A powers theory of modality—or, how I learned to stop worrying and reject possible worlds

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Abstract

Possible worlds, concrete or abstract as you like, are irrelevant to the truthmakers for modality—or so I shall argue in this paper. First, I present the neo-Humean picture of modality, and explain why those who accept it deny a common sense view of modality. Second, I present what I take to be the most pressing objection to the neo-Humean account, one that, I argue, applies equally well to *any* theory that grounds modality in possible worlds. Third, I present an alternative, properties-based theory of modality and explore several specific ways to flesh the general proposal out, including my favored version, the powers theory. And, fourth, I offer a powers semantics for counterfactuals that each version of the properties-based theory of modality can accept, *mutatis mutandis*. Together with a definition of possibility and necessity in terms of counterfactuals, the powers semantics of counterfactuals generates a semantics for modality that appeals to causal powers and not possible worlds.

1 Introduction

I think that I might have been a truck driver, even though I never have been one, am not now one, and, if all goes according to plan, will never be one. And I think there are all sorts of things that might have been the case but are not in fact the case. What makes such mere possibilities possible? In virtue of what is it true—or, as we might say, what is the truthmaker for the fact—that I could have been a truck driver?

Here's a natural answer, a common sense answer, perhaps. I might have been a truck driver because I have the right sort of height, weight, vision, strength, and so on, and because trucks are put together in a way that people with the right sorts of height, weight, vision, strength, and so on, are

capable of driving them. Given that I and the trucks around me have the features that we do, I was at some point able to do something that would have led to my being a truck driver. We philosophers might put it this way: In virtue of having certain properties, I had or have certain capacities, potentialities, dispositions or powers that, when exercised in a certain way, would have causally brought it about that I am in fact a truck driver.

That's a natural answer, an answer that fits well with our intuitive view of the world. But many contemporary metaphysicians deny it. In particular, those who accept the neo-Humean metaphysic give a fundamentally different answer, one that appeals to alternative, possible worlds. In this paper, I do four things. First, I present the neo-Humean picture of modality, and explain why those who accept it deny the above, common sense view of modality. Second, I present what I take to be the most pressing objection to the neo-Humean account, one that, I argue, applies equally well to *any* theory that grounds modality in possible worlds. Third, I present an alternative, properties-based theory of modality and explore several specific ways to flesh the general proposal out, including my favored version, the powers theory. And, fourth, I offer a powers semantics for counterfactuals that each version of the powers theory of modality can accept, *mutatis mutandis*. Together with a definition of possibility and necessity in terms of counterfactuals, the powers semantics of counterfactuals generates a semantics for modality that appeals to causal powers and not possible worlds.

Before I turn to those tasks, a few preliminaries. First, I assume the typical distinction between an abundant and sparse conception of properties. Following Lewis, I shall call the abundant properties non-natural ones, and the sparse, natural. The "sharing of [the perfectly natural properties] makes for qualitative similarity, they carve at the joints, they are intrinsic, they are highly specific, the sets of their instances are *ipso facto* not entirely miscellaneous, there are only just enough of them to characterize things completely and without redundancy" (Lewis, 1986).

I also assume a form of truthmaking theory, according to which truth is determined by reality. It posits a basic relation of truthmaking that holds between bits of the world and truths. Typically, the relation is cross-categorial, relating objects to truths. And it is a many-many relation, unlike, say, correspondence, so that one entity can make multiple truths true and one truth can have multiple truthmakers. I assume the relation is necessary, so that if some entity, e, is a truthmaker for some truth, t, e is a truthmaker for t in any world in which both t and e exist. Finally, I assume a limited form of truthmaker maximalism, so that every truth regarding concrete

objects and their properties has a truthmaker.[1]

2   The neo-Humean view of modality

The central tenet of neo-Humeanism is the doctrine of Independence: There are no necessary connections between distinct existences. Consider a snapshot of some specific moment in time. The world at that moment is made up of things having properties. It is, in that sense, like a three dimensional mosaic or pointillism painting, each point in the mosaic having some color. The neo-Humean must construe the property instances, the colors, in a way consistent with Independence. A property instance at some point cannot entail anything about any other point. Similarly, the property instances may be related to each other in various ways, but those relations must satisfy Independence. Whatever glue holds the world together, it cannot be too strong.

   In fact, arguably the most widely accepted version of neo-Humeanism takes it that the only connections added are spatial and temporal relations. Everything else—every other truth about the world, including causal, nomic and modal truths—supervenes on the spatio-temporal distribution of those local property instances.[2] Thus the vast mosaic that is this world is intrinsically de-modalized according to the neo-Humean. No property instance, even with the spatio-temporal relations it enters into, can entail anything, *by itself*, about what might or might not, must or must not happen with any distinct property instance.

   Because of this, the defender of Independence who thinks there are genuine modal facts about the world is forced to look elsewhere, beyond the concrete actual world and its inhabitants, for truthmakers for modality. In addition to this world, there are many other, merely possible worlds. Though I am not a truck driver in this world, I could have been because in some possible world, I am one. Famously, David Lewis thought of possible worlds as of the same kind as the actually existing mosaic. He was happy with desert landscapes, so he added *more* of them. But there must be enough of

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[1] For a discussion of these issues, see, for example, Armstrong (2004).

[2] Lewis (1994), the most forceful defender of this thesis, calls it Humean Supervenience. One must be careful here. The property-based theorist may very well agree that modal, causal and nomic facts supervene on the distribution of properties in the mosaic. After all, as we shall see, the properties-based theorist conceives of properties as somehow involving such facts *in their nature*. The Humean Supervenience thesis, instead, claims that all truths supervene on the spatio-temporal distribution of local property instances *conceived of as consistent with Independence*.

them to account for the plenitude of possibilities. For every way things could have been, there must be some concrete world where things are that way. Lewis accomplishes this by stipulation, but it is a stipulation motivated by Independence. The principle of recombination asserts, roughly, that anything can coexist with anything else, and anything can fail to coexist with anything else.

Lewis is perhaps the only philosopher to believe in the existence of the totality of Lewisian worlds. Nearly all those who accept the existence of merely possible worlds think of them, instead, as abstract representations of the world. A possible world where there are talking donkeys, on these "ersatz" views, is not something with a concrete, talking donkey as a part, but rather something that represents reality as having a concrete, talking donkey as a part. There are of course *many* such abstract representations, infinitely many. One of them accurately represents the way things really are, and we call that one the actual world and the others, merely possible worlds.[3]

Modal claims, whether one accepts Lewisian or ersatz worlds, are simply quantifications over possible worlds. $\Diamond P$ is true if and only if there is some possible world in which P is true, and $\Box P$ is true if and only if P is true in every possible world. Restricted modal claims, about, say, nomic or metaphysical necessity and possibility, are restricted quantifications over worlds, where we consider only those worlds relevantly like ours in some way. Similarly, modal claims about individuals are restricted quantifications over parts of worlds. (If individuals are world bound, then modal claims about individuals are restricted quantifications over counterparts, individuals that stand in our stead in other possible worlds.)

Restricted modality, then, requires comparative similarity relations across worlds and parts of worlds. Such similarity relations are inherently vague and context sensitive, and so restricted modality inherits this context sensitivity. Since reasoning about counterfactual scenarios—what would have happened had such-and-such been the case—is a type of reasoning about modality, the neo-Humean accounts for their truth in much the same way: in a world where P and Q are false, $(P \;\Box\!\!\rightarrow Q)$ is true just in case some world where P and Q are true is more similar to the actual world than is any world where P is true and Q is false.

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[3]The precise nature of these abstract representations, and therefore how it is that they represent, varies from theory to theory. See Plantinga (1974); Stalnaker (1976); Adams (1974); Sider (2002) for some alternatives. It is not clear that a neo-Humean can accept just any of the ersatz worlds, since the worlds and the ways they represent might violate Independence, but I shall ignore this worry for present purposes.

3 Changing the subject

On standard versions of neo-Humeanism, the property of possibly being F is *identified* with having some counterpart that is F. For Lewis, my counterparts are concrete objects, whereas for others they are abstract. It is facts about these counterparts, their features and relations to other things, that ground modal facts about me and you.

A common complaint against such a view is that it *changes the subject*.[4] We were talking about whether, say, I could be a truckdriver, but now we are talking about some other object (abstract or concrete as you like) and its features. Kripke (1972) famously complained 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."[5]

This way of putting the objection is a bit quick. After all, according to the counterpart theorist, we are talking about a property of Humphrey's when we talk about the having of a counterpart who wins. As Lewis (1986) puts it, "thanks to the victorious counterpart, Humphrey himself has the requisite modal property: we can truly say that *he* might have won." Since we may be mistaken when we think that some property of ours is constituted in such-and-such a way and the neo-Humean is offering an *analysis* of the modal property, it should come as no surprise that we might be mistaken about its nature. This is just, according to Sider (2003), a result of the "paradox of analysis."

But the complaint does get at something very important: the suitability of the *analysans*. Merricks (2003) formulates the objection this way when he argues that none of the offered reductions of possibilia within a counterpart theoretic framework, such as the set theoretic constructions of Sider (2002), are intrinsically suited to do the job. Since my modal properties are properties of *me*, the reductive base must somehow be appropriately linked to me. Abstract counterparts are linked to me by *representing* me as having certain properties. But, as Merricks says, sets don't objectively represent anything. "A set just sits there." To say that my possibly being a truck

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[4]There are other, serious problems with counterpart theory that I will not address. Of particular note are the problems raised by Fara & Williamson (2005). If counterpart theory is to capture the richness of our ordinary modal language, it will need an actuality operator in its language. Fara and Williamson display the difficulties in doing so. For an attempt at a response, see Sider, "Beyond the Humphrey Objection" (manuscript).

[5]Plantinga (1974), among others, makes a similar complaint.

driver just is a certain set of linguistic items, according to Merricks, is akin to saying that my possibly being a truck driver just is a yawning cat. It matters not whether the yawning cat exists; it simply isn't the right sort of thing to do the job.

Sider (2001) conceives of the suitability of counterparts for reducing *de re* modality slightly differently. Rather than intrinsic representation, he considers structural fit to be the identifying feature of counterparts. Our use of *de re* modal language has a certain structure, licensing certain inferences and not others. And according to Sider, the structure of our modal language fits the semantic structure of counterpart theory. Our *de re* modal language refers to counterparts because we use our language in such a way that it looks like we're referring to counterparts.

But clearly structural fit is not sufficient, either. After all, if there were sufficiently many yawning cats, yawning in ways that are different in some respects but similar in others, and we could define some relations across the yawning cats that behaved in ways sufficiently similar to how our inferences about *de re* modality behaved, *de re* modality would still not be about yawning cats. If it turned out that nothing else existed but the yawning cats that was structurally similar to our *de re* modal talk, the correct response would not be that, since close enough is good enough, we should identify *de re* modality with yawning cats. The correct response would be to adopt an *error theory* of modal discourse. If set theoretic constructions of linguistic entities exist and features of them are structurally similar to our *de re* modal talk, it would be just like the yawning cats. It would be very interesting that such a structure existed, but it would seem to have nothing to do with *de re* modality. Counterpart theory, in short, still changes the subject.

But the argument is fully generalizable; it tells against any theory according to which possible worlds are the truthmakers for modality. Not everyone who offers an account of possible worlds intends to be offering truthmakers for modality.[6] But for those who offer possible worlds as truthmakers for modality—even if the theory is not reductive—the above objection to counterpart theory applies equally well.[7] Possible worlds are just not the sorts of things that could ground modality; they are not suitable truthmakers.[8]

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[6]Plantinga (1974), for example, is not offering truthmakers for modality.

[7]Though see McDaniel (2004) for a possible exception.

[8]Compare Roy (1993): "Arguably, unless the way other worlds (whatever they may be) are is somehow connected to the actual world, the other worlds will turn out to be irrelevant to modal truths about things in the actual world," Fitch (1996): "If there are any worlds of the sort Lewis describes, their existence seems irrelevant to the analysis of our concept of possibility," and Jubien (2007): possible worlds "cannot reasonably be

Suppose you were told that somewhere deep in the rain forest is a book that includes a story about you and your truck-driving ways. I doubt that you would be inclined to think that that story, that book, is the reason you could have been a truck driver. You would rightfully respond to such a theory with an incredulous stare. But being informed that it's not literally a story, and that it's not actually written in a concrete book, and that it's not located in the rainforest (or anywhere else, for that matter)—that is, being informed that the story is instead an abstract object—should serve only to make you more, not less, incredulous.[9] It is, indeed, puzzling why anyone would think that abstract representations of me, even if there are such things, *make it true* that I could have done such-and-such or couldn't have done thus-and-so. That modality is primitive does not entail that it is best thought of as a primitive property of *representations*.

In fact, Lewis's concrete worlds seem *better* suited in this regard.[10] When I learn that a man very much like me drives a truck, I thereby gain evidence for the fact that I can drive a truck. I do not similarly gain such evidence when I learn that there's a story about a person much like me, and that the story includes his driving a truck—even if I'm then told that the book in which the story occurs has a diamond on the back of it marking it as *possible*. The point is, of course, epistemic, but it hints at a metaphysical point. It suggests that we ought to look for the grounds of modality, not in possible worlds, but in whatever grounds facts of *similarity*. My concrete counterpart's driving a truck is relevant because we are similar. He is not relevant in virtue of being in an alternative possible world, but because we have the same properties, capacities, and powers, and people like that can drive trucks.

The above objection to possible worlds as truthmakers for modality is clearly not a refutation; no such appeal to intuition is. But it does make one wonder if—indeed, hope that—a better alternative is available, one that fits with the common sense answer about truthmakers for modal truths with which we started. If such a view is available, and if it can be made out in a coherent and theoretically workable way, then it is worth taking seriously. I now turn to presenting such an alternative, the properties-based theory of modality.

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thought to be relevant to modality as we typically take it, and their irrelevance was merely veiled by the decision to call them possible worlds."

[9]Mondadori & Morton (1976), Roy (1993), and Jubien (2007) make similar arguments, with differing targets and to differing effects.

[10]Conversation with Tim Pawl and Scott Berman helped me see this point.

4 The properties-based theory of modality

Let's return to the commonsense view of modality with which we began. I could have been a truck driver because I have the right sort of height, weight, vision, strength, and so on, and because trucks are put together in a way that people like that are capable of driving them. *Because of the properties I have*, and my powers, capacities, or dispositions, I could have initiated a chain of events leading to my actually driving a truck. This is, of course, the same basic view suggested by the anti-possible-worlds argument just considered. The reason my concrete counterpart's driving a truck (if such there be) is relevant to modality is precisely because we share the relevant properties. Hence the possibility itself is grounded in *properties*—ordinary, everyday properties like height and weight[11]—and relations between them.

Notice, however, that even at this very general, informal level of description, the neo-Humean cannot agree. The properties that I (and my surroundings) have are not sufficient to ground all modal truths according to neo-Humeanism; if they were they would violate Independence. One must look to the overall distribution of properties both in this and in other, similar possible worlds to ground modal truths. (It is not for no reason that the neo-Humean needs possible worlds.)

Hence the theory of modality under consideration denies Independence. Properties and the relations between them introduce modal connections in the actual world (in some as yet unspecified way). The world is not ungoverned, as the neo-Humean world is; it is *self-governed*. It unfolds as it does and includes the possibilities and necessities that it does because of the way it is intrinsically. The view is non-reductive, for the properties (or the relations between them) are intrinsically modal. The view is a strong form of actualism, since all of modality is part of the fundamental fabric of the actual world. Indeed, possibilia and possible worlds don't even enter the picture.

Let's speak, in a general and quite abstract way before moving to specific versions, of properties P and Q and the modal relation R between them. P might be *is a horse*, Q, *is an animal* and R, *entails*. Or perhaps P is *is a smoker*, Q, *has cancer*, and R, *necessitates* (or *probabilifies to degree x*). Or perhaps P is *is negatively charged*, Q, *repels negatively charged particles with such-and-such force* and R, *is a power for*. Consider all the true claims of the form R(P, Q): Being a horse entails being an animal; smoking necessitates

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[11]This is independent of issues concerning what natural properties there are. If height and weight and so on reduce to natural, microphysical properties, it is such micro-physical properties that ground modality.

(or probabilifies to degree x) cancer; negative charge is a power for repelling other negatively charged particles with such-and-such force; and so on.

Taken together, all such true claims represent the property structure of the actual world, a web of inter-related properties as it were. The properties-based theory of modality, and all of its specific versions, hangs all of modality on this structure of properties. Some proposition or truth-bearer, T, is possibly true just in case there is some actual property P (or some collection of properties) connected by R to some other property Q (or collection of properties), such that Q is a truthmaker for T, or there is a chain of such connections. To make this abstract proposal more concrete: It is possible that I am a truck driver because there are actual properties that I have, *height x*, *weight y*, and so on, and there are actual properties of trucks, and all those properties together are related by R to the property *driving a truck*.

The precise details of the view differ according to how properties and the relations between them are conceived. In general, the properties-based view grounds all of modality in properties and their inter-connections, however properties are conceived.[12] Explicit defenders of versions of the properties-based view include Mondadori & Morton (1976), Roy (1993), Pruss (2002), Jubien (2007), Martin (2008), Williams & Borghini (2008), and Contessa (Forthcoming). Arguably, other defenders of such a view include Fine (1994),[13] Correia (2006)[14] and Simchen (2006).[15]

So far I have restricted my attention to what all properties-based theorist hold in common. I turn now to what separates them. We can distinguish broadly two versions of the properties-based theory, which I shall call the Platonic and the Aristotelian versions.

4.1 A Platonic theory

According to a Platonic version of the properties-based theory of modality, as Jubien (2007) puts it, "modality has to do with relations involving

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[12]But do not confuse such properties with the world properties of Stalnaker (1976). The properties that ground modality according to the properties-based theory are normal properties of concrete particulars and the relations between them. As Mondadori & Morton (1976) put it, "modal properties are not in their nature different from any other properties."

[13]"The metaphysically necessary truths can then be identified with the propositions which are true in virtue of the nature of all objects whatever."

[14]"It is metaphysically necessary that p iff there are some features ϕ, ψ, ... such that it is true in virtue of what it is to ϕ, what it is to ψ, . . . that p."

[15]It is possible that there be ϕs, though in fact there aren't any, because "[i]t is possible that some plurality of things in the past, under suitable counterfactual conditions, give rise to novel instances of ϕ by way of generating them."

the abstract parts of the world, specifically with relations among (Platonic) properties."[16] Platonic properties are abstract, not existing in space and time. And concrete particulars are said to have a property when they enter into some relationship—instantiation, participation, or what-have-you—with the Platonic properties, which are, in some sense, independent of the concrete objects that instantiate them.

Jubien calls the modal relation between properties *entailment* but expresses "no opinion about [its] ultimate nature." Its features are equally captured by a necessitarian version of what D. M. Armstrong calls the necessitation relation. Swoyer (1982), for example, thinks that properties are necessarily linked by the necessitation relation, and the holding of such a relation constitutes a necessary law of nature.[17] The modal relation between properties might also be captured by the relation of manifestation that holds between fundamental dispositions or powers and their possible manifestations. Bird (2007), for example, posits such a Platonic relation. While neither Swoyer nor Bird put the relation between properties to work in a theory of modality,[18] they seem to be capturing the same relation as Jubien's *entailment*, and hence one who accepts their view of laws of nature and dispositions, respectively, might find the Platonic theory of modality attractive. If one already has such a rich modal structure of properties in place, one may as well put them to work grounding modality.

The decision to regard properties as abstract does not force a decision regarding their number or frequency. Jubien regards them as abundant, and hence can use such properties as *being that specific entity* in his account of modality. Bird, on the other hand, is interested in only the natural properties, whatever those turn out to be. Nevertheless, both can accept uninstantiated properties as entities that exist in the actual world. This is important for the theory of modality, because all possible (natural or non-natural) properties actually exist and hence are part of the property structure on which modality hangs. It seems as if there might have been properties that never were, are not, and never will be instantiated in our world, what Lewis calls "alien properties." The Platonic theory has no problem accounting for such alien possibilities, since the alien properties actually exist.

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[16]Compare Roy (1993): "the truth values of modal statements are determined relative to the actual structures of nonmodal properties."

[17]See also Fales (1993).

[18]Bird (2007) says that because dispositions involve modality, this "opens up the possibility of a dispositional account of modality... [D]etails await development." I aim to herein provide those details.

A further issue for the Platonic theory is the source of the modal strength of the relation between properties. In virtue of what is it true, when it is, that smoking necessitates cancer? Jubien claims that it is true in virtue of the intrinsic nature of the properties so related. The relation "holds between the two properties strictly as a result of their individual intrinsic natures." If that it is so, then it appears the relation between the properties is not needed to do the structuring; the properties themselves suffice to fix the structure.[19] Alternatively, one might take the source of the modal strength of the relation to lie in the nature of the relation itself, as Fales (1993) does. On the former view, the properties themselves are intrinsically modal. On the later view, properties get their modal nature imposed upon them by the genuine, substantive relation that holds between them.

The downsides to the Platonic theory, if there are any, lie in its *Platonism*. Abstract objects are often thought to be mysterious, and it is not clear how bearing a relation to an abstract object can be relevant to what a concrete particular is like intrinsically and how it behaves. But it is not the goal of this paper to settle the family dispute between Platonic and Aristotelian versions of the properties-based theory of modality. I therefore turn to the Aristotelian version.

4.2 An Aristotelian theory

According to an Aristotelian version of the properties-based theory, modality is grounded in the nature of Aristotelian properties. Such properties are constituents of concrete particulars that have them, and hence are located in space and time. According to Martin (2008), they are tropes, and so while they are spatio-temporally located, they are not *multiply* located. An Aristotelian might, instead, follow Armstrong (1997) in construing properties as universals, wholly located at each of their instances. Whichever version one accepts, such properties in some sense depend on the concrete particulars that instantiate them for their existence, and so uninstantiated properties do not exist.

The basic idea of the Aristotelian theory of modality is that properties are, or in some sense involve, powers, capacities or dispositions.[20] The

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[19]Hence it would seem incorrect to say, as Jubien does, that the resultant view is a "governance" conception of modality. Properties are not governed from without by the relation between them; they are self-governed from within by their own natures.

[20]Versions of this view of properties are defended by, among others, Shoemaker (1980, 1998), ?Martin (2008), Ellis & Lierse (1994), Ellis (2001), Molnar (2003), Mumford (2004, 2007), Heil (2004, 2005), and Bird (2007).

source of powers is not the laws of nature, nor is it alternative possible worlds; it is the powerful nature of the ordinary properties of concrete particulars. Properties, in this way, are powers *for something*. They point beyond themselves. Electric charge is the power to repel other negatively charged particles. Electrons have that power actually, whether or not it is ever manifested. Their having the power does not involve being related to some mere possibilia, say, the unactualized state of affairs of *this* electron being repelled with such-and-such force. Such possibilities are, rather, metaphorically written into the nature of negative charge. Below I present a specific version of what such a theory of properties might look like.

The powerful properties that there are determine a power web, or dispositional net, on which the Aristotelian hangs all of modality. Those explicitly adopting this conception of properties in a theory of modality are Pruss (2002), Martin (2008) and Williams & Borghini (2008).[21] According to Pruss, a "non-actual state of affairs is possible if there actually was a substance capable of initiating a causal chain, perhaps non-deterministic, that could lead to the state of affairs that we claim is possible." Similarly, Williams & Borghini claim that "[i]f the world contains some disposition such that its manifestation is the state of affairs S, then S is possible." Let us say, then, that on the Aristotelian theory, some proposition or truth T is possible just in case there is some actually instantiated property (or property complex[22]) that is a power for some other property (or property complex) that would be a truthmaker for T. (Alternatively, T is possible if there is some property that is a power to bring about a property that is a power to bring about a property ..., that would be a truthmaker for T).

4.2.1 Aristotelianism and the plenitude of possibility

If the Aristotelian account of modality is correct, the range of possibilities seems drastically limited. Uninstantiated universals do not exist, but surely there could have been *different* properties that behaved slightly or even radically different than the properties actually instantiated in this world. Surely there are possibilities that involve alien properties, properties that never were, are not, and will not be instantiated. How might the Aristotelian reply?

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[21]While Fitch (1996) defends a view he calls Aristotelian actualism, his view invokes possible worlds and hence does not count as Aristotelian in my sense.

[22]Typically, it will be a property complex or collection of properties. If they are capable of jointly exercising their powers in such a way that would bring about A, then A is possible.

Pure Aristotelianism A pure form of Aristotelianism would reject the intuition that such things are possible. After all, it is only in the grips of a neo-Humean view of the world that one should regard necessities as mysterious. Under the influence of Hume, it is perhaps easy to think that contingencies come for free, but necessities have to paid for. But once one rejects the underlying assumption of Independence, it is no longer clear why such a view would be plausible. Contingencies must be earned, too. For all we know the laws of gravity might be written into Being itself.[23]

Williams & Borghini argue that to suppose we know what possibilities there are and that any theory of modality must accommodate those possibilities is to get the cart before the horse. It is the nature of the actual properties there are that determines the scope of possibility, not the other way around. "Why does it seem so offensive," they wonder, "that some conceivable states of affairs should turn out to be metaphysically impossible?"

It is important to note, however, that even a pure Aristotelianism can accept alien possibilities, so long as they are grounded in the nature of actually existing properties. It may be that some actually instantiated property P is the power for another property Q, but because no object with P ever manifested that power, Q was never instantiated. However, the pure Aristotelian can't *name* such properties; she can only describe them. Hence on pure Aristotelianism, alien properties may be possible, but only under a description of their causal profiles. To use the example of P and Q, P is the power for *some property such that* ... This is the quidditistic version of the qualitative theory of possibilities for non-actual individuals defended by Adams (1981).

A principle of combination? But suppose one is committed, for some reason, to a theory of modality that includes alien possibilities not grounded in the actual properties of concrete particulars. Can such a person be an Aristotelian? One way she might is suggested by Hawthorne (2001): Accept a primitive principle of combination (as Lewis does) to generate the plentitude of possibilities. Let the causal lawbook be a conjunction of all the true causal laws. The Ramsified causal lawbook is what results from replacing each name of a property in the causal lawbook with a variable and existentially quantifying over that variable. For any logically consistent Ramsified causal lawbook, this new principle of combination tells us, there are distinct properties corresponding to the open sentences of those causal lawbooks. The plentitude of possibility "corresponds to the plenitude

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[23]John Heila expressed this thought to me in conversation.

of consistent lawbooks."

With some qualification, I see no reason to *deny* the suggested principle of combination. The qualification is that we may not be able to posit *distinct* properties for all the open sentences of the myriad of causal lawbooks. So qualified, the principle may very well be true. It's the primitiveness that is problematic. Here there is a truth without a truthmaker—or so it seems. What makes it true that for each consistent lawbook there is some set of properties that the lawbook describes? The Aristotelian, in contrast to the Platonist, has no truthmaker to offer.

Theistic Aristotelianism   But there is one remaining alternative. If the Aristotelian is a *theist* who believes in the existence of an *omnipotent* God, then perhaps God's omnipotence provides the truthmaker for alien possibilities, as Pruss (2002) suggests. On this view, God could bring it about that any number of actually uninstantiated properties are instantiated. The plenitude of possibility would then be grounded in the powers of actually existing objects, including the power of an omnipotent God, to bring about various instantiations of properties, including alien properties.

Note that on this view we can not say that God can bring something about *because* it is possible; nor can we say that what God cannot bring about can't be brought about *because* it is impossible. For on this view, to be possible is just to be one of the many manifestations of some power, including God's, and to be impossible is to be a manifestation of no power. Of course it will not be true for *every* proposition that its possibility is grounded in the power of God, for the non-alien possibilities are grounded in the ordinary properties of concrete particulars. Still, every alien possibility, on the version of Aristotelianism under consideration, will be grounded in the powers of God.

Cameron (2008) argues that there are two serious problems with such a view. First, it seems to make the claim that God is omnipotent trivial in an objectionable way: it implies that it is *a priori* false that God could but wouldn't do the metaphysically impossible. Second, it "does nothing at all to illuminate modal epistemology," since learning what God is capable of seems no easier than learning what is possible. With regard to this second objection, it is clear from the above how the objection fails. Not *all* possibility is grounded in God's power on this account. It is only the alien possibilities that are so grounded. Other possibilities are grounded in the ordinary properties of concrete particulars. And this *is* illuminating, for it is precisely these properties that science aims to understand. Alien possibil-

ities, on the other hand, *are* difficult to illuminate. What, exactly, makes us so confident that there might have been properties that were not, are not, and never will be instantiated? It will do no good to appeal to Humean Independence, for it is not at all clear what grounds so many philosophers' confidence in *that*.

With regard to Cameron's first objection, it's not clear to me why the theist should accept that there are things God could, but of metaphysical necessity wouldn't, do. Does it seem weird to say that the reason a square circle is impossible is *because* God couldn't make one? Approach the example from a different angle. Could anyone draw a square circle?[24] If the answer is, "No one, not even God," then a natural response is: "Well, then, I guess it just can't be done." To suggest otherwise is to suggest that God could, but also can't, do it.

4.3   The illusion of contingency

Some philosophers will insist that contingency runs deeper than the properties-based theory of modality allows. I shall put the challenge in terms of Aristotelianism, but it is equally a challenge to any properties-based theory of modality. Consider the claim that electrons might have attracted other electrons. The Aristotelian, as described above, will concede: Surely there might have been a property much like negative charge except that objects with this property attract each other. But if someone were to persist, "No, I mean that the very same property, negative charge, might have disposed particles to attract each other," here the Aristotelian must stand her ground. If it didn't dispose its bearers to repel other negatively charged particles, it wouldn't be negative charge.

I don't think standing her ground here is too costly. After all, the precise nature of a powerful property is an *a posteriori* necessity. Hence, like the necessities of Kripke (1972), it is epistemically possible that they are false.[25] In fact, the probability that our beliefs regarding the powerful natures of properties are false is greater than other *a posteriori* necessities. There was a time when it was a very live possibility that, say, Hesperus was not Phosphorus—perhaps there was a time when it was even implausible to suppose they were identical. But now the evidence is overwhelmingly in

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[24]I once spent an entire lecture attempting to convince my students that it couldn't be done. I finally convinced them, not by typical *a priori* arguments, but by having several of them try to draw one. It was their *inability* to draw one that convinced them.

[25]Most Aristotelians offer something like the Kripkean response to the appearance of contingency. For two well developed responses, see Bird (2007) and Handfield (2004).

favor of the identity. Not so with our identification of powerful properties. There's a very real sense in which we still don't know their powerful natures. First, we could very well be mistaken about what properties are natural. And even supposing we know the inventory of natural properties, it would be foolish to think we know their full powerful natures. Indeed scientific practice seems aimed precisely at identifying the structure and nature of the powers that exist.

Still, many philosophers might insist: "Even if we're correct in thinking that negative charge is in fact a fundamental property such that particles with it repel each other, it still might have been that negatively charged particles attracted other negatively charged particles." The Aristotelian rightfully resists. There is much to be said here, having to do with the connections between conceivability and possibility. But I will limit myself to three (all too brief) remarks. First, it's not clear that this is genuinely imaginable. As van Inwagen (1998) put it when considering the question whether we can imagine a world with transparent iron,

> If we simply imagine a Nobel Prize acceptance speech in which the new Nobel laureate thanks those who supported him in his long and discouraging quest for transparent iron and displays to a cheering crowd something that looks (in our imaginations) like a chunk of glass, we shall indeed have imagined a world, but it will not be a world in which there is transparent iron.

Vague imaginings of a phenomena are no imaginings of it at all. Second, even if it is imaginable, I'm not inclined to think that is a good reason to think it's possible. And third, even if imagination is good reason for possibility, the end result is one, fallible intuition pitted against many others. While I doubt it really is a strong intuition, even if it were, Aristotelianism is on the whole much more intuitive than neo-Humeanism.

4.4   A powers semantics for modality

The most powerful objection, in my opinion, to any version of the properties-based theory of modality is the lack of any developed alternative to the powerful, possible worlds semantics of modality. It may be that possible worlds seem intuitively unconnected to the grounds for modality, but this intuition must be balanced against theoretical power. And the possible worlds semantics is undoubtedly powerful.

One response to this objection is to argue that the intuitions against possible worlds are so forceful that they cannot be outweighed by the power

of a logical system. Alternatively, one might argue that we can use the possible worlds semantics merely heuristically, without any ontological commitment. I shall instead explore a third response: Develop an alternative semantics. I first present a specific, Aristotelian conception of properties as powers. I then develop the semantics of counterfactuals, first informally and then formally.

Let me be clear about the purpose of offering such a semantics. If all that is required of a semantics for modality is that it be useful, I have no objection to possible worlds semantics as such. The pure semantics doesn't require that possible worlds exists; for all it cares, the objects we call possible worlds can be coffee cups. If, on the other hand, we want our semantics for modality to give us insight into the *truthmakers for modality*, then possible worlds semantics is inadequate, as I have argued. It is for this latter purpose that I offer a powers semantics for counterfactuals: to offer a logical system of modality that mirrors the truthmakers for modality.[26]

This is no easy task, to be sure, so I shall make it a bit easier for myself restricting the scope of the project. First, I concern myself only with modal truths regarding concrete objects, ignoring how one might extend the account to accommodate mathematical and logical truths.[27] Second, I restrict my attention to a propositional-style semantics, leaving for another time the extension to a quantified modal logic. The restricted task shall be challenge enough.

4.4.1 Powers

Since I prefer the Aristotelian approach, I couch the system I develop within an Aristotelian ontology, but, I claim, it would not be difficult to offer a similar account, *mutatis mutandis*, that would satisfy the Platonist. There is disagreement among Aristotelians about precisely what it is for properties to be powerful. For present purposes, I'm going to briefly present the account I prefer, a version of the powerful qualities view defended by Martin & Heil (1999), according to which all natural properties are both powerful and qualitative. Every property has—or, more accurately, it *is*—an intrinsic qualitative character, a quality. And each property is itself the truthmaker for the counterfactuals describing what objects with that property would do in the various circumstances they might find themselves in. On this view, the truthmaker view, the qualitative is identical with the powerful;

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[26]It is, in this way, what Plantinga (1974) calls a depraved semantics, or even what Zimmerman (2005) calls an utterly depraved semantics.

[27]See Lange (2005) for an intriguing suggestion.

one and the same thing is both identical to a quality and the truthmaker for the counterfactuals. Of course much more needs to be said, but for our purposes this should suffice.[28] I claim that the truthmaker view is a coherent, plausible account of properties for the Aristotelian.

More important for our present purposes, it allows us to generate, in a fairly straightforward manner, a theory of modality. According to the truthmaker view, properties themselves make true various counterfactuals describing how objects with those properties would act in various situations. The property structure on which we can develop a semantics is a counterfactual one. Call the resultant view of modality the powers theory.

4.4.2 Reducing modality to counterfactuals

Roughly, the system I offer conceives of modal facts as counterfactual facts, and grounds counterfactuals in the nature of powerful properties. A full development of the theory, therefore, requires on the one hand a semantics for counterfactuals that appeals only to properties and their powerful natures, and on the other a reduction of possibility and necessity to counterfactuals.

First, we can define modality, possibility and necessity, in terms of the counterfactual. Intuitively, P is necessary just in case it would be true come what may. P is possible just in case it would not be false, come what may.

To capture this more formally, let $\top$ abbreviate some tautology. Then we can define possibility and necessity as:

$$\Box\phi =_{def} (\top \;\Box\!\!\rightarrow \phi)$$
$$\Diamond\phi =_{def} \neg(\top \;\Box\!\!\rightarrow \neg\phi)$$

These definitions preserve the interdefinability of the modalities, so that $\Box\phi$ is equivalent to $\neg\Diamond\neg\phi$.

Stalnaker (1968), among others, noted that the modalities could be defined by means of counterfactuals, but this fact has not been put to much use.[29] Recently, Williamson (2004) notes that "starting with the counterfactual conditional, we can build a promising theory of metaphysical necessity and possibility," and goes some distance toward doing so.[30] I here suggest that the definability of the modalities in terms of counterfactuals allows the

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[28]For a full discussion, see my "Powerful qualities, not pure powers" (unpublished).

[29]See Kment (2006) for an exception.

[30]Williamson (2007) proves much of the equivalence between counterfactuals and the modalities. While the system I offer is quite similar to Williamson's, his primary concern is in epistemology.

Aristotelian to accept counterfactuals as primitive and reduce all of possibility and necessity to them. All—all!—that is needed, then, is a semantics for counterfactuals.

4.4.3   A powers semantics for counterfactuals, informally

The basic, informal idea of the powers semantics for counterfactuals is quite simple. When I assert a counterfactual, "If these chemicals were mixed, then reaction X would occur," the antecedent and consequent, together with the context, pick out complexes of natural properties. The counterfactual is true just in case the property complex picked out by the antecedent is a power, every exercise of which would bring about the property complex picked out by the consequent.[31]

Counterfactuals are notoriously sensitive to context. In one context, I might truly say that if Ceaser were in command, he would have used the bomb, whereas in a different context I might truly say he would have used catapults. The possible worlds semantics builds the context sensitivity of counterfactuals into their truth conditions. In contrast, the truth conditions that the powers semantics offers will not be sensitive to context at all, since they depend only on what the properties are powers for. Instead, the context sensitivity gets built into the conditions of assertion. Let's distinguish a counterfactual sentence or utterance from a counterfactual proposition. On the powers view, context is relevant when determining when one counterfactual sentence expresses some specific counterfactual proposition. In one context, the sentence "If these chemicals were mixed, then reaction X would occur," expresses one proposition, and in another context, the very same sentence expresses a different proposition. And those propositions may have different truth values.

It will be helpful to further compare the possible worlds view with the powers view. According to Lewis (1973), a counterfactual is an "invitation to consider what goes on in a selected 'counterfactual situation'." Whereas Lewis interpreted that to mean that we consider what goes on in a selected possible world, the powers view interprets it as an invitation to consider what the properties picked out by the antecedent are powers for. Whereas Lewis claimed that the truth conditions for the counterfactual are determined partly by the antecedent and partly by context, the powers view claims that what proposition is asserted is determined partly by the an-

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[31]A similar basic idea is proposed by W. Russ Payne in unpublished work. My own thinking about an alternative semantics for counterfactuals was influenced by Payne's proposal.

tecedent of the sentence and partly by context. (When left unspecified, Lewis suggests that we are asked to consider a range of worlds rather than a single determinate world. The powers view might instead suggest that we are asked to consider a range of determinate propositions.)

The factors that determine when a counterfactual sentence expresses a particular counterfactual proposition are highly context sensitive. In fact their sensitivity to context will mirror that of Lewis's respects of similarity. In general, to borrow Lewis's phrase, saying so makes it so—that is, saying that the antecedent includes some property instantiation makes it so. Still, there are a few general things we can say about how context determines the proposition asserted by a sentence. Our interpretation of counterfactual utterances seems to be guided by at least two rules:

Charity Be *charitable* when determining which property instances go into the antecedent. If there are two interpretations available, choose the interpretation that makes the counterfactual more plausible.

Normalcy Interpret the antecedent as specifying a property complex as *normal* as possible. Normalcy is determined by closeness to actuality, which is in turn determined, first, by sameness of properties and, second, by similarity of causal profiles.

There is much more to be said, but this description of how counterfactual sentences assert counterfactual propositions should suffice for present purposes. Consider, for example, the series of counterfactuals offered by Lewis: "If Otto had come, it would have been a lively party. If Otto and Anna had come, it would have been a dreary party. But if Waldo had come as well, it would have been a lively party." In this case, Charity and Normalcy make the same demands. The first counterfactual is to be interpreted as "If Otto had come and the attendees had otherwise been the same as actual, it would have been a lively party." This makes the party as close to the actual party as possible, and given the other counterfactuals asserted, it makes the first counterfactual plausible. What's more, we are able to interpret the others similarly while satisfying the demands of Charity and Normalcy.

Consider the counterfactual "If Ceasar had been in command, he would have used the atom bomb." Just as the context determines of what Ceasar was in command—in this case, the Korean war—so too context determines what else goes into the antecedent. Charity demands that we interpret the claim in the most plausible way, so that we assume Ceasar had at his disposal the atom bomb, for example. But if, instead, the speaker had claimed, "If Ceasar had been in command, he would have used catapults," we interpret

the antecedent so that Ceasar has at his disposal typical Roman tools of warfare, rather than those typical of contemporary wars.

Again, more could be said about how context determines the content of the antecedent, but this should suffice for present purposes. With the informal idea in place, the next step is to to offer a formal system that captures the relation between two properties (or property complexes) when the one is a power to bring about the other, which allows us to offer a formal semantics for counterfactuals.

4.4.4   A powers semantics for counterfactuals, formally

I briefly present the basic elements of a semantics for counterfactuals. The system I offer is a development of one offered by David McCarty.[32]

> **Language** Let p, q, r, ... be atomic formulae and $\phi, \psi, \chi, \ldots$ be logical formulae. Start with a basic propositional logic with $\wedge$ and $\neg$, so that if ϕ and ψ are formulae, so are $(\phi \wedge \psi)$ and $\neg\phi$. Add the connective $\Box\!\!\rightarrow$ (to be interpreted as the counterfactual conditional), so that if ϕ and ψ are formulae, so is $(\phi \Box\!\!\rightarrow \psi)$.
>
> **Definition of a Stage** Let a *stage*, S, be a finite state description. Formally, a stage is consistent set of formulae, so that, for example, the set $\{p, \neg r\}$ is a stage. Stages are consistent, so if $\phi \in S$, then $\neg\phi \notin S$. On the intended interpretation, a stage is a property complex, with each atomic formula representing a property.
>
> **Definition of a Chain** Let a *chain*, $\mathcal{C}$, be an infinite sequence of stages, $S_0, S_1, S_2, \ldots$, such that each stage is a power to bring about the next stage. Let '$S_0 \; \mathbb{P} \; S_1$' be interpreted as 'S_0 is a power to bring about S_1.' Then a chain is an infinite string of stages, $S_0, S_1, S_2, \ldots$ such that $S_0 \; \mathbb{P} \; S_1 \; \mathbb{P} \; S_2 \; \mathbb{P}\ldots$ For each pair of stages, S_n and S_{n+1}, in a chain, $S_n \; \mathbb{P} \; S_{n+1}$.

Intuitively, a chain is one way that a series of exercises of powers (or disposition manifestations) might run its course. What chains there are is determined by the nature of the powerful properties there are, and each powerful property will determine many, many chains. (The chains, taken in

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[32] "Necessitation, Counterfactuals and Modality" (manuscript).

totality, are the formal representation of the property structure on which we can hang all of modality.)

I now place four requirements on stages and chains. First, for any formula ϕ and any chain, C, if ϕ is evaluable in C, then there is a first stage in C in which ϕ is evaluable. Second, in order to guarantee that $(p \mathbin{\Box\!\!\rightarrow} p)$ turns out true, we require that formulae are preserved across $\mathbb{P}$. If $p \in S_n$, then $p \in S_{n+1}$. This may force us to be careful when saying which atomic formulae represent which properties. For example, if p is a power to bring about $\neg p$, then we shall need to relabel $\neg p$. We might do this by, for example, time indexing properties. Third, every possible property complex is a power for some other property complex: $\forall S_n \, \exists S_{n+1} \, (S_n \, \mathbb{P} \, S_{n+1})$ This is consistent with the thesis that all natural properties are powerful qualities. And, fourth, to ensure some tautology holds at each stage in each chain, we insert in each stage in each chain a 'dummy letter' p that names no property. This enables the definition of possibility and necessity in terms of the counterfactual.

Since stages are finite, not all formulae will be elements of every stage. Therefore, we define what it means for a formula to be *evaluable* in a stage of a chain.

> **Definition of Evaluable** The definition is by recursion over the structure of a formula ϕ.:
>
> 1. For atomic formula ϕ, ϕ is evaluable in S if and only if either $\phi \in S$ or $\neg\phi \in S$.
> 2. $(\phi \wedge \psi)$ is evaluable in S if and only if both ϕ and ψ are evaluable in S.
> 3. $\neg\phi$ is evaluable in S if and only if ϕ is evaluable in S.
> 4. $(\phi \mathbin{\Box\!\!\rightarrow} \psi)$ is evaluable in S_n if and only if there is some m such that ϕ is evaluable in S_m, and for the least k such that ϕ is evaluable in S_k, there is no $l \leq k$ such that ψ is evaluable in S_l.

Intuitively, the notion of evaluability is meant to capture the fact that not every property is a part of every property complex. If either a property or its negation is included in some property complex, then we say that it is evaluable in that complex.

Now we are able to define *truth in a stage* for a formula.

> **Definition of Truth in a Stage** Truth in a stage, $S \models \phi$, is defined only for ϕ evaluable in S, and the definition is by recursion over the structure of ϕ:

1. For atomic formula ϕ, S $\models$ ϕ if and only if $\phi \in$ S.
2. For $(\phi \wedge \psi)$, S $\models$ $(\phi \wedge \psi)$ if and only if S $\models$ ϕ and S $\models$ ψ.
3. For $\neg\phi$, S $\models$ $\neg\phi$ if and only if S $\not\models$ ϕ.
4. For $(\phi \mathbin{\square\!\!\rightarrow} \psi)$, $S_n \models (\phi \mathbin{\square\!\!\rightarrow} \psi)$ if and only if, for the least i for which ϕ is evaluable in S_i, if $S_i \models \phi$, then $S_{i+1} \models \psi$.

Intuitively, a counterfactual is true in a stage if, tracing back in the chain to the first stage S_i when the antecedent is evaluable, if the antecedent is true at S_i, then consequent is true at S_{i+1}. Thus if ϕ is true at some stage and is a power to bring about ψ, then $(\phi \mathbin{\square\!\!\rightarrow} \psi)$ will be true and if ϕ is ever true, then at the next stage ψ will be true.

We are now able define *truth in a chain*.

Definition of Truth in a Chain For chain C and formula ϕ, $C \models \phi$ if and only if there is an S in C such that S $\models$ ϕ.

Finally, we can define *validity*.

Definition of Validity ϕ is *valid*, $\models \phi$, if and only if, for all C, $C \models \phi$. And an argument with premises Γ and conclusion ϕ is valid, $\Gamma \models \phi$, if and only if for all C, if $C \models \Gamma$, then $C \models \phi$.

A counterfactual, $(\phi \mathbin{\square\!\!\rightarrow} \psi)$, is true full stop, then, if it is valid: $\models (\phi \mathbin{\square\!\!\rightarrow} \psi)$.

We can now prove that truth in a chain provides a definition of truth— that it is a model for classical propositional logic: For any chain C and formulae ϕ and ψ,

1. $C \models (\phi \wedge \psi)$ if and only if $C \models \phi$ and $C \models \psi$, and

2. $C \models \neg\phi$ if and only if $C \not\models \phi$.

The proof is omitted.

Inference Rules I now introduce the basic rules of inference. Let $\phi \vdash \psi$ represent derivability in the counterfactual system and $\phi \vdash_{prop} \psi$ be derivability in classical propositional logic. Our rules include all the rules and axioms for classical propositional logic with $\wedge$ and $\neg$. In addition, we include two basic rules governing $\mathbin{\square\!\!\rightarrow}$:

$\mathbin{\square\!\!\rightarrow}$ Modus Ponens $(\phi \mathbin{\square\!\!\rightarrow} \psi)$, $\phi \vdash \psi$

□→ **Closure** If $\psi_1 \ldots \psi_n \vdash_{prop} \chi$, then $\phi \square\!\!\rightarrow \psi_1 \ldots \phi \square\!\!\rightarrow \psi_n \vdash \phi \square\!\!\rightarrow \chi$

Having introduced the basic inference rules, we can prove that the system is *sound*: If $\Gamma \vdash \phi$, then $\Gamma \models \phi$. Hence, if $\vdash \phi$, then $\models \phi$. Again, the proof is omitted.

With the rules of inference and the above definitions in place, we can derive the various modal systems. □→ Modus Ponens (together with rules and axioms for propositional logic) will enable us to derive the characteristic axiom of T, $\square\phi \vdash \phi$. Adding □→ Closure will enable the derivation of the characteristic axiom of K, $\square(\phi \rightarrow \psi) \vdash (\square\phi \rightarrow \square\psi)$, and the characteristic axiom of S1, $\square(\phi \rightarrow \psi), \square(\psi \rightarrow \chi) \vdash \square(\phi \rightarrow \chi)$. Proofs are omitted.

In order to prove the characteristic axioms of S4 and S5, further axioms governing □→ are needed, in particular, axioms governing embedded counterfactuals. Here are two further axioms, translated from those suggested by Williamson (2007). For the characteristic axiom of S4, $\square\phi \vdash \square\square\phi$, we could add to our counterfactual system:

$$(\top \square\!\!\rightarrow \neg\phi) \vdash (\phi \square\!\!\rightarrow (\top \square\!\!\rightarrow \neg\psi)$$

This says that if ϕ fails comes what may, then supposing that ϕ holds would lead to any other proposition failing come what may. (Counterfactually supposing an impossibility takes one to an impossible world, to use possible worlds language.) To derive the characteristic axiom of S5, $\Diamond\phi \vdash \square\Diamond\phi$, in the counterfactual system, we could add:

$$(\phi \square\!\!\rightarrow (\top \square\!\!\rightarrow \neg\psi)) \vdash ((\top \square\!\!\rightarrow \neg\phi) \vee (\top \square\!\!\rightarrow \neg\psi))$$

This says that if supposing ϕ counterfactually leads to an impossibility, then either the impossibility is an impossibility independent of ϕ or ϕ itself is impossible. Stating it in pure counterfactual terms: If supposing that ϕ leads us to suppose that ψ would fail come what may, then either ψ would fail come what may (independent of ϕ), or ϕ would fail come what may. I leave full discussion of those issues for another time. Clearly, more exploration of these and alternative axioms is needed, but the above system is an important first step.

5 Conclusion

I take it that there are at least two types of considerations that help us decide such metaphysical issues as the truthmakers for modality. On the one hand, we often appeal to pre-theoretical commitments or intuitions.

On the other hand, we appeal to theoretical issues such as simplicity or explanatory power. I think that the properties-based theory of modality is the most intuitive of the available theories of modality. It is the view that, pre-theoretically, just seems right.

But these kinds of intuitions do not settle the matter. Neo-Humeanism is accepted, not because of its intuitiveness, but in great part because of its theoretical power. The theory is beautiful, actually, and should be admired—admired in the way that one admires a beautifully constructed and oddly convincing conspiracy theory. If you forget that the basic story is, well, crazy, and you focus on just the structure of the theory—its explanatory power and simplicity and so on—it is easy to be taken in. In the absence of a similarly well constructed alternative, the particular problems with the theory, if there are any, seem unable to move you. Just as in science, so in metaphysics: we permit anomalies to an otherwise successful theory in the absence of a successful alternative.

My goal here has been to take some steps toward presenting that alternative. If the view of modality offered here can be embedded in a systematic metaphysic, including accounts of properties, causation and laws of nature—and I think it can—then we have good reason to respect the force of our intuitions and reject neo-Humeanism. We philosophers have suffered under the burden of Hume for too long. It is time for us to return to our philosophical home in a metaphysics of substances and powers—the metaphysics of Aristotle, whose yoke is easy and whose burden is light.[33]

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