

## Potential problems? Some issues with Vetter's potentiality account of modality

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According to dispositionalism, starting from the broadly modal notion of a disposition, we can offer an analysis of metaphysical modality – i.e., of metaphysical possibility and necessity. And, as a knock-on consequence, one can also account for the rest of the ‘modal package’ – i.e., the counterfactual conditional, essentiality, laws of nature, etc.

In many ways, dispositionalism is an attractive approach to modality. For one, it is ideologically parsimonious: it has only one primitive – *dispositionality* – to which everything else reduces (or can at least be defined in terms of). For another, it promises an account of metaphysical modality in terms of actual, concrete objects and their properties. Consequently, dispositionalists do not need to postulate non-actual entities (e.g. the various denizens of Lewisian possible worlds) to serve as the anchors for modality. Finally, and relatedly, by anchoring modality in the dispositions of ordinary, actual objects, dispositionalism offers an extremely plausible epistemology of modality. Specifically, we can and do engage in empirical investigation to determine the dispositions of every day, and given dispositionalism, the epistemology of metaphysical modality is just a generalization of this process. This is a particularly appealing result because many of the competing accounts of modality – e.g. Lewisian realism and Finean essentialism – make the epistemology of modality extremely mysterious.

For these (and other) reasons, a number of philosophers have recently begun developing versions of dispositionalism. This includes Bird (2007), Pruss (2002), Borghini and Williams (2008), Jacobs (2010), and Anjum and Mumford (2018).

But however appealing dispositionalism is, it also faces a number of difficulties. Chief among them is providing suitable analyses of the core modal notions of possibility and necessity in terms of dispositions. For example, it is *prima facie* plausible that, if an object *a* has a disposition to *M*, then, possibly, *a* is *M*.<sup>1</sup> However, it is not at all clear how to extend the story so as to capture every possibility. For example, it is possible that the Golden Gate Bridge breaks, despite the fact that the Bridge intuitively lacks the disposition to break. In this way, the challenge for the dispositionalist is to provide a ‘full-fledged account of modality that is true to the spirit of dispositionalism without flying in the face of our most central pre-theoretical beliefs about what is possible’ (Contessa 2016: 1238).

Barbara Vetter (2015) offers an ingenious new version of dispositionalism which seems to solve the challenge. Specifically, Vetter suggests that we replace the usual conception of disposition with that of *potentiality*, which includes, but ‘extend[s] beyond’ dispositions and abilities (2015: 142). Appealing to potentialities allows Vetter to offer a definition of (metaphysical) possibility in terms of potentialities:

POSSIBILITY            It is possible that P iff<sub>df</sub> something has, had, or will have an iterated potentiality for it to be the case that P (2015: 199)

From this, definitions for various other modal notions can then be constructed. For example, Vetter defines necessity as:

NECESSITY            It is necessary that P iff<sub>df</sub> nothing has, had, or will have a potentiality that not-P (2015: 203)

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<sup>1</sup> In fact, even this first step is questionable, as there may be impossible dispositions. See e.g. Jenkins and Nolan (2012) and Vetter (2015: 250-257; 2016) for further discussion.

In this way, Vetter's potentiality-based account promises to be an extremely valuable contribution to the larger project of making sense of (metaphysical) modality; it has all the benefits of dispositionalism while apparently circumventing its biggest problems.

Yet we are, as Vetter says, at the 'beginning of the debate, not the end' when it comes to assessing her potentiality-based view (2015: 300). While Vetter offers us an innovative and nuanced dispositionalist account of modality, we do not yet have a complete and perfectly clear picture about whether the potentiality view is a better option than the competition. For example, it is not obvious how the potentiality view fares when we compare it to an essence-first approach, as developed by e.g. Fine (1994a, 1994b, 1995, 2000) and Correia (2006, 2012), or with Lange's (2009) subjunctive fact-based story.<sup>2</sup> Nor have all of the potentiality view's various wrinkles been ironed out yet. For example, is Vetter's view as ideologically simple a story as it first appears? And can we really get satisfactory definitions of other modal notions out of potentiality?

Furthering this debate involves determining whether the benefits of Vetter's potentiality account are worth the "costs" – i.e., whether the theoretical gains we make from adopting the position sufficiently counter-balance the problematic or counter-intuitive results that the theory entails.<sup>3</sup>

This paper is a contribution to this debate.<sup>4</sup> My aim is to highlight some potential difficulties for Vetter's account, thereby indicating some potential costs that would be incurred, were one to adopt Vetter's position. Specifically, I here identify three issues. While these issues are problematic (and substantive), I do not take them to be *fatal*; that is, I don't think they prove that the potentiality-based view is doomed. However, they do show that, at minimum, further clarification of the view is required.

The plan is as follows. I begin (§1) by articulating some relevant details of Vetter's potentialist view. This leads to the first issue (§2), which concerns a lack of clarity regarding Vetter's idea that potentialities admit of degrees. A natural way to understand this degree-talk is in terms of proportions of possible worlds; however, this leads to counter-intuitive results. In the end, exactly how to understand degrees remains mysterious. The second issue (§3) concerns individuation conditions for potentialities. Here, I argue that potentiality individuation is more complex than Vetter posits, which suggests that the position is not as ideologically parsimonious as it might first appear. Finally, before concluding, I raise (§4) a third issue, about apparently unmanifestable intrinsic potentialities. This suggests that there might be some problems with the general idea that we should anchor possibilities to objects.

## §1. Background: Vetter on potentialities

To understand Vetter's picture of the nature of potentialities, it is helpful to start by considering the standard view of dispositions. The standard, conditional analysis of (single-track) dispositions defines dispositions via counterfactual conditionals. So, 'o is disposed to M' is, on this view, defined as something like, 'If it were the case that S, then o would M'. In this way, the standard analysis individuates dispositions by both their stimulus conditions – the 'S' in the counterfactual's antecedent – and their manifestation – the 'M' in the consequent.

Vetter rejects this conditional analysis. The problem, according to Vetter, is that, given the massive qualitative and quantitative diversity of suitable conditions, it is not clear how to

<sup>2</sup> Notably, Vetter (2015: §5.6) discusses how her conception of potentiality relates to Fine's view about essence, but she does not explicitly compare the two overall accounts of modality.

<sup>3</sup> The methodology here is something that was exemplified by Lewis (1986), but is neatly summarized by Sider:

Competing positions are treated as tentative hypotheses about the world, and are assessed by a loose battery of criteria for theory choice. ... Theoretical insight, considerations of simplicity, integration with other domains (for instance, science, logic, and philosophy of language), and so on, play important roles. (2009: 385)

<sup>4</sup> For other objections to Vetter, see e.g. Schrenk (2015), Contessa (2016), Leech (2017), and McKittrick (2019).

adequately specify the stimulus conditions under which all and only the relevantly disposed things would fulfil the manifestation condition. After exploring a number of ways to try and do so, Vetter argues that they all fail. There is, per Vetter, no way to identify the right stimulus conditions.

Building off of this, Vetter suggests abandoning the appeal to stimulus *and* manifestation conditions. Her alternative starts from the idea that we approach dispositions in terms of the *potentiality* to manifest a relevant condition (2015: 65). Potentialities are, according to Vetter, individuated purely in terms of their manifestations. And for an object  $x$  to have the potential to F just means that, possibly,  $x$  Fs. For example, an object  $x$  is breakable iff  $x$  has the potential to break – and to have the potential to break just means that, possibly,  $x$  breaks. And the circumstances that might bring about  $x$ 's breaking are irrelevant – all that matters is that  $x$  *can* break.

Of course, many things have the potential to break – both a delicate vase and the Golden Gate Bridge *can* break, if subject to enough force.<sup>5</sup> But what differentiates the two is the *degree* to which they have this potential: while both have the potential to break (i.e., they both can, in the metaphysical sense of ‘can’, break), the vase is breakable to a greater degree than the Bridge. These degrees range from the minimal degree, which is simply possibly manifesting the relevant condition, to the maximal degree, which is having no potential whatsoever to not manifest the relevant condition (Vetter 2015: 90).

This difference in degree also helps explain why it is that only the vase has the disposition of *fragility*. This is because our everyday dispositional attributions are (mostly) contextual:

For some disposition terms, such as ‘fragile’, a given context imposes a threshold: how fragile an object has to be in order to count as fragile simpliciter. An object  $x$  counts as fragile in a context  $C$  iff  $x$  is above that threshold. For other disposition terms, such as ‘breakable’, any positive proportion is suitable, and no contextual threshold is required. (Vetter 2015: 78)

So, what demarcates something as fragile in an everyday context is that (i) it has the potential to break, and (ii) it does so sufficiently easily – where this ‘ease’ is determined by some contextually variant standard. And what guarantees the satisfaction of both conditions is that the relevant object has the potential to a sufficiently high degree.

Allowing potentialities that admit of degrees allows Vetter to directly address problems that plague more traditional dispositionalist accounts of modality. Most importantly, it no longer need be the case that, for an object  $x$  to possibly be F,  $x$  must be *disposed* to F; instead,  $x$  need only *potentially* be F. So Vetter can (rightly) say that ‘The Golden Gate Bridge is fragile’ is false – the Bridge does not have the potential to break to a sufficiently high degree to satisfy the contextually determined threshold such as to make the Bridge fragile. And she can do so while maintaining that ‘Possibly, the Bridge breaks’ is true, in virtue of the fact that the Bridge has the potential to break to some degree.

Similarly, consider cases where, for example, a fragile vase doesn’t break when struck gently. Vetter can (rightly) hold that the vase is still fragile, because the vase still has the potential to a sufficiently high degree to satisfy the contextually determined threshold for fragility. All that has happened is that the amount of force applied in this case did not suffice to cause the vase to manifest this potential.

What we have then is something like the following picture. The fundamental elements are potentialities, which are (i) properties possessed by individuals, (ii) individuated by manifestation conditions, (iii) such that they admit of degrees, and (iv) are closely tied to

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<sup>5</sup> Arguably, *every* concrete object can, in the metaphysical sense of ‘can’, be broken.

possibility. In particular,  $x$ 's having the potential to  $F$  entails that possibly,  $x$   $F$ s. Dispositions, meanwhile, can be thought of as a sub-type of potentialities. Specifically, to have a disposition is to have the potential to manifest a certain condition to a certain degree, a degree which is often contextually determined. In this way, while potentialities are individuated purely by manifestation condition, dispositions are individuated by manifestation condition and degree.<sup>6</sup>

This is an extremely quick sketch of Vetter's account of potentialities and dispositions. It glosses over many details, and only gives a rough approximation of several others. But it suffices to give us a grip on the foundations of her potentiality-based account. More importantly, it highlights certain points about the view which are directly relevant to the problems I will raise in the next section.

## §2. Degrees of potentiality?

A central plank in Vetter's account is the idea that potentialities come in degrees. And the first issue that I would like to raise concerns this notion of degrees.<sup>7</sup> Specifically, it is not at all clear to me how exactly we ought to understand this talk of degrees.

For example, suppose I am sitting at my desk with a ceramic coffee mug at one elbow and a glass beer mug at the other. Which of the two mugs is *more easily* broken – i.e., which has the potential to break to a great degree?

One option is to consider proportions of worlds. Specifically, on a 'proportional conception of degrees,  $x$  is more [breakable] than  $y$  just in case  $x$  breaks in more of the relevant worlds than  $y$ ' (2015: 73). Of course, this just leads to the question of which are the 'relevant' worlds. Thankfully, Vetter suggests the following explication:

$x$  is more [breakable] than  $y$  just in case the proportion of worlds where  $x$  has its relevant intrinsic features and breaks is greater than the proportion of worlds in which  $y$  has its relevant intrinsic features and breaks. (Vetter 2015: 78)

Extending this idea into a general principle gives us:

PROPORTION       $x$  has potentiality  $P$  to a greater degree than  $y$  iff the proportion of worlds where  $x$  has its relevant intrinsic features and  $P$ s is greater than the proportion of worlds where  $y$  has its relevant intrinsic features and  $P$ s

This gives us a way to spell out talking of degrees of potentiality. Suppose there are 100 worlds where beer mug  $b$  has intrinsic features  $I$ , and, in 35 of these worlds,  $b$  breaks. Meanwhile, suppose that there are 100 worlds where coffee mug  $c$  has intrinsic features  $I'$ , and, in 25 of these worlds,  $c$  breaks.<sup>8</sup> Because the proportion of  $b-I$  worlds where  $b$  breaks is larger than the proportion of  $c-I'$  worlds where  $c$  breaks,  $b$  has the potential to break to a higher degree than  $c$ .

Note that PROPORTION can be read in two ways. The *reductionist* reading treats the principle as providing a reductive definition of 'more easily', and hence a reductive account of degrees of potentiality. For obvious reasons, Vetter rejects this reductionist reading: she wants an account of modality in terms of potentials, so if she reduces potentials to some other (broadly) modal notion, then she undermines her own would-be foundation.

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<sup>6</sup> When discussing her view, Vetter often talks as if we can individuate dispositions solely by their manifestations, but she is clear that this is a 'simplification' (2015: 96), and that we must appeal to degrees too.

<sup>7</sup> As will become clear shortly, this worry is related to, but distinct from, concerns about measuring proportions involving potential infinities; see (Manley and Wasserman 2008: 79-81) and Vetter (2014: 141-3; 2015: 77-8) for discussion.

<sup>8</sup> Obviously, these numbers are massive simplifications.

Instead, Vetter suggests that we take the ordering of potentiality degrees as primitive, and adopt the *realist* reading, according to which the principle merely specifies a ‘formal model and rough approximation’ of degrees of potentiality (Vetter 2015: 78).

In what follows, I, following Vetter, will understand PROPORTION in the realist, rather than reductionist manner. That said, it is worth noting that, even if we accept the realist reading, because its main connective is an ‘iff’, if PROPORTION is true, then it must specify a logical equivalence between talk of degrees of potentiality on the one hand and proportions of (relevant) possible worlds on the other. So, even the realist who accepts PROPORTION must agree that, at minimum, you cannot have a difference in truth-value between (relevant) claims about world-proportions and claims about potentiality degrees.<sup>9</sup> (Obviously, a realist might reject PROPORTION entirely, but more on that option in a moment.)

The problem I’d like to highlight is that, even if we just read PROPORTION in this realist manner, we can generate counter-intuitive evaluations of potentiality degree-talk. To see the problem, it’s helpful to consider the following (slightly idiosyncratic) science fiction example.

Take Asmodeus, a king cobra (*Ophiophagus hannah*), whose bite is extremely venomous to humans – it is capable of delivering enough neurotoxins to kill an Asian elephant, as well as 50 percent of the humans she bites. Meanwhile, Basil (short for Basilisk) is a *cyber king cobra* – part animal, part machine – whose animal parts were grown in a lab (and are derived from a real king cobra’s) and whose high-tech nanomachines were developed by human scientists (perhaps working for the Tyrell or Wallace Corporations). Like Asmodeus, Basil’s bite is extremely venomous to humans. However, he is not *quite* as venomous – perhaps because of the presence of the nanomachines in Basil’s venom, his bite is only capable of killing 45 percent of the humans he bites. In this way, Basil’s bite is, intuitively, less venomous to humans than Asmodeus’ – in other words, she has the potential to a greater degree than he does.

When we consider the proportion of worlds where Asmodeus has the particular intrinsic properties she actually does and she manifests her venomous-to-humans potential, it will be suitably high. She is, after all, one of the most venomous snakes in the world! Of course, it won’t be *that* high. And the biggest factor dragging the proportion down is that not all king cobra-populated worlds are also human-populated worlds. Consequently, there are a significant number of worlds where Asmodeus has her specific intrinsic profile and there are no humans, meaning she will not be able to manifest her potential.

Like with Asmodeus, when we consider the proportion of worlds where Basil has the particular intrinsic properties he actually does and he manifests his venomous-to-humans disposition, it will be suitably high. However, it won’t be *that* high – he only kills 45% of the people he bites, after all. And it clearly should be lower than Asmodeus’ proportion.

But there’s a complication: Basil stands in an ontological dependence relation to humans. More specifically, assuming that Basil is essentially a cyber king cobra, by dent of his (essential) nanomachine parts, Basil and his ilk can only exist in worlds where the nanomachines exist. And, as the nanomachines are artefacts, they only exist in worlds where their creators – i.e., humans – do too. So, all cyber king cobra worlds are human worlds.

The upshot is that the biggest factor impacting Asmodeus’ proportion is not present in the case of Basil. Consequently, Basil is effectively guaranteed to have a larger proportion than Asmodeus. Given PROPORTION, this entails that Basil has the relevant potential to a greater degree than Asmodeus. But this is exactly opposite of the intuitive outcome!

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<sup>9</sup> This entails that, strictly speaking, the realist cannot both accept PROPORTION and take it to be a mere ‘rough approximation’ (Vetter 2015: 78). Rather, the realist must either take PROPORTION to be true, in which case it specifies the relevant logical equivalence, or to be false and at best a close approximation to the truth. Of course, opting for the latter leaves us with no answer to the overall question of how we should understand degrees of potentiality but also implies that there is a re-formulated principle – call it PROPORTION\* – that is true. And one way to read the point of this section is as asking the would-be realist to spell out PROPORTION\*.

More generally, let  $P$  be a potential whose manifestation involves entities of kind  $K$  in some way,  $a$  an object that has  $P$  to some non-maximal and non-minimal degree, and  $b$  an object that (i) has  $P$  to a slightly lesser degree than  $a$ , and (ii) is such that it cannot exist without there being  $K$ 's.<sup>10</sup> The proportion for  $a$  is defined as the number of worlds where  $a$  has its relevant intrinsic features and manifests  $P$  out of the total number of worlds where  $a$  has its relevant intrinsic features. The former consists entirely of  $a$ -and- $K$  worlds, though the latter includes both  $a$ -and- $K$  and  $a$ -without- $K$  worlds. In other words, the proportion is the following:

$$\begin{array}{l} \text{Number of worlds where } a \text{ manifests } P \text{ and } K\text{'s exist} \\ \text{Number of worlds where } a \text{ manifests } P \text{ and } K\text{'s exist} \\ \text{Number of worlds where } a \text{ does not manifest } P \text{ and } K\text{'s exist} \\ \text{Number of worlds where } a \text{ does not manifest } P \text{ and } K\text{'s do not exist} \end{array} \quad : \quad \begin{array}{l} \text{Number of worlds where } a \text{ manifests } P \text{ and } K\text{'s exist} \\ \text{Number of worlds where } a \text{ does not manifest } P \text{ and } K\text{'s exist} \\ \text{Number of worlds where } a \text{ does not manifest } P \text{ and } K\text{'s do not exist} \end{array}$$

Given plausible assumptions about modal variation and plenitude, the largest number here by far will be that of the worlds where  $a$  does not manifest  $P$  and  $K$ 's do not exist.

Meanwhile,  $b$ 's proportion is defined as the number of  $b$ -manifests- $P$ -worlds over the number of worlds where  $b$  does not manifest  $P$ . Here, because  $b$  cannot exist without there being  $K$ s, both the former and latter will consist of  $b$ -and- $K$  worlds. That is, this proportion is something like:

$$\begin{array}{l} \text{Number of worlds where } b \text{ manifests } P \text{ and } K\text{'s exist} \\ \text{Number of worlds where } b \text{ manifests } P \text{ and } K\text{'s exist} \\ \text{Number of worlds where } b \text{ does not manifest } P \text{ and } K\text{'s exist} \end{array} \quad : \quad \begin{array}{l} \text{Number of worlds where } b \text{ manifests } P \text{ and } K\text{'s exist} \\ \text{Number of worlds where } b \text{ does not manifest } P \text{ and } K\text{'s exist} \end{array}$$

Importantly, the denominator is obviously much smaller than in the previous case, since the number of worlds where  $b$  does not manifest and  $K$ 's do not exist is zero. Consequently, this proportion is guaranteed to be larger than the one for  $a$ . Given PROPORTION, it follows that  $b$  has  $P$  to a greater degree than  $a$ . But this contradicts the initial stipulation that  $b$  has  $P$  to a lesser degree than  $a$ .

The possibility of such cases strongly calls into question understanding talk of potentiality degrees in terms of talk of proportions of worlds.

Of course, a reply seems ready to hand: Vetter can say (as she does in reply to a different, but related objection) that this is just 'another shortcoming of trying to account for such perfectly intelligible notions as that of a disposition in terms of possible worlds' (2015: 78). Instead, we should take the ordering of potentiality degrees as primitive (2015: 81), and leave aside any attempt to cash out degree talk in other terms.

This certainly circumvents the above problem: if we forgo trying to make sense of potentiality degrees in terms of world proportions – even in the weak, realist manner – then we cannot generate the above problem.<sup>11,12</sup>

<sup>10</sup> The easiest way to guarantee satisfying clause (ii) is to make  $b$  generically ontologically dependent upon  $K$ 's.

<sup>11</sup> In this way, one can read this point as simply strengthening Vetter's case for our being better off thinking of potentiality degrees as primitive.

<sup>12</sup> An alternative response, suggested by an anonymous referee, would be to insist that every entity can fail to co-exist with any other entity, either directly or via counter-parts. This could be motivated by appeal to a broadly Humean theory of recombination. Obviously, this would eliminate the difference between Asmodeus and Basil, since the case turns on the latter not being as modally "free" as the former. However, this does not seem like a suitable move for someone like Vetter, since it relies upon approaching modality via recombination, rather than via the potentialities of actual, concrete objects.

However, it also leaves us with no way to translate between potentiality-degree talk and world-talk. This makes degrees of potentiality mysterious: if we cannot cash degrees out in terms of proportions of worlds, how, exactly, should we understand them? We have no answer.

Of course, Vetter will likely respond that this talk of degrees is ‘perfectly intelligible’ (2015: 78) on its own, without any such story linking it to things like proportions of worlds. Yet for those of us who struggle to understand potentiality degrees, this is cold comfort.<sup>13</sup>

Let us summarize. The idea that potentiality admits of degrees is central to Vetter’s account; in particular, it plays a key role in ensuring that she has an extensionally adequate theory with regards to possibility claims. However, it is not clear how best to understand this talk of degrees. A natural way to do so is in terms of proportions of possible worlds, as in PROPORTION, which specifies a logical equivalence between certain degree claims and claims about proportions of worlds. The problem is that it is possible to generate counter-examples to this logical equivalence, as exemplified by the Asmodeus-Basil case. The most Vetter-friendly response to such counter-examples is to give up on PROPORTION and insist that (i) degrees of potentiality be taken as primitive, and (ii) claims about degrees are not logically equivalent to any claims about (proportions of) worlds. But this just makes potentiality degrees even more mysterious.

### §3. Individuation of potentialities?

The second issue I would like to raise concerns the individuation of potentialities. To get a grip on it, it is helpful to quickly talk through a different objection.

Consider coulrophobia (fear of clowns) and cynophobia (fear of dogs). Both seem to have the same manifestation: namely, being afraid. So, according to Vetter’s account, they are the same potential. Further, if we stipulate that they are possessed to the same degree, it follows that these are the same disposition on Vetter’s account. However, they are intuitively distinct. And what distinguishes them seems to be their particular stimuli – exposure to clowns and to dogs, respectively – which suggests that we need to return to something like the counterfactual conditional account.<sup>14</sup>

Vetter’s response (2014: 149, 2015: 78fn14) is to say that the relevant manifestations are more complex than they first appear, often incorporating elements that look a lot like the stimuli. Specifically, coulrophobia’s manifestation is *being afraid of clowns*, while cynophobia’s manifestation is *being afraid of dogs*. As these manifestations are distinct, the account does not identify the two after all.

But consider *perishable* and *destructible*.<sup>15</sup> The former’s manifestation condition is to *perish* – i.e., to go out of existence<sup>16</sup> – and the latter’s manifestation is to *be destroyed* – i.e., to go out of existence. However, the former is nearly always attributed to entities that are (or were) alive, and the latter nearly always to (non-living) artefacts. This difference in application strongly suggests that the two are distinct: one is a potential only possessed by (formerly) living things, while the

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<sup>13</sup> Another potential response is to suggest that the counter-example case is built around the assumption that the relevant venomous potentiality is manifested in the killing of humans. But, as an anonymous referee has suggested, why understand the disposition in this way – couldn’t the same disposition be manifested by killing some other animals? Two points in reply. First, while this might block the Asmodeus-Basil example, it is not obvious how to extend the response to block every version of the objection we can generate using the above schema. Second, as we will see in the next section, to avoid a different objection, Vetter must buy into fine-grained manifestation conditions. Yet once we start thinking that manifestations are fine-grained, it is not obvious how Vetter could block a version of the Asmodeus-Basil case that insisted upon using *venomous-to-humans* as the potential, rather than simply venomous. For at the fine-grained level, these two have different manifestations, and hence are different potentialities.

<sup>14</sup> Vetter (2014: 149) credits this objection to Alastair Wilson and an anonymous referee.

<sup>15</sup> Thanks to Stephan Leuenberger for suggesting this pair of dispositions.

<sup>16</sup> Etymologically, the English comes from the Latin present active infinitive of *pereo*, which is itself a combination of *per* (‘through’) and *eō* (‘to go’).

latter only by non-living entities. However, Vetter's account entails that they are identical, since the two have the same manifestation condition.

More generally, there seem to be some potentialities that have the same manifestation condition but are intuitively distinct because they apply to different kinds or sorts of entities. Vetter's account entails that the two are the same potential/disposition, which is an unpalatable result. This suggests that the individuation conditions for potentialities are more complex than Vetter suggests. Consequently, it would be good if Vetter could spell out what exactly these conditions are.

#### §4. Unmanifestable intrinsic potentialities?

To build up to the third issue, it is helpful to spell out a few more details about potentialities. Specifically, Vetter thinks that there are a number of different types of potentialities. The simplest are *intrinsic potentialities* – i.e., potentialities that are intrinsic to the object that possesses them. Along with these intrinsic potentialities, there are *joint potentialities*, potentialities that two or more things jointly possess (e.g., Vetter and I possess the joint potentiality of our singing a duet).<sup>17</sup> These joint potentialities ground *extrinsic potentialities*,<sup>18</sup> which concern individuals external to the object that possesses the potentiality. For example, Vetter possesses the extrinsic potentiality that I sing a duet, and this extrinsic potential is grounded in our joint potential to sing a duet. Finally, there are *iterated potentialities*. Iterated potentialities are potentials to have certain potentials.<sup>19</sup> For example, Vetter has the iterated potentiality to have a daughter who has the potentiality to play the piano. And it is these iterated potentialities that directly bridge potentialities to possibilities, in POSSIBILITY.

The third issue concerns certain intrinsic potentialities like perishable, destructible, and mortal. Specifically, it does not seem possible for the objects that possess these potentialities to manifest them. But if it is not possible for the objects to manifest them, then it is not clear how the relevant story goes such that we can derive the appropriate possibility claims.<sup>20</sup>

Take my mortality. Plausibly, this disposition expresses an intrinsic potentiality of mine: namely, that I have the potential to die. According to Vetter's account, I have the potential to die iff I can manifest *M*, where *M* is mortality's characteristic manifestation condition. However, there is no obvious property *M* that I can manifest. Realizing my mortality involves my death, which (plausibly) involves my ceasing to be. But if I cease to be, then I am not around to be doing any manifesting. So I cannot in fact manifest the potential.<sup>21</sup>

More precisely, the first-order being constraint says that, necessarily, if an object has a property, then it exists. This principle is a generalization of the appealing and familiar idea that something has to be in order to be a certain way, and has the air of something almost analytic; as Williamson puts it, 'How could a thing be propertied were there no such thing to be propertied? How could one thing be related to another were there no such things to be related?' (2013: 148).

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<sup>17</sup> Joint potentialities are often grounded in the individual potentialities of their possessors, though Vetter gives no general story about the ground link between the two types due to a variety of issues. For further discussion see Vetter (2015: §4.3.4)

<sup>18</sup> For more on the grounding connections between joint and extrinsic potentialities, see Vetter (2015: §4.5).

<sup>19</sup> It is clear that at least some iterated potentialities are grounded in joint potentials; for example, my having the iterated potentiality to be such that I potentially am friend

<sup>20</sup> In this way the following objection is related to, though distinct from, problems that might emerge from apparently impossible dispositions as in Jenkins and Nolan (2012).

<sup>21</sup> Note that the problem I am raising here is a different (though related) problem to the one discussed by Cameron (2008) about all actual existing contingent beings not existing, and by Leech (2017) and Kimpton-Nye (2018) concerning potentialities for a thing to never have existed at all. Vetter (2015: 274) thinks the latter problem is particularly troublesome; my discussion here is an attempt to show that the "simple" problem is more problematic than she thinks.

Suppose, for *reductio*, that F is the property I possess once I manifest my mortality. If I were to exercise my mortality, then (i) I would no longer exist (I take the ceasing of existence to be constitutive of death), and (ii) I would possess F. Given the first-order being constraint, my possessing F entails that I exist. But this means that I both exist (due to possessing F) and do not exist (due to my having died). Since this is impossible, it follows that there is no manifestation condition that I could realize to demonstrate my mortality.

This issue gets its bite when we consider Vetter's argument for

ACTUALITY                      Potentiality is implied by actuality (2015: 162, 182)

which plays a key role in Vetter's potentiality-based modal semantics. And a central premise in the argument for ACTUALITY is

- (2) Whenever an object  $x$  exercises a potentiality to  $\Phi$ , then  $x$  must (simultaneously) possess the potential to  $\Phi$  (2015: 182)

However, the above argument about my mortality suggests that (2) is false. Per (2), if I exercise my potential to die, then I must simultaneously possess the potential to die. But if I possess this potential – which is a property – then, by the first-order being constraint, I exist. So, I must both exist and not exist in order to die. Who knew immortality was so easy!

Of course, there is nothing special about me/my mortality: we can run a similar objection using a variety of objects and potentialities. All that is required is that the relevant potential is both intrinsic and such that manifesting it entails the possessing object's non-existence.

There are several ways that Vetter might respond to this problem. One option is to appeal to extrinsic potentialities.<sup>22</sup> For example, we might say that 'x is mortal' is true because some distinct object  $y$  has the extrinsic potential for  $x$  to die. However, this seems like a poor response. First, my mortality seems like one of my intrinsic potentialities, and hence it is part of the ground for some other object's having this extrinsic potential, rather than something that it grounded in it. But for me to have this potentiality, I need to be able to manifest it – otherwise, it is not clear in what sense I can be said to have the potential. Second, it is possible to run the same problem using a lonely object – i.e., an object that exists in a world without any other (concrete) objects. Suppose that I am lonely, in the sense that I am the only object that exists in a given world. I will still retain my mortality, and should be able to manifest it. But there is no other object around to possess the relevant extrinsic potentiality. So the move to extrinsic potentialities does not seem to help.

Alternatively, one might suggest that it is possible for me to manifest my mortality, as my doing so does not require my presence. Specifically, as the manifestation of a potentiality is a property, if we held that the manifested property can continue to exist even if the bearer of the property (i.e., me) ceases to exist, then there would be no problem in my manifesting my mortality: the manifested property, sans me, could hang around and do the requisite job.<sup>23</sup>

Obviously, this response depends upon adopting a metaphysics of properties that allows for this kind of "ontologically independent" properties. And there are a number of metaphysical pictures available that do so; for example, one that seems highly suitable for thinking of potentialities in this manner is Tugby's 'Platonic dispositionalism' (2013).

However, this seems like a bad response to the problem. For one, it is not clear how well this conception of properties fits with Vetter's general background object-property ontology (see Vetter 2015: 12-3). More importantly though, on this view, (2) still ends up false. And since (2) is

<sup>22</sup> Thanks to an anonymous referee for pushing me to say more about this response.

<sup>23</sup> Thanks to an anonymous referee for suggesting this and the next response.

a key part of the argument for ACTUALITY (which is, in turn, a central part of Vetter’s modal semantics), the problem remains.

Finally, one could try and block the problem by embracing something like Williamson’s *permanentism*, according to which ‘always everything is always something’ (2013: 4). That is, entities never in fact cease to *exist*; instead, when they die/are destroyed, they merely cease to be concrete.<sup>24</sup> Adopting permanentism, the potentialist could say that, when I manifest my potential to die, I simply become non-concrete. And though I am no longer concrete, I still exist, which avoids the contradiction.

This certainly gets around the problem. However, it does so by saddling the potentialist with a pretty heavy – and, to many, counter-intuitive – philosophical commitment. Hence it avoids one cost at the expense of introducing another.

Notably, something like this problem will emerge for any view that, like Vetter’s, starts with ‘localized’ modality (Vetter 2015: 2, though see also Vetter 2010; 2018). Localized views think of possibilities as being ‘rooted in objects’ – i.e., possibilities are grounded in the objects that are involved in them. Given a localized view, if you accept that (i) I have the potential to die, and (ii) this potentiality entails the truth of, ‘I can die’, then one is quickly forced into also accepting (iii) for it to be true that I can die, I must be able to bear the property of being dead. For the possibility claim should be grounded in *my* possessing certain properties – that’s the appealing part of the localized view after all! But this walks directly into the problem: if I die, I ain’t around to bear the property of being dead.

In contrast, non-localized views do not take possibilities to be grounded in the objects they are about. Instead, they are grounded in more “global” matters – for example, in how the various Lewisian worlds are. And, assuming a non-localized view, it is clear that one can accept (i) and (ii) without committing to (iii). For example, one could hold that what makes it true that ‘Possibly, I die’ is that there is some possible world that has me as a part at an earlier time and does not have me as a part at a later time (because, at some point, I ceased to exist at that world). Importantly, on the non-localized view, something needs to be around to make the possibility (and hence also the potentiality) claim true, but that something doesn’t have to be *me*.

The upshot is that this issue isn’t a problem for anyone who accepts the truth of ‘I can die’. Rather, it’s a problem for anyone who thinks that this is a localized possibility that needs to be explained by my manifesting certain properties. Those of us who think it is non-localized can happily accept it without running into trouble.<sup>25</sup>

## §5. Conclusion

The above has raised three issues that emerged from examining the details of Vetter’s potentiality-first account of modality. As previously mentioned, these issues are likely not fatal. However, they do highlight potential pitfalls that need to be addressed, as well as places where more clarification would be welcome.

In closing, I would like to stress that, although this paper has raised some issues for the potentiality view, Vetter has offered us a clear, methodically articulated, detailed, comprehensive, and utterly novel account of modality. Though I disagree with several points, her (2015) is an extremely valuable contribution to the broader debate, and a model for how metaphysics should be done.<sup>26</sup>

<sup>24</sup> Importantly, being non-concrete is not the same as being abstract. Non-concrete things can possibly be(come) concrete, while abstracta are always and necessarily abstract.

<sup>25</sup> There is a fourth potential problem facing Vetter’s account, that emerges when we consider how her story about degrees of potentiality change over time interacts with POSSIBILITY and the fact that some potentialities will come to be possessed to a maximal degree. However, for space reasons, it is not possible to discuss this matter here. For more of this point, see Wildman (MS).

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