, McKittrick claims that it assumes the more than questionable thesis that causation is contingent. I mention her paper here because the argument I offer in this section should not be confused with the Analyticity Argument, even if mine has as a main premise an ontological reading of the Analyticity Argument’s first premise, namely, that real dispositions include in their essences their manifestations: being fragile is being prone to break. The problem, then, is not the modal link in causation, but that causes and effects are distinct existences.



are part of the real definition of a disposition, i.e., if possible manifestations are part of the being of a disposition, they cannot (also) be its effects. In the dispositional picture, causation is pushed into a form, an internal performance of the substances that possess them, and effects are mere actualizations (manifestations) of this form. But this is not causation, but a facade and a means of slipping in actualization for actual effectiveness.

#### 4. *Fourth difficulty: the loss of asymmetry*

That causality is a relation, and not a dispositional form, is shown by its directionality. Causality is an asymmetric relation: if A causes B, B does not cause A. But the asymmetry of causation is blurred if causation is dispositional activity, because every possibility of action involves at least one possibility of passion – call this the principle of dispositional reciprocity, that governs dispositional activity. For any active power there is a passive power, which is in fact nothing but the same power mentioned twice. As Descartes complained:

That what in respect of a subject is passion, is in some other regard always action. [...] [I]o begin with, I consider that all that which occurs or that happens anew, is by the philosophers, generally speaking, termed a passion, in as far as the subject to which it occurs is concerned, and an action in respect of him who causes it to occur. Thus although the agent and the recipient [patient] are frequently very different, the action and the passion are always one and the same thing, although having different names, because of the two diverse subjects to which it may be related. (*Passions of the Soul*, Art. 1. My italics)

Given reciprocity, it is not hard to see that the action of powers alone does not determine a causal direction. Michon (2007) has also said that manifestations of powers, being events, do not have a direction. Consider Caesar's being stabbed by Brutus. We can describe this one event as an action by Brutus or as a passion by Caesar. We can say that Brutus stabbed Caesar, but that Caesar was stabbed by Brutus. Stabbing is an action when described in relation to Brutus, a passion when described in relation to Caesar. Brutus and Caesar may be distinct realities, but the action-passion is one and the same:

Those expressions are correlative, they are two descriptions of the same reality, as the road from Athens to Thebes and that from Thebes to Athens is the same one, described both ways. (Michon 2007, 141)

As manifestations of powers alone do not suffice for causal directionality, Michon insists that we need real powers themselves: powers to act and powers to be acted upon, in order to define a direction in causation. However, it is dispositions that are really the source of the problem. Consider, for instance, another Davidsonian example: Flora dries herself after a swim in the sea and discovers ugly red patches on her skin. We could say that the irritation to her skin is the result of the power of the towel (to irritate). However, the action of the towel is itself conditional on the power of the skin to be irritated. Which is then the power to act, and which the power to be acted upon?

Or consider sugar dissolving in water. What is the cause and what is the effect in this case? As Mumford says:

[W]hen a dispositional property becomes manifest it also undergoes change e.g. when a sample of sugar manifests its solubility in dissolving it undergoes alteration in molecular structure which results in the *solubility being lost*, i.e. sugar in solution can no longer be said to be soluble. Similarly, an explosive substance may not be explosive after it has been exploded. We can say that a *disposition manifestation involves some change involving the dispositional property*. (Mumford 1998, 127, n. 12. My italics)

But then, the manifestation (the effect) is, in turn, a disposition to change the disposition (its cause). The asymmetry, in purely dispositional terms, is lost. Nothing in the idea of power itself distinguishes the (causal) action from its result. One could say with Martin (1996) that in dispositional terms, causes and effects become mutual manifestations of reciprocal disposition patterns – another way of stating the loss of asymmetry.

The loss of asymmetry is a direct consequence of the loss of the relational character of the causal fact. For, if causation is finally explained in terms of the dispositional activity of things, causality becomes an internal relation, as we have just seen. But internal relations are not real relations, and consequently they lack asymmetry.

Suppose that A is the cause of B. In dispositional terms, this can be rephrased as: A has the property of causing B. So there is something in A in virtue of which its relation to B is explained. A has a character which we express by mentioning B. It is like loving God. One can love God even if God does not exist. That is to say that loving God is internal.

Now, causation is asymmetric. If A causes B, B does not cause A. But if you attempt to express the asymmetry of the causal relation of A to B by means of adjectives of A (and B), you will face some difficulties. As in Michon's proposal just mentioned, you might say that the property of A is "active" (and the property of B "passive"), but that will not help. For how can one support a direction in this distinction without the asymmetry of causation itself? You will have to go on to say that active and passive are such that if A is active to B, then B is not active to A (and that if B is passive to A, then A is not passive to B), so you will have found no escape from the relation. And if you adopt the strategy of regarding the relation as a property of the whole, composed of A and B, you are in a still worse predicament, for in that whole A and B have no order and therefore you cannot distinguish between "A is the cause of B" and "B is the cause of A". There is no way you can express the asymmetry of the relation without an element that is external to the relata. This is, almost literally, Russell's argument (1906/7, 42) against the possibility that internal relations are able to define a direction.<sup>9</sup>

To conclude then, if a given relation is asymmetric, it is real and non-internal. Causation is asymmetric. So causation is not a disposition to be manifested, nor is it the (possible) manifestation of a disposition.

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<sup>9</sup> Russell did not apply this reasoning to causality because he believed for a time that causality was not real but should be explained in Humean, spatio-temporal terms (Russell 1910).

### III. *A fruitful possibility as opposed to a false choice*

“Dispositions and powers supply the world’s necessity and possibility through being intrinsically modal: affording, grounding and instigating change”, writes Mumford (2004, 168). Dispositionalists claim that they can accommodate the important fact that modality is an ingredient of our world; and this, they add, is something only they can offer. So they often present their view as the metaphysical opposite of a wholly disconnected vision of the world, or mosaic. Thus, they tell us, *either* you believe in dispositions – in the powers of things in the world – *or* you profess some kind of Humeanism that is incapable of grounding the modality we encounter in our world. This, I claim, is a false choice.

There are many ways of presenting the choice, but the dilemma put forward by Ellis is particularly apposite, because of its explicitness. He writes:

[If dispositions are not real] *either* we must buy the whole Humean package, and deny the existence of natural necessities altogether, *or* we must find a basis for them in some reality other than actual reality. (Ellis 1999, 25. My italics.)

That is, if our world is not dispositional in character then, either (first horn): there is no necessity in the world and classic Humeanism is the correct picture; or (second horn): modality must be based on realities/worlds other than the actual reality/world. However, in this latter case, modality would not belong with the entities of our world. This is also Jacobs’s (2010) complaint: if you propose possible worlds – concrete or abstract, as you like – modal properties would not be properties of any entity in our world; in modal discourse you would be changing the subject. In short, the conclusion the dilemma leads us to is that without dispositions our world cannot be a modal world.

Such a conclusion is obviously wrong. First note that you can buy into the whole Humean package and also accept the second horn of Ellis’s dilemma – so Ellis’s dilemma is not a true dilemma. David Lewis accounts for modality in terms of possible realities other than our actual reality; Lewisian worlds are places where all possible facts occur, and our world is just one among all the possible worlds. Thus, in this picture, the basis for modality is not in our world, but modality spreads over relations of similarity between wholly distinct and physically disconnected realities, just as the second horn demands. Yet this Lewisian model of modality is a Humean model where everything that is logically possible is possible, as the first horn claims, it is just that many of these possibilities occur very, very far away instead of being merely conceivable by some capable mind. The two horns then converge into the same choice: either you are Humean and, thus, incapable of accounting for a properly modal world, or you go dispositionalist.

Note secondly, however, that it is not true that Humeanism denies modality in our world; for Humeans accept that every natural fact in our world is *intrinsically* contingent. They believe in “contingency *in re*”, to borrow a phrase from Armstrong. Moreover, things would have more “capacities” in a Humean world than in a world where possibilities are also kept within the bounds of metaphysically or physically necessary constraints. For in an intrinsically contingent Humean world, only logic restricts the

behaviour of things or the changes they can undergo. Possibilities are then broader in scope in a Humean world than in a dispositional world.

To put it in a different way, it is just false that a world without dispositions is a world without modality. The choice between a dispositional-world on the one hand, and a non-modal-world on the other, is a false choice. Few philosophers, if any, would deny that modality is an ingredient of our world. There are modal facts; most philosophers believe that there are contingent facts, and a few also believe that there are necessary facts. Dispositionalism creates the illusion that to accept metaphysical modality we must accept a special kind of properties of things; properties whose identities are (partly) potential. But it is not true that to accept that some facts are possible, one must also accept that there are actual potentials. For in fact, potentiality does not add to the explanation of modality; it merely bestows a different mode of being on it.

When centring the question on the so-called “Humphrey Objection” to the possible worlds model of modality, Jacobs (2010) identifies the disagreement between Humeans and dispositionalists as the impossibility of accounting for natural modality in Humean external terms, as opposed to an account of modality in dispositional internal terms.<sup>10</sup> Again, we are forced to make a (false) choice between Humeanism and the existence of natural modality in the world, but Jacobs’s explicit introduction of the externalism that dominates any Humean account illuminates the path towards a more helpful discussion. For the real question is not whether Humeanism can account for modal facts, but whether *externalism* can. Humeanism, I think, is just the proof that externalism allows for natural contingency. (I do not really believe that anybody is denying that a Humean and wholly contingent world is a consistent conceptual possibility.) The hard question is whether externalism can provide an answer to natural necessity. That is, the most profound question is whether there can be metaphysically *necessary relations* between distinct existences in the world. Dispositionalists maintain that there cannot be. Humeans claim that there cannot be. Necessary relations reduce to logical identity.

This claim, the claim that there are no necessary connections between distinct existences, has remained unquestioned since Hume. It is unquestioned by dispositionalism because, as I have tried to show, in dispositional terms, necessary connections, such as causation, lose their *relational* character. In dispositional terms, causation becomes a form, a (possible) action of powerful substances. Dispositional causality is *not* a relation between distinct existences in the world.

The question remains: could there be metaphysically necessary relations between distinct existences in the world? At the very least, it could be a fruitful possibility, for if such were the case, one could claim that there are genuine modal facts in our world without looking elsewhere and without introducing potentialities into the ontology. Now, this possibility – the possibility that there are natural necessary relations between distinct existences – is open to anyone who accepts that essence is not iden-

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<sup>10</sup> Jacobs quotes, and further develops, Kripke’s famous complaint that while Hubert Humphrey no doubt cared about whether he would have won the election if he had done something differently, he “could not care less whether someone else, no matter how much resembling him, would have been victorious in another possible world” (Kripke 1980, 45, n. 13).

tity.<sup>11</sup> For if essence is not identity, then existents could have necessary relational properties that do not belong to their essences and thus enter into necessary but external relations. A necessary but external relational property, *R*, of *x* would be necessary in the sense that anything not having *R* would not be identical to *x*. And *R* would be external in the sense that *R* does not belong to the essence of *x*.

An example of *R* could be the relation between an entity and its material origin, if it has one, and if Kripke (1977; 1980) is right in asserting that material origin is necessary. If *A* has origin *B*, it is necessary that *A* has origin *B*. Necessarily, any *x* that does not have material origin *B* is not *A*. It is impossible for the same table to be made from another chunk of matter. Being made from this chunk of matter is a necessary relational property of this table. But the entity and its material origin are distinct things. The same table could go on existing even though all its material parts have, through the years, been substituted by new ones. As Kripke explicitly acknowledges: “The question whether the table could have changed into ice is irrelevant here. The question whether the table could originally have been made of anything other than wood is relevant” (1980, 114-115, n. 57). But if entities can go on existing in time when all their original material has been replaced, origin is not one of their essential properties, because no thing can go on existing in time without its essence: without being what it is. Thus the relation between an entity and its material origin is external, but it is also necessary.

Another example would be the relation between a trope and its bearer, in theories such as those of Moreland (1985), Mertz (1996) or Molnar (2003) where tropes are individuated by their bearers. If the individual white of this page is the individual it is because it is the white of this page, then the white of any entity other than the page is another trope. So the relation between the white trope and this page is necessary. But belonging to this page is not an essential property of the trope: it is not part of what the individual white is that it belongs to this page.

Equally, it might be necessary that salt dissolves in water, as Bird (2001) has maintained. So it is impossible that anything that does not dissolve in water is salt. But it is not an essential property of salt that it dissolves in water. It is not part of the *what* that is salt that it dissolves in water, even if its chemical structure is such that salt necessarily behaves in this way, under certain conditions.

In summary, it is just false that a world without dispositions is a world without modality, and thereby that anyone believing in a modal world should make a choice between Humeanism and dispositions. The real question is not whether Humeans can account for modality, but whether the thesis that there are no natural necessary relations can be challenged. If it can be challenged, then the path is open for a view of causality without dispositions.

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<sup>11</sup> Fine (1994) and Bird (2007), for example, have argued that essence is not identity, though they do not draw the consequences that I draw here from such a thesis.

*IV. Singular causation without dispositions: a sketch*

There are no necessary relations that hold between distinct singular existences. That is one of the main premises in the Humean argument against the reality of causation, and this main premise has survived unquestioned in most attempts to save causation in opposition to Hume.<sup>12</sup> Attempts have been made that hypothesize the existence of natural laws, that is, relations of nomic necessitation at the universal level. But then the local, particular establishment of a causal relation between singulars is not a matter of what is going on within the causal fact itself, but causation becomes universal<sup>13</sup>. Other attempts propose dispositions. But then, I claim, causality becomes a form, an internal relation or activity of powerful substances. The relation itself is, consequently, lost.

To recuperate singular relational causation, i.e., causation without laws and without dispositions, one should make sure, first, that there are real relations that hold somewhere in the world. The best option for this seems to be, as Armstrong (1999a, 176) puts it, “a genuine two-term relation of singular causation holding between cause and effect.” This is the relation that was missing in the dispositional account. However, secondly, one should also declare the main thesis of the Humean doctrine to be wrong, and make room for metaphysically necessary relations that hold between distinct entities. If there are metaphysically necessary relations between distinct entities, then causation will certainly be among them. For necessity in causation is indispensable if causation is to be something more than a spatio-temporal relation, and it would also dispense with nomic relations, of some necessitating kind, between universals. The result would read:

If  $c$  causes  $e$ , then there is a relation,  $R$ , that holds between  $c$  and  $e$  such that  
 $(x) (\neg Rxe) \text{ entails } (x \neq e)$ .

$R$  would then be a necessary relation, for anything not standing in  $R$  to  $e$  would not be  $c$ . But  $R$  could also be external if  $R$  is not essential to  $c$ . Thus, the necessity would belong to the relation itself, not to the related entities, which is good. For one could claim that causality is a metaphysically necessary relation without assigning gratuitous essential properties to substances. One could say, for instance, that a cluster of properties that water and salt usually possess, necessarily cause salt to dissolve in water, without making the disposition to dissolve/be dissolved an essential property of water/salt. And if one agrees with probabilistic causation, probabilities would also belong in the establishment of the relation; they would not convert into propensities of the substances that happen to possess the probabilistically related entities.

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<sup>12</sup> For an analysis of the role of this step in the Humean argument see García-Encinas (2003).

<sup>13</sup> Mumford (2005) also argues that it would become external to singular facts as well.

## V. Conclusions

I have argued that any possible account of singular causation in realist dispositional terms contains serious difficulties in its metaphysical foundations, in short, any difficulty that an internalist view of causality would contain. I have also argued that the main advantage of dispositionalism, the alleged better position it is in for accounting for a modal world, is misrepresented as being purely anti-Humean. For there is an open, but as yet unexplored, third, non-Humean and non-internal way, that involves necessary though external relations. If causality is understood as a necessary but external relation, a more fruitful picture of causation emerges; one without laws and without dispositions.

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