

CHAPTER 7

Are There Indeterminate States  
of Affairs? Yes

JESSICA WILSON\*

Many phenomena appear to be indeterminate. For example, we experience certain objects (clouds, mountains) as having imprecise boundaries; the future, it seems, might be genuinely open; on the orthodox interpretation of quantum mechanics, some properties of a system (e.g., position and momentum) cannot jointly have precise values. Here I'll compare two accounts on which some seeming indeterminacy, in these or other cases, is genuinely *metaphysical* indeterminacy (MI).

An important difference between the two accounts concerns whether MI is taken to require that states of affairs (SOAs) be indeterminate, where an SOA is a worldly state consisting, in the simplest case, of an object's having a property—say, the cat's being on the mat. On the approach favored by Barnes and Cameron in the companion piece to this article, every SOA is itself precise/determinate, and MI is a matter of its being *indeterminate* which *determinate* SOA obtains.<sup>1</sup> As Barnes (2010), puts it: "It's perfectly determinate that everything is precise, but [. . .] it's indeterminate which precise way things are" (622). Here, for example, what it is for a cloud to have an indeterminate boundary is for it to be indeterminate which precise boundary the cloud has. On the approach I favour, MI is a matter of its being *determinate*—or just plain true—that an *indeterminate* SOA obtains, where an indeterminate SOA is one whose constitutive object has a determinable property, but no unique determinate of that determinable. (I'll say more about determinables and determinates shortly.) Here, for example, what it is for a cloud to have an

indeterminate boundary is for the cloud to have a determinable boundary property, but no unique determinate boundary property. Reflecting the structural difference in where MI is located, I call the first approach a ‘meta-level’ approach, and the second an ‘object-level’ approach.

In this chapter I have three aims. First is to note a further important difference between my and Barnes and Cameron’s accounts, concerning whether MI is taken to induce propositional indeterminacy (§1). Second is to highlight and defend certain advantages of my account (§2). Third is to address certain of Barnes and Cameron’s objections to my account (§3).

## 1. Preliminaries

I want to start by saying a bit more about my account. This will set up for the comparative assessment to follow, and also allow for some preliminary brush-clearing. The need for brush-clearing reflects Barnes and Cameron’s supposition that MI is always reflected in a *proposition’s* being indeterminate, and their further characterization of our views as differing over whether such propositional indeterminacy introduces, in addition to the usual ‘demands’ that propositions place on the world if they are to be true or false, a new kind of demand whose satisfaction is required if the proposition is to be indeterminate. On their preferred ‘Unsettledness View’, propositional indeterminacy due to MI does not introduce any new demands beyond those associated with truth or falsity—it is just indeterminate which of the usual demands is met. On what they call the ‘Third-Way View’, “propositions also make specific demands on the world for their indeterminacy”, such that “[t]he world [...] settles what propositions are true, what ones are false, and what ones are indeterminate”, and where what is required for a proposition to be indeterminate is “the obtaining of a special new kind of state of affairs: perhaps the state of an object indeterminately instantiating a familiar property, or perhaps the state of an object instantiating the non-familiar property of *being indeterminately F*” (123). They then offer certain concerns about a Third-Way view so construed, with my account being characterized as “a particularly interesting version” of such a view (127).

As will become clear, however, my account is not any kind of Third-Way view, for my account does not give rise to any indeterminate propositions, and so it is no part of my account that “propositions also make specific demands on the world for their indeterminacy” (123); nor does my account involve the positing of any “special new” SOAs of the sort just described. That my account is not a version of a Third-Way view will be relevant to the comparative assessment to come.

### 1.1. A Determinable-Based Object-Level Account

On my object-level account, MI is a matter of its being *determinate*—or just plain true—that an *indeterminate* SOA obtains, where what it is for an SOA to be MI is spelled out as follows:

*Determinable-based MI*: What it is for a state of affairs *S* to be metaphysically indeterminate at a time *t* is for *S* to constitutively involve an object (more generally, entity) *O* such that (i) *O* has a determinable property *P* at *t*, and (ii) *O* does not have a unique determinate of *P* at *t*.<sup>2</sup>

Why look to determinables for insight into MI? To start, determinables are distinctively *unspecific* properties which admit of specification by determinate properties—e.g., the determinable *being coloured* may be determined by the determinate *being scarlet*; the determinable *being shaped* may be determined by the determinate *being rectangular*. Moreover, unlike other kinds of unspecific properties (e.g., disjunctions, genus properties), determinables are *irreducibly* imprecise—in particular, they are not reducible to any complex combinations of precise determinates (see Wilson 2012). Hence, determinables are potentially suited to provide a basis for understanding MI.

Now, it has been traditionally supposed that when an object possesses a determinable property at a time, it also possesses a unique—one and only one—determinate at that time, at a given level of specification. However, as I discuss in Wilson 2013, the traditional assumption is too strong, and should be rejected as generally characterizing determinables and determinates.

Consider colour, the paradigmatic determinable property. Is it really the case that if an object is coloured, it must have one and only one determinate of colour (at a given level of specification)? The colour of an iridescent feather, which shifts from red to blue depending on the angle of viewing, suggests otherwise. As Johnsgard (1997) says:

The highly iridescent feathers of the hummingbird gorgets are among the most specialized of all bird feathers. [...] The colors do not directly depend on selective pigment absorption and reflection [...]. Rather, they depend on interference coloration, such as that resulting from the colors seen in an oil film or soap-bubble. [...] Thus, a gorget may appear ruby red when seen with a beam of light coming from directly behind the eye, but as the angle is changed the gorget color will shift from red to blue and finally to black, as the angle of incidence increases.

Such a case suggests that determination may be relative to perspective or other circumstances. Moreover, it suggests that determination may be a *multiply relativized phenomenon*: multiple such circumstances may be in place at a time, as when, for example, you and I both look at an iridescent feather and you see red, while I see blue. In such a case of multiple relativized determination, the feather is coloured at a time  $t$ —it has the determinable property *being coloured* at  $t$ . But it would be arbitrary, hence inappropriate, to pick one of the determinate properties of this determinable—either *being red* or *being blue*—as being ‘the’ determinate shade had by the feather at  $t$ ; and this would be inappropriate whether or not the candidate determinates are relativized. So the case of an iridescent feather is one where it is reasonable to assume that an object has a determinable property (namely, *colour*), but no *unique* determinate of that property. Note also that if only one of us were looking at the feather, it wouldn’t thereby become less arbitrary or more appropriate to attribute a single colour determinate to the feather. As such, cases of actual or possible multiple relativized determination show that the traditional supposition that when an object possesses a determinable property at a time, it must possess a unique determinate at that time, is not generally correct.

The iridescent feather case shows that the conditions of *Determinable-based MI* may be satisfied due to there being *too many* candidate determinates of the determinable. This route to satisfaction of the conditions corresponds to what I call ‘glutty’ MI, and in my 2013 paper I suggest that this kind of implementation of a determinable-based account makes good sense of indeterminate macro-object boundaries. Take Mount Everest.<sup>3</sup> Intuitively, Mount Everest does not have a precise boundary; as Tye (1990) says, “common sense has it that the world contains countries, mountains, deserts, and islands [. . .] and these items certainly do not appear to be perfectly precise” (215). And science tells us that the same is true for macro-objects that appear to be more distinctly spatially individuated, such as tables and statues. On my account, such cases are treated as follows:

*Determinable-based MI (macro-object boundaries)*: What it is for a macro-object  $O$  to have an indeterminate boundary is for it to be determinately the case (or just plain true) that (i)  $O$  has a determinable boundary property  $P$  but (ii)  $O$  does not have a unique determinate of  $P$  at  $t$ .

Why think that mountains, clouds, tables, and statues can have a determinable boundary property, but no unique determinate boundary property? In my 2013 paper, I tell a longer story, but the short story here is that these sorts of macro-objects and their properties are intimately dependent upon—realized by—multiple lower-level aggregates and their properties. In the case of Mount Everest, for example, there are multiple distinct but overlapping

aggregates of rock, each of which has a comparatively precise boundary property which is plausibly seen as a determinate of Mount Everest’s determinable boundary property.<sup>4</sup> The structure of the case here is similar to that of the iridescent feather: it is reasonable to assume that Mount Everest has a single determinable boundary property, which is determined, at any given time, by multiple more specific boundary properties. Here too, it would be arbitrary to single out any one of these determinate boundary properties as that which is *uniquely* had by Mount Everest.<sup>5</sup> Hence, cases of macro-object boundary MI can be seen as conforming, in glutty fashion, to the conditions of *Determinable-based MI*.

The failure of the traditional supposition of unique determination also makes room for ‘gappy’ satisfaction of the conditions in *Determinable-based MI*—namely, if *too few* or *no* determinates of the determinable are instantiated, even as a relativized matter, by either the object in the indeterminate SOA or any other object(s). A gappy implementation handles other cases of MI. For example, in my 2013 paper, I argue that the open future can be treated in gappy determinable-based terms (an application to which I will return down the line), and Bokulich (2014) and Wolff (2015) each suggest that a gappy determinable-based implementation represents a promising approach to cases of quantum MI.<sup>6</sup>

Summing up: on a determinable-based object-level account, MI involves the obtaining of an indeterminate SOA, where an indeterminate SOA is an SOA whose constituent object (more generally, entity) has a determinable property, but no unique determinate of that determinable. There are two ways in which the pattern of instantiation of properties at issue here may occur: first, if there are too many candidate determinates of the determinable at issue, à la glutty MI; second, if there are too few (or no) candidate determinates, à la gappy MI.

### 1.2. *Is My Determinable-Based Account a ‘Third-Way View’? No*

As previously mentioned, Barnes and Cameron characterize my determinable-based account as a version of a ‘Third-Way view’, and so take their concerns with a Third-Way view to also apply to my account. We are now in position to see, however, that my account is not a Third-Way view.

Again, on their schematic characterization, MI of whatever variety is registered in a *proposition’s* being indeterminate. This reflects their characterizing MI in terms of propositional indeterminacy that remains even after semantic and epistemic indeterminacy is removed:

[W]hat of cases where it is indeterminate whether a proposition is true or false? [. . .] By worldly indeterminacy we mean indeterminacy that remains even once we’ve specified exactly what proposition it is we’re

asking about, and which is a matter of how reality itself is, not simply a matter of how we know it to be.

(121)

They then characterize the difference between an Unsettledness view and a Third-Way view, which difference is supposed to track a difference between our views, as reflecting a difference in how this remaining indeterminacy in propositions is treated: a Third-Way view takes this remaining propositional indeterminacy to introduce, in addition to the usual 'demands' that propositions place on the world if the proposition is to be true or false, a new kind of 'demand' whose satisfaction is required if the proposition is to be indeterminate, whereas an Unsettledness view takes this remaining propositional indeterminacy to reflect just that it's primitively unsettled which of the usual demands is met.

Now, the first problem here is that I do not take cases of MI to be associated with indeterminate propositions (or any other kind of representational entity). On my account, it is SOAs, not propositions, that are indeterminate; and—importantly—the sense in which SOAs are indeterminate does not render any propositions indeterminate. Consider, for example, my treatment of Mount Everest's indeterminate boundary. Here it is true that Mount Everest has the determinable boundary property, and for any unrelativized determinate boundary property, it is false that Mount Everest has that property. As such, it is false, not indeterminate, that Mount Everest has a precise boundary. Relatedly, it is not indeterminate that (or whether) Mount Everest has precise boundary #326—again, for any (unrelativized) precise boundary, it is false, not indeterminate, that (or whether) Mount Everest has that precise boundary. As for the relativized determinates: if it makes sense to take Mount Everest to have relativized precise boundaries (which it might not; see note 5), then these relativized attributions will be either true or false, depending on whether they conform to the facts; if this doesn't make sense, such attributions will all be false.<sup>7</sup> Similarly for cases where the conditions in *Determinable-based MI* arise due to the gappy absence of determinates of a given determinable—any associated propositions will be either true or false.<sup>8</sup>

Since my account does not give rise to any indeterminate propositions, it does not introduce any third kind of demand whose satisfaction is required for propositions to be indeterminate. Relatedly, it does not posit a third 'indeterminate' category of truth value, or an indeterminacy operator on propositions, or any other piece of semantic machinery that would suggest that propositions are ever anything other than true or false. There is nothing new, semantically speaking, in a determinable-based account of MI.

One might be concerned (as David Balcarras was) that maintaining the falsity of both 'the cat is alive' and 'the cat is dead' would involve rejecting an instance of the law of excluded middle (LEM)—namely, 'the cat is alive or the

cat is not alive'. But in fact LEM is not violated here. The concern presupposes that if 'the cat is dead' is false, it follows that 'the cat is not alive' is also false, by substitution of 'dead' with the supposedly equivalent expression 'not alive'. But under conditions of gappy MI, 'dead' and 'not alive' are not equivalent, for under these conditions not being alive is compatible with not being dead, either; so the substitution is not licensed. Moreover, since from the falsity of 'the cat is alive' the truth of 'the cat is not alive' *does* follow, irrespective of whether conditions of gappy MI are in place, the instance of LEM at issue—'the cat is alive or the cat is not alive'—is guaranteed to be true in virtue of the truth of the second disjunct. So a determinable-based treatment of gappy MI poses no threat to LEM. Thanks to Patrick Todd for discussion here; his paper (forthcoming) served as some inspiration for this approach, though our strategies are not completely isomorphic.

Though my account does not impose any new demands on propositions, might it be a Third-Way view at least in being, as Barnes and Cameron take Third-Way views to be, committed to "the obtaining of a special new kind of state of affairs: perhaps the state of an object *indeterminately instantiating* a familiar property, or perhaps the state of an object instantiating the *non-familiar* property of *being indeterminately F*" (123)? No. As above, my account is indeed committed to indeterminate SOAs, but these do not involve unfamiliar notions such as indeterminate instantiation or properties such as *being indeterminately F*; on the contrary, I explicitly disavow such notions (2013: 364). Rather, as I say in my 2013 paper, "On a determinable-based account, MI ultimately comes down to a certain pattern of possession of a determinable property" (382). We are already committed to determinables and determinates, and to objects (e.g., iridescent feathers) instantiating the sort of pattern that is, on my account, constitutive of MI. On my account, indeterminate SOAs are not "a special new kind of state of affairs"—they are just a subset of the usual SOAs, involving ordinary properties and ordinary instantiation, to which we are already committed. There is nothing new, metaphysically speaking, in a determinable-based account of MI.

So my account is not a Third-Way view; but neither is it an Unsettledness view; hence Barnes and Cameron's characterization of the options for treating MI leaves out my account. An upshot is that one of the three concerns that they raise against a Third-Way view clearly does not apply to my account—namely, the concern that "[t]he defender of the Third-Way View [...] must reject bivalence, or she must reject the plausible link between truth-value and the world meeting the demands for that truth-value" (125). As above, my account is straightforwardly compatible with bivalence—with every (meaningful) proposition's being true or false. Beyond this, Barnes and Cameron's discussion still usefully engages with my account, for as we'll see in the next two sections, the concerns that they raise specifically for my account do not hinge on its being a Third-Way view, and their second and

third concerns with a Third-Way view can be massaged into concerns for my account.

## 2. Advantages of a Determinable-Based Object-Level Account

I next turn to observing three advantages of my account of MI over Barnes and Cameron's account: intelligibility, reducibility, and systematicity.

Barnes and Cameron nicely characterize two of these advantages. They first observe that my account has a "conceptual" advantage, in appealing to pretheoretically and independently understood notions, in such a way as to render MI intelligible:

[T]here are two big advantages to Wilson's Third-Way View over our own Unsettledness View, one conceptual and one metaphysical, and both a result of the fact that our own view is thoroughly non-reductive concerning indeterminacy. The conceptual advantage is this: nobody who understands the machinery of determinates and determinable can fail to understand Wilson when she says that the world is metaphysically indeterminate. She has told you exactly what that means: it is for a certain kind of property to be instantiated without a certain [I would add, unique] other kind of property to be instantiated. If you understand what she means by such properties—if you grasp the determinate/determinable distinction—then there is simply no room for not understanding worldly indeterminacy. Our own account, by contrast, makes ineliminable appeal to the notion of indeterminacy when we tell you how the world is. When *p* is indeterminate, we tell you that either the demands for *p*'s truth or the demands for *p*'s falsity are met, it is simply indeterminate which. Someone who is sceptical about the very idea of worldly indeterminacy is of course not going to be helped by this.

(127–128)

They next observe that my account has a "metaphysical" advantage, in offering an ontologically reductive account of MI:

The metaphysical advantage to Wilson's view is related. Just as we see indeterminacy as conceptually basic, so do we see the phenomenon as part of the fundamental bedrock of reality. [. . .] Wilson, by contrast, offers an ontological reduction of indeterminacy: *what it is* to be indeterminate is for a certain determinable to be had without a unique associated determinate being had. In giving us a *what it is* claim, she thereby avoids the need to think of reality as having primitive structure corresponding to indeterminacy. This is an advantage over our view. . . .

(128, emphasis in the original)

I also observe a third advantage—namely, that a determinable-based account is desirably systematic. A meta-level account, in taking MI to be unsettledness between determinate options, presupposes that there *are* determinate options, and so cannot accommodate cases of gappy MI, where more determinate options are simply not available. Hence it is that (as argued in Darby [2010], Skow [2010], and Calosi and Wilson [in progress]) a meta-level account cannot accommodate orthodox quantum MI. By way of contrast, *Determinable-based MI* can be satisfied in either glutty or gappy fashion, and so has resources enabling it to accommodate both varieties of MI.

Barnes and Cameron go on, however, to raise a concern that, were it to stick, would undermine all three advantages. To secure the benefits of intelligibility and reducibility, they note, my account needs to accommodate all plausible cases of MI; otherwise, it would not count as characterizing *what it is* for there to be MI. They then mention three cases of seeming MI which they find implausible to treat in determinable-based terms, because, they claim, the needed determinable is either unavailable or too unusual to count as appealing to our familiar understanding of determinable and determinate properties. Were I to preserve the 'what it is' claim by denying that these are genuine cases of MI, this would, they suggest, be "a cost that is not worth paying" (129); I moreover add that any unprincipled such denials would undermine the supposed systematicity of a determinable-based account.

Their first case involves the indeterminate existence of an object or entity *A*:

This certainly does not look like a case that fits into the determinate/determinable model, for there is no determinable that has existence and non-existence as determinates. And even if there were, it would surely be wrong to say that the indeterminacy of *A*'s existence consists in its having this determinable—*having some state of being*, say—without having either of those determinates. For in saying that *A* has the determinable, we are *presupposing* the existence of *A*, and it's not even settled that there is such a thing.

(129, emphasis in the original)

Here I maintain that there is a determinable having existence and non-existence as determinates, and that this determinable is had, not by the entity *A* whose existence is MI, but by some other entity—e.g., the world, a field, a region of world or field, an aggregate of atoms, or the like. Note that there is nothing especially unusual in there being determinables having existence and non-existence as determinates; indeed, such determinables are arguably posited as properties of quantum vacuums, which "contain fluctuations, transitions between something and nothing in which potential existence can be transformed into real existence by the addition of energy" (Browne 1990).

If scientists can posit determinables involving “potential existence”, so can metaphysicians.<sup>9</sup>

A second case involves the open future:

Are we meant to hold that there is a determinable *having a future* that the world has, without having any determinate of the form *having such-and-such a particular future*? To say this just doesn’t seem to be using our familiar notion of determinates and determinables.

(129–130, emphasis in the original)

Here again I maintain that there’s no special difficulty with positing the needed determinables. In my 2013 paper, I discuss a determinable-based implementation of the open future in detail; roughly, on my treatment, for the future to be open *vis-à-vis* the obtaining of a given event (say, a sea battle) is for it to presently be true that a determinable property will be instantiated (say, the outcome of a negotiation) and, for each determinate of that determinable (a decision to conduct a sea battle, a decision not to conduct a sea battle), for it to presently be false that that determinate will be instantiated. Here the determinable (*being the outcome of a negotiation*) is of a familiar variety. If there is something unusual about my treatment, it reflects that I implement a gappy approach to open future MI, such that it turns out that future contingents are all false; here I follow Todd (forthcoming) in thinking that this is actually quite intuitive, once one registers that there isn’t presently anything to make either claim true.<sup>10</sup>

The last case is that of indeterminate identity of two objects or entities *A* and *B*. Here Barnes and Cameron say:

[I]dentity and distinctness don’t look like determinates of some more general determinable in the way that scarlet and crimson are determinates of red.

(129)

Here I am inclined to deny that there is metaphysically indeterminate identity, for independent reasons. Many philosophers find indeterminate identity problematic—indeed, given certain suppositions, incoherent (following Evans 1983). Moreover, as I discuss in my 2013 paper, seeming commitment to indeterminate identity arises against the backdrop of a meta-level account, which I reject.<sup>11</sup> So even granting that a determinable-based account doesn’t naturally treat indeterminate identity, this restriction doesn’t undermine the aforementioned advantages of intelligibility, reducibility, and systematicity that my account enjoys.

### 3. Objections to a Determinable-Based Account of MI

I now want to consider and respond to two potential objections to my account, with a comparative assessment of Barnes and Cameron’s approach in mind.

#### 3.1. *The Objection from Changing the Intuitive Subject*

Barnes and Cameron object that Third-Way views fail to accommodate “the intuitive thought that indeterminacy is a matter of unsettledness between two options, rather than the introduction of a third option” (123):

The phenomenon of indeterminacy is unsettledness as to which of the two exhaustive options obtains. The Unsettledness View secures this thought. When *p* is indeterminate, either the demands for the truth of *p* are met, or the demands for the falsity of *p* are met. It is simply unsettled which. The Third-Way View, by contrast, responds to the phenomenon of indeterminacy by introducing a third option [...] that is not amongst the states we would accept prior to our theorizing about indeterminacy [...] [H]ow does it help to just introduce a third option?

(124)

As stated, this concern doesn’t directly apply to my account, since as previously, my account does not posit a state “that is not amongst the states we would accept prior to our theorizing about indeterminacy”. It is true, however, that my account does not characterize MI in meta-level terms, as involving unsettledness about *which* determinate option obtains; so the broader concern about missing the intuitive mark, or changing the intuitive subject, does apply to my account.

My response is three-fold. First, I deny that it is generally intuitive to characterize MI in meta-level terms. Recall Tye’s (1996) observation: “It is also part and parcel of our commonsense view that [mountains, deserts, and clouds] are not perfectly precise, that they have fuzzy boundaries” (215). A common-sense—that is, intuitive—conception according to which mountains and other macro-objects “are not perfectly precise” and “have fuzzy boundaries” seems to me naturally read as characterizing such objects as *determinately failing* to have precise boundaries, not as being such that it is indeterminate *which* precise boundary they have. Nor do other cases of MI intuitively involve, as Barnes and Cameron claim, “unsettledness about which of the two exhaustive options obtains” (124). For example, if the future options are genuinely open, then intuitively, *none* of them “obtain”—the future hasn’t happened yet, after all. Or so it seems to me.

Second, an intuitive conception of MI as involving unsettledness about which determinate option obtains gets it clearly wrong (as above) about quantum MI, which for theoretical reasons cannot be understood in meta-level terms. More generally, intuitions are data rather than decisive. As per usual, we need to consider what account of MI does best at satisfying various theoretical desiderata, including being able to handle the full range of cases; and here a determinable-based account has the advantage over a meta-level account in that the former, but not the latter, has resources to handle gappy as well as glutty cases of MI.

Third, even if some cases of seeming MI are intuitively characterized as involving something like ‘unsettledness between determinate options’, a glutty application of a determinable-based account can accommodate the force of such intuitions and the associated ‘unsettledness’ conception of MI. Consider again the treatment of boundary MI on which Mount Everest has a determinable boundary property, but—thanks to the presence of multiple realizing aggregates of rock—no unique determinate of that determinable. Here the existence of multiple determinates accommodates the intuitive idea that “[e]ach option has some pull”; that the unrelativized determinates are mutually exclusive accommodates the intuitive idea that “[the options] can’t both obtain, as the states are exclusive”; and that it doesn’t make sense to pick out one of these determinates as the unique one had by Mount Everest accommodates the intuitive idea that “there are [multiple] options but reality is not so simple as to have settled on one” (124). More generally, the phenomenon of multiple relativized determination provides a metaphysical basis for making sense of intuitions that (some cases of) MI involve reality’s being unsettled between determinate options—not because reality is primitively unsettled about *which* of the determinate options obtains, but rather because these determinate options can be had, at best, in *relativized* fashion. So far as accommodating intuition, then, I think our accounts are fairly on a par.

### 3.2. *The Objection from Ontological Commitment*

Barnes and Cameron say:

A third benefit accruing to the Unsettledness View is that it is entirely non-committal with respect to one’s broader metaphysics. You can accept any account you like as to what states potentially make up the world. The Unsettledness View will not force you to alter that account; it will simply ask you to accept that it can be unsettled which states obtain. You can take whatever metaphysical story you like—the world consists of Armstrongian states of affairs; of atoms in the void; of ideas in the mind of God; etc.—the Unsettledness View will be compatible with that

metaphysics: it simply says that it is indeterminate *which* states involving those things obtain. The Third-Way View, by contrast, demands a metaphysics that allows for the special states of affairs associated with indeterminacy.

(125–126)

Here again, the concern as stated does not apply to my account, which does not involve introducing any “special” SOAs of the sort (again, involving indeterminate instantiation, or properties such as *being indeterminately F*) that Barnes and Cameron associate with Third-Way views. Nor does the fact that a determinable-based account invokes reference to objects, properties (including determinables and determinates), and associated SOAs (involving objects having properties) in itself show that my account is more “ontologically committal” than theirs. As Barnes and Cameron note about their own talk of SOAs:

What we go on to say using ‘states of affairs’ talk should be acceptable, suitably translated, to those who favor a more austere ontology than Armstrong’s.

(120)

The same can be said of the notions at issue in a determinable-based account.

If there is a distinctive ontological cost of my account, it is that it requires acceptance of determinables as irreducible to determinates. But I don’t see that Barnes and Cameron’s account has a comparative advantage here, for their account also involves an irreducible ontological posit, corresponding to the world’s being primitively unsettled about which precise SOA obtains. Barnes and Cameron don’t expand on what it is for the world to be unsettled in this way, but whatever the further details, our accounts are on a par so far as positing an irreducible kind of entity is concerned.

Moreover, the irreducible posit on their view, unlike the irreducible posit on my view, is new and unfamiliar. What exactly *is* it that is supposed to be unsettled, on their view? If it is the world, then it seems that unsettledness will involve an unfamiliar kind of property—say, *being primitively metaphysically unsettled about which precise SOA obtains*. Alternatively, if different precise SOAs correspond ultimately to different worlds, then it seems that unsettledness will involve an unfamiliar kind of entity—say, a meta-world space—having the unfamiliar property of *being primitively metaphysically unsettled about which world is actual*. Perhaps Barnes and Cameron would reject these further characterizations, but to the extent that they do not or cannot characterize unsettledness in familiar terms, it remains that this posit is not just primitive, but unfamiliar. As such, a determinable-based account has an ontological advantage over Barnes and Cameron’s account, since it is less of a cost to posit the irreducibility of a familiar property than to introduce an unfamiliar primitive.

#### 4. Closing Remarks

I've argued that my determinable-based object-level account of MI has a number of advantages over Barnes and Cameron's meta-level 'Unsettledness' account, and that my account has the resources to respond to concerns they raise against it and against Third-Way views. Along the way two more general issues have become clear. First, not all accounts of MI take MI to induce indeterminacy in propositions—in particular, mine doesn't. Second, what answer one is inclined to give to the question 'Are there indeterminate SOAs?' will depend on the details of how such SOAs are understood. I agree with Barnes and Cameron in rejecting indeterminate SOAs understood as involving unfamiliar notions such as indeterminate instantiation, or unfamiliar properties such as 'being indeterminately F'. But on my account, indeterminate SOAs involve just a pattern of ordinary instantiation of determinable and determinate properties of the sort that we already have reason to accept. That this pattern accommodates MI in an intelligible, reductive, and systematic way provides further reason to say: yes, understood as per *Determinable-based MI*, there are indeterminate SOAs.

#### Notes

- \* Thanks to David Balcarras, Elizabeth Barnes, Ross Cameron, and Benj Hellie, as well as to audiences at the 2014 PERSP Final Workshop at the University of Barcelona, the 2014 Midwest Metaphysics Conference, and Iowa State University.
1. See also Barnes 2006, Barnes and Cameron 2009, Barnes and Cameron 2011, Barnes and Williams 2011 and Barnes 2012.
  2. This definition is simplified in ways that do not matter for what follows. See Wilson 2013 for a more detailed presentation of the view.
  3. Some think that the seeming indeterminacy in this case can be understood in semantic terms (whereby our use of the expression 'Mount Everest' has not fixed its precise boundary, though it could in principle do so); I don't find this plausible, but in any case various special science entities (e.g., molecules, cells) are also plausibly taken to have indeterminate boundaries, for reasons having to do with the operative laws of nature as opposed to anything semantic.
  4. This intuitive plausibility is supported by arguments in Yablo 1992 and Wilson 2009 according to which realization of macro-entities and their properties by 'lower-level' micro-aggregates and their properties involves the determinable/determinate relation.
  5. Interestingly, and in contrast to the feather case, one might not be inclined to attribute the determinate boundary properties to Mount Everest, even in relativized fashion.
  6. See Wilson (in progress) for further discussion of quantum MI.
  7. Similarly for other propositions about Mount Everest, concerning, for example, where Mount Everest is located or whether a given atom is part of Mount Everest. Taking the structure of determination into account, such claims will either be true or false (or perhaps meaningless, if a needed relativization parameter fails to be filled in), not indeterminate.
  8. Consider, for example, a gappy treatment of Schrödinger's cat. Here it is true that there is a cat in the box, true that the cat has a certain (quantum) determinable property corresponding to the state of superposition, false that the cat is alive, and false that the cat is dead. As such, it is false that it is indeterminate what determinate of the determinable

- has—e.g., indeterminate whether the cat is alive; again, for any determinate of the determinable property at issue, it is false, not indeterminate, that the cat has that property.
9. For example, in cases of indeterminate composition, the bearer of the determinable property might be a plurality of atoms, and the determinable property would be 'potentially composing an object' (which property might be constituted by other properties of the atoms, such as proximity and strength of interaction), having determinates on which, relative to some circumstances or criteria, the plurality does compose another object, and determinates on which, relative to other circumstances or criteria, the plurality does not do so.
  10. See note 8 for discussion of how gappy MI poses no problem for the law of excluded middle.
  11. For example, Evan's claim that macro-object boundary indeterminacy gives rise to indeterminate identity presupposes a meta-level account, according to which if an object has an indeterminate boundary property, then it is indeterminate to which precisely bounded object it is identical.

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