

# Possibility and the analysis of dispositions

Alexander Bird

*Abstract:* I examine Barbara Vetter's dispositional account of modality and the analysis of dispositions upon which it is based. The latter ties dispositions to manifestations only. I argue that this feature gives Vetter's account an advantage over other dispositional accounts of modality – it avoids the 'problem of [how to ground] non-conditional possibilities'. On the other hand, I argue that we need stimuli as well as manifestations in order to distinguish distinct dispositions that have identical manifestations. Vetter's answer to the latter says that some manifestations are conditional in nature. That answer undermines the advantage that Vetter's account had with regard to the problem of non-conditional possibilities – her view now also faces that problem. I also raise the question of how it is that the analysis of an 'everyday' concept such as 'disposition' could provide insight into fundamental questions of modal metaphysics.

*Keywords:* disposition; modality; possibility; the problem of non-conditional possibilities; Vetter.

## 1. *Introduction – a new account of dispositions*

Dispositions have modal characteristics. They have implications for what could or would happen. If dispositions – or, better, properties with dispositional natures (dispositional properties, for short) – are a fundamental part of our ontology, might not their existence provide the basis for an account of modality? While I have (Bird 2007: 218 fn143) made such a suggestion, others have actually attempted the task (Borghini and Williams 2008; Jacobs 2010). Barbara Vetter's (2015) wonderfully rich book gives the most thoroughly detailed dispositional account of modality yet available. It does much else besides, but crucially it gives a novel account of what dispositions themselves are, and this forms the basis for her account of modality.

The standard account of dispositions (SA) says that something like the following is true:

(SA) for a disposition D, and appropriate stimulus condition S and manifestation condition M,  $x$  has D iff were  $x$  to be S then  $x$  would M.

For example:

(F-S)  $x$  is fragile iff were  $x$  subjected to a stress,  $x$  would break.

(SA) may be strictly false because of finks, antidotes/masks and the like (Johnston 1992; Martin 1994; Lewis 1997; Bird 1998). These are conditions that interfere with the normal course of events, so that the truth of the subjunctive ‘were  $x$  subjected to a stress,  $x$  would break’ does not align with the truth of the disposition ascription ‘ $x$  is fragile’. A stimulus to a disposition might in special circumstances cause the disposition to disappear. For example, striking a fragile glass might also cause it to be superheated very quickly so that the glass becomes soft and pliable before the striking can lead to its breaking. So, although it is fragile, striking the glass would not cause it to break. In the case of a mask or antidote the stimulus does not eliminate the disposition but does initiate interference with the normal course of the disposition’s action. A bite from a deadly coral snake is disposed to kill me. But I take an antidote and thereby survive. These show that in some circumstances there can be dispositions without corresponding true subjunctive conditionals. Likewise, there can be true subjunctive conditionals without dispositions. At the moment the glass is soft. But were I to strike it, it would be rapidly supercooled and so become fragile and break from that very striking. A sturdy iron cooking pot is attached to a bomb with a sensitive detonator. The pot is not fragile. But were I to strike it, it would end up broken. The latter is an example of a *mimic* to a disposition.

Even though such cases show (SA) to be strictly false, most commentators think that there is something fundamentally correct about (SA). After all, the cases mentioned in the preceding paragraph are unusual. Some hold that (SA) can be patched up, with clauses added to exclude these interferers. Others hold that even if (SA) cannot be made watertight, it is nonetheless close to the truth. In any case, different versions of the standard view of dispositions all agree that the characterisation of a disposition requires specification of both a stimulus condition and a manifestation (perhaps more than one of each).

In contrast with the standard view, Vetter holds that dispositions should be characterized solely in terms of their manifestation conditions. Hence Vetter’s account (VA) says:

(VA) for a disposition D, and appropriate manifestation condition M,  $x$  has D iff  $x$  could M.

For example:

(F-V)  $x$  is fragile iff  $x$  could break.

(In fact Vetter says:  $x$  is fragile iff  $x$  could break *easily*. The latter addition, required to address the fact that sturdy things could break is stressed enough, is important and will be addressed later.)

This essay addresses two questions. First, is the new view of dispositions is correct? And, secondly, what implications does our answer have for Vetter's account of modality? The argument of the paper is that, for all her insights, there are problems with Vetter's accounts of dispositions and of modality. I first introduce the 'problem of non-conditional possibilities'. This I argue is a problem for standard approaches that account for modality in terms of dispositions. Vetter's approach seems not to suffer from this problem, and so her account has a *prima facie* advantage. I then look at her account of dispositions in terms of manifestations alone, on which the account of modality depends. In the sections 'The need for stimuli' and 'The problems of distinct dispositions' I give two arguments for thinking that a satisfactory account of dispositions needs stimuli, not manifestations alone. There is in Vetter's armoury a response to the second, more serious problem – she allows for conditional manifestations. I argue, however, that committing to this response means that Vetter's account will also suffer from the problem of non-conditional possibilities. So not only does her account lose its advantage over the standard view, it thereby also faces what I take to be a major obstacle to a dispositional account of modality.

## 2. *The problem of non-conditional possibilities*

Vetter's account (VA) makes the connection between dispositional properties and modality at least superficially straightforward (though there is a lot of detail that Vetter also provides). Borghini and Williams (2008) also propose to account for modality in terms of dispositions. But they use the standard account, (SA). That leads to what I regard as a significant problem with their approach (the problem of non-conditional possibilities). So, in my mind, one great advantage of (VA) is that it avoids this problem that is generated by using (SA).

As I say, we can see quite easily how to get the bare bones of an account of modality from Vetter's (VA):

(P) M is possible if something has a disposition D with manifestation M.<sup>1</sup>

<sup>1</sup> Vetter's account of possibility is much more sophisticated than this. See her chapters 5 and 6.

How would we get an account of modality from the traditional (SA)? (P) is not available. For the truth of (SA) does not make (P) true. The conditional  $X \Box \rightarrow Y$  tells us that in the nearest possible world where  $X$  is true,  $Y$  is true also. But that makes  $Y$  true at some possible world only if  $X$  is true at some possible world. So, (SA) gives us only:

(P\*)  $M$  is possible if something has a disposition  $D$  with manifestation  $M$  and stimulus  $S$ , and  $S$  is possible.

As a reductive account of possibility, (P\*) does not look very promising on account of its circularity: (P\*) tells us what it is for  $M$  to be possible in terms of  $S$  being possible (plus the dispositional claim). Similarly,  $S$  being possible will be articulated by a distinct instance of (P\*), which will refer to a disposition  $D'$  of which  $S$  is the manifestation, and of which some other condition,  $T$ , is the stimulus – plus  $T$  being possible. And so on. This approach to understanding possibility in terms of dispositions will not bottom out in dispositions alone, but will always have an ungrounded appeal to some possibility.

Let us distinguish between non-conditional possibilities ('possibly, the glass is struck', 'possibly, the glass breaks') and conditional possibilities ('possibly, if the glass is struck, it breaks'). With (SA) we can ground conditional possibilities in dispositions. Our problem is that we cannot ground *all* non-conditional possibilities in dispositions. We can ground some non-conditional possibilities in dispositions, but only if there are some non-conditional possibilities that are not so grounded.

We can put this more formally. Let us assume (SA) and that  $x$  has disposition  $D$ . Then:

$$Sx \Box \rightarrow Mx$$

from which follows:

$$\Diamond(Sx \rightarrow Mx)$$

So we get a conditional possibility, such as its being possible that if  $x$  is struck  $x$  will break. But we also want non-conditional possibilities, such as  $\Diamond Mx$ . That is, in addition to its being possible that, if the vase it struck, it breaks, we also want it to be possible that the vase is broken. But we cannot derive such non-conditional possibilities from conditional ones of the form  $\Diamond(Sx \rightarrow Mx)$ . To derive  $\Diamond Mx$  we also need  $\Diamond Sx$  as a premise (in fact we need the compossibility of  $Sx$  and  $Sx \rightarrow Mx$ , i.e.  $\Diamond(Sx \ \& \ Sx \rightarrow Mx)$ ). That is, to get to the (non-conditional) possibility that the vase is broken, we need not only the (conditional) possibility that if the vase is struck, it is broken, we need also the

(non-conditional) possibility that the vase is struck. But that is just to say that we can get an account of one non-conditional possibility only if we *already* have some other non-conditional possibility. I.e. this attempt to account for possibility is doomed to circularity (or infinite regress).

This problem arises because on the standard view the natures of all dispositional properties are conditional, and so they will only ever generate truths of the form of (P\*) that are conditional in nature. Whereas a materially adequate account requires that we have truthmakers for non-conditional possibilities. Let's call this *the problem of non-conditional possibilities*. Giving a reductive account of modality in terms of dispositions while employing the standard account of dispositions suffers from the problem of non-conditional possibilities.

On the other hand, *prima facie*, Vetter's account of modality does not suffer from the problem of non-conditional possibilities. That is because Vetter's (VA) says that the natures of dispositions are non-conditional (or so it seems). For example, Vetter's account of fragility, (F-V), tells us that something is fragile if and only if it could break – we get the possibility of breaking directly from the disposition. More generally and formally, from (VA) and the assumption that  $x$  has disposition D, we derive directly that  $x$  could M and hence  $\Diamond Mx$ .

So Vetter's approach to dispositions has, in my view, a considerable advantage over the standard view when it comes to providing a foundation for modality. Nevertheless, I shall argue that Vetter's view *also* turns out to suffer from a version of the problem of non-conditional possibilities.

### 3. *The need for stimuli*

Vetter's account has a significant *prima facie* virtue in accounting for possibility. But is that account right? In this section and in the next I articulate reasons for thinking that we cannot do without stimulus conditions in our account of dispositions.

Let's look at (F-V):

(F-V)  $x$  if fragile iff  $x$  could break.

That's clearly not quite right. For most things could break if stressed enough (e.g. subject to a huge explosive power), including many sturdy, not fragile things. So Vetter prefers something like:

(F-V')  $x$  if fragile iff  $x$  could break easily.

How is the ‘easily’ qualification supposed to be understood? It is to be understood, as others have done, in terms of close possible worlds.<sup>2</sup> Roughly, E could easily happen if it happens in some close possible world(s). The glass, being near the edge of the table, could easily have been knocked onto the floor: there is a world close to the actual world, differing only slightly in some earlier condition, in which the glass is in fact knocked onto the floor. For Vetter’s purposes ‘easily’ implies more than just one possible world, to avoid the problem of Manley and Wasserman’s (2008: 67) sturdy concrete block that would break if dropped in one precise way, but not otherwise. On the other hand, there do not need to be *many* worlds. As Vetter (2015: 73) says, the fragile and precious champagne glass might be carefully packed away at the back of a shelf. While the precarious glass on the table’s edge is knocked off and broken in many worlds similar to the actual world, there are not many worlds where the precious champagne glass is unpacked and suffers breakage. Even so, there are ‘a few’ such worlds.

This understanding of ‘easily’ will not do, however. Let us exaggerate the champagne glass story. The wealthy lover of fragile glasses pays for the creation of a fragile glass under very controlled circumstances, and then ensures that it is packed in polystyrene (styrofoam), in a vault in an area at no risk of earthquakes, but with shock-proof engineering, protected by dedicated guards, and so forth. If we elaborate the story enough, it is clear that there is no close possible world in which this glass breaks (it comes to the end of its existence by melting). Nonetheless, it is intrinsically like many other fragile glasses – it is undeniably fragile. If one prefers a more realistic story, think of a high-security lab working with a dangerous infectious micro-organism. The organism might be infectious (a disposition), but in no close world does it infect anyone, thanks to the stringent precautions taken in the actual world. Indeed, the very point of bio-security is to make it the case that the dangerous organism cannot easily infect anyone. Yes, it is still highly infectious.

I think that Vetter has wrongly transferred an analysis of ‘easily’ appropriate for single events to the generic case of the manifestation of dispositions. There is a difference between these two cases:

(a) A glass is on the edge of the table; there are lots of people walking by; it could easily be knocked off, which would cause it to break. *The glass could easily be broken.*

<sup>2</sup> What determines the closeness of possible worlds? Vetter, who at this point in the discussion, is drawing in large part on the work of Angelika Kratzer (1981), is using a standard Lewisian conception of closeness, which in this case (where laws are held fixed) means that two worlds are close to the extent that they have exact matches in matters of particular fact.

(b) A glass is fragile; very little force would be required to snap its slender stem. *The glass could be broken easily.*

Only the first concerns happenings in close possible worlds. Regarding (a), the way to make the relevant (italicized) statement false is to move the glass away from the edge of the table, so that there is no longer a close world in which it is knocked off the table. In the second case, making the italicized statement false is not so easy, and no amount of careful positioning or other protection will help – one needs to change the glass itself. The two sentences are not interchangeable. One cannot use ‘the glass could be broken easily’ to mean that that it is actually in danger of being broken – one has to use the different ‘the glass could easily be broken’.<sup>3</sup>

In (b) the role of ‘easily’ is to capture the thought that only a little stress needs to be applied to the glass for it to break. It does not tell us whether there is any prospect of the glass actually being stressed by that amount and therefore broken (there might not be, as in the case of the glass belonging to the lover of fragile things). That is, ‘easily’ relates to the implicit stimulus, a stressing of the glass. In short, in (b) to understand ‘easily’ we need to talk about the degree of stress that will bring about breaking, and to talk about stress is to talk about the stimulus. Consequently, I do not think that Vetter’s (F-V) or (F-V’), which exclude any reference to a stimulus, can be right. Dispositions such as fragility must be characterised by a stimulus as well as a manifestation. That is true even if usually our interest is in the manifestation and so the stimulus will be left implicit or unspecified (we shall see that this is not always the case).

I have just argued that because ‘easily’ in (b) characterises the stimulus that brings about breaking, Vetter’s stimulus-free account of dispositions cannot be right. I suggest that she has wrongly assimilated this ‘easily’ to the ‘easily’ of (a) which does not concern any stimulus but concerns nearby possible worlds. That mistaken assimilation means that (F-V’) can be shown to be false by cases such as that of the sturdy iron pot attached to a bomb with a sensitive detonator. Just like the precarious glass, the pot is in a place where it could easily be knocked by a passer-by, and the bomb thereby detonated. There is a therefore a close world where the iron pot is broken. We can again exaggerate the case: the wealthy hater of sturdy things has organised a whole series of bombs and such like, any one of which could easily be detonated to blast the pot into pieces. In quite a number of close worlds the pot is broken. Since the iron pot is broken in at least a few close worlds, it is the case that, as Vetter understands

<sup>3</sup> The latter is ambiguous, and can be used to mean what the former does.

'easily', it could easily be broken, and so according to (F-V'), the iron pot is fragile. But that is false.

A response on Vetter's behalf might point out that the sturdy iron pot with a bomb and sensitive detonator is a mimic, a well-known counterexample to (F-S) and so to (SA) (see above). So the standard view fares equally badly. Nonetheless, on closer inspection, I think this case confirms the standard view. Yes, (F-S) is false. But why? Because the causal path from the stressing of the pot to its breaking is not of the right sort. In a fragile object, a light stress should lead directly to breaking, not via a bomb and the much greater stress it causes. The natural response to the mimic case is to focus on the nature of the stimulus. That focus makes sense on the standard account of dispositions. It is natural to ask: maybe the analysis can be reformulated to make the description of the stimulus more specific, so ruling out the bomb and detonator as suitable causal routes? On the other hand, Vetter's stimulus-free account of dispositions cannot make sense of this kind of interest in the stimulus. Correspondingly there isn't any avenue for amending or re-interpreting the details of (F-V') to avoid the problem of the iron pot. For the only machinery Vetter offers us concerns the number of close worlds in which the manifestation occurs. And as our examples show that's the wrong kind of machinery for this job.

#### 4. *The problem of distinct dispositions*

The previous section gives a reason for thinking that we need stimuli to characterize dispositions. This section gives another reason. While Vetter has a response to this new reason, we shall see that her response exposes her view to the problem of non-conditional possibilities – the problem for the standard account that in my view gave Vetter's account a significant (but, we shall see, only *prima facie*) advantage.

A second reason to think that we need stimuli to individuate dispositions is the fact that distinct dispositions can have the same manifestation. Gravitational mass and electric charge both manifest themselves with a force. Vetter's manifestation-only approach would seem to require us to regard these as the same disposition. Clearly they are not. The standard view holds that they are distinguished by their different stimuli.

In fact Vetter has a means of dealing with this problem (although not explicitly advertised as such). She holds that for some dispositions the manifestation is itself conditional. In the case of charge the manifestation is a conditional of the form: if the object is at some distance from another charge, then it will



experience such-and-such a force. So in fact gravitational mass and charge are different dispositions because they do have different manifestations after all – different conditional manifestations.

One might reasonably complain that this does rather look as if stimuli are being smuggled back into the picture.<sup>4</sup> In broad-brush terms, the standard view is that dispositions are closely related to some conditional relationship between a stimulus condition and a manifestation condition. The detailed debates have been about the precise analysis of this relationship (or whether the relationship is analysable at all). In analyzing these dispositions in terms of a conditional relation between one condition and another, Vetter's account of these dispositions looks to be just a different version of the standard view.

But the difficulties that this response cause for Vetter's view are in fact rather deeper than this. The analysis of these dispositions in terms of conditional manifestations means, I shall argue, that Vetter's view now suffers from the same problem – the problem of non-conditional possibilities – that I said afflicted the standard view when used as the basis of an account of possibility.

Let us briefly recapitulate the problem of non-conditional possibilities for the standard account of dispositions, (SA). Taking properties with dispositional natures (powers, potencies) as elements of our fundamental ontology seems to offer a route to an account of modality. When allied with the standard account of dispositions, this approach encounters an obstacle: the dispositional property grounds the truth of a conditional possibility ('possibly, if the stimulus occurs, the manifestation occurs'). But what we want is also to ground non-conditional possibilities (such as 'possibly, the stimulus occurs' and 'possibly, the manifestation occurs'). For example, the glass possessing the property of fragility may ground the truth that were the glass struck, it would break. This in turn entails that it is possible that, if the glass is struck, it breaks. The latter is a conditional possibility. But we also want the non-conditional possibility, the possibility that the glass breaks. The conditional possibility, *possibly the glass breaks if struck*, does not entail the non-conditional possibility, *possibly the glass breaks*. For the former is consistent with the impossibility of the glass breaking, if it is impossible for the glass to be struck. So the disposition can only ground the non-conditional possibility, *possibly the glass breaks*, if a distinct non-conditional possibility, *possibly the glass is struck*, is also true. What grounds the latter? Since it is a non-conditional possibility, it cannot, for the reasons just given, be grounded in a dispositional property alone – it needs to be grounded in a dispositional property *plus* some other non-conditional possibility. The striking of the glass may be the manifestation of some other disposi-

<sup>4</sup> Vetter does present other, good arguments for her view, which I do not discuss here.

tion. But that other disposition cannot ground the non-conditional possibility, *possibly the glass is struck*, unless the stimulus for that other disposition is also a possible occurrence. So we get a regress. Not all non-conditional possibilities can be grounded in dispositions, if the standard account is correct. In a nutshell, the problem is this: we want to account for non-conditional possibilities. But because the standard account analyzes dispositions in terms of conditionals (relating stimuli and manifestations) the standard account can account only for conditional possibilities, not for non-conditional possibilities.

Vetter's approach, with dispositions characterized by manifestations alone, seemed to avoid this. If something is breakable (dispositional), then it can be broken (non-conditional). Dispositions are analyzed directly in terms of the possibility of the manifestation occurring. That is (so it would appear) a non-conditional possibility. So Vetter avoids the problem of non-conditional possibilities.

So it seemed. But that was before we considered the problem of distinct dispositions. Different dispositions can have the same non-conditional manifestation. Vetter's best response to this is to argue that in such cases the manifestation is not non-conditional after all. For properties such as charge, the manifestation is itself a conditional. In which case, such dispositions can only ground conditional possibilities. They do not ground non-conditional possibilities.

So the problem of non-conditional possibilities could well be a problem for Vetter's view, as well as for the standard view. Nonetheless, for all that has been said, the problem is not inevitable. For these properties (charge, mass) that have conditional manifestations are only some of the properties there are. Maybe some other properties have non-conditional manifestations. If so these can do the work of grounding enough of the relevant non-conditional modal truths. We might need only a few non-conditional possibilities – the conditional possibilities then take over, and generate further non-conditional possibilities (because the antecedents of the conditionals are satisfied, and so the consequents are satisfied also). For example, consider a large number of conditional propositions  $Sx \rightarrow Mx$ ,  $Mx \rightarrow Nx$ ,  $Nx \rightarrow Ox$ ,  $Ox \rightarrow Px$ ,  $Px \rightarrow Qx$  and just one non-conditional proposition  $Sx$ . Then in addition to our one initial non-conditional possibility,  $\diamond Sx$ , we get also the other non-conditional possibilities  $\diamond Mx$ ,  $\diamond Nx$ ,  $\diamond Px$ , and  $\diamond Qx$ .<sup>5</sup>

<sup>5</sup> Strictly, as noted above, to get the additional non-conditional possibilities, e.g.  $\diamond Mx$ , we need not only one original non-conditional possibility, such as  $\diamond Sx$ , and the conditional possibility,  $\diamond(Sx \rightarrow Mx)$ , but we also need their compossibility,  $\diamond(Sx \ \& \ Sx \rightarrow Mx)$ , or, better  $(\diamond Sx \ \& \ \diamond(Sx \rightarrow Mx)) \rightarrow \diamond(Sx \ \& \ Sx \rightarrow Mx)$ . (The latter is preferable because it does not involve redundancy, as  $\diamond(Sx \ \& \ Sx \rightarrow Mx)$  does.) Either way, this introduces yet further modal truths for which, it would appear, Vetter's account cannot supply the grounds.

But that won't work because we don't have any *relevant* non-conditional modal truths. We started with the case of fragility (or, better, breakability). It looks as if, on Vetter's view, this grounds the possibility of breaking. So we get a non-conditional modal truth straight away. That, however, is misleading. First of all, it is far from clear that fragility/breakability is a genuine, sparse property at all. Perhaps it is a merely abundant property, and not part of any serious ontology. Even if we admit this property into our ontology, it is clearly not a fundamental property. And the nature, including modal nature, of non-fundamental properties supervenes on (or, is grounded in) the nature of the fundamental properties. What determines what is possible and not possible should be the fundamental properties alone. The existence of non-fundamental properties should not add any further possibilities not already determined by the fundamental properties.<sup>6</sup>

So let's focus on the fundamental natural properties. And let's assume (though this is far from assured) that charge is amongst these. Coulomb's law of electrostatic attraction tells us that the force,  $F$ , between two charges,  $q_1$  and  $q_2$ , separated by a distance  $r$  is given by:

$$(C) F = \epsilon q_1 q_2 / r^2.$$

Charge then is the property whose dispositional nature, according to Vetter (2015: 61), is given by the manifestation (where  $e$  is the charge on  $x$ ):

$$(Q) \forall r \forall q: (x \text{ is at distance } r \text{ from a charge of } q \rightarrow x \text{ exerts a force of } F = \epsilon eq/r^2)$$

This manifestation is a conditional. We can expect all the fundamental properties to be like charge. For example, inertial mass is central to Newton's second law:  $F = ma$ . So a mass  $m$  is the dispositional property with manifestation:

$$(M) \forall F(x \text{ is subject to a force } F \rightarrow x \text{ experiences an acceleration of } a = F/m).$$

Any dispositional property, then, whose nature is related to a law in this way, will have a conditional manifestation. This includes the fundamental properties that ground modality according to Vetter.

The preceding paragraph has argued that *all* the dispositional properties that ground modality have conditional manifestations. In which case they can-

<sup>6</sup> Consider this parallel (Bird 2016). Dispositional properties (properties with dispositional natures or essences) have been invoked to explain the laws of nature. Do we need non-fundamental properties to explain the existence of non-fundamental laws? No, non-fundamental laws supervene on the fundamental laws, and the latter are determined by the fundamental dispositional properties. So the fundamental properties suffice to fix the fundamental laws and the non-fundamental laws; we don't get any further non-fundamental laws from the non-fundamental properties. I suggest that the same reasoning applies to the grounding of modality in dispositional properties.

not ground non-conditional possibilities.<sup>7</sup> Vetter's view therefore also suffers from the problem of non-conditional possibilities, and so, despite initial appearances, it does not have the advantage, relative to the standard account of dispositions, of avoiding that problem.

### 5. *On linguistics and metaphysics*

Before concluding, I want to comment briefly on the role of arguments about the correct analysis of dispositional concepts in a debate about the metaphysics of modality. We started with a discussion concerning the correct analysis of dispositional concepts. And this was supposed to underpin a conclusion about the grounding of modality. Is there a legitimate connection between these?

Vetter (2014, 2015), drawing in part on work in linguistics by Kratzer (1981), presents a great deal of evidence that it is natural to regard certain dispositional expressions as characterized by manifestations alone and as expressing some kind of possibility. The examples used are expressions denoting properties of middle-sized goods and of people such as 'fragile' and 'irascible' or, from German, 'zerbrechlich' and 'erregbar'. That in turn informs the analysis of modality – possibility is grounded in dispositional properties, where 'dispositional' is understood as implicating a manifestation condition only, and not a stimulus condition.

I strongly suspect that the analysis of terms such as those just mentioned tells us very little about the metaphysics of modality. The hypothesis that important, general, and fundamental aspects of metaphysics, such modality and the laws of nature, are grounded in properties with a 'dispositional' nature is plausible. Its plausibility depends on the explanatory work it can do. It should not depend on the precise analysis of the dispositional terms we use in everyday life.<sup>8</sup> Why would we expect the semantics of 'fragile' or 'erregbar' to tell us anything about the metaphysical nature of fundamental properties such as charge or mass (or whatever the fundamental properties turn out to be)? When we say that the latter have a dispositional nature, that should not be held hostage to our discoveries about fragility. The problem is that Vetter's approach to modality looked most promising when viewed from the perspective of fragility and *Erregbarkeit*. What she says about charge is rather different. Yes, it

<sup>7</sup> It is important to note that I am not saying that there is something unsatisfactory about conditional possibilities (nor that properties with conditional manifestations are not real). Rather, I am saying that these possibilities cannot be all the possibilities that there are – a materially adequate account of possibility needs non-conditional possibilities as well as conditional possibilities.

<sup>8</sup> This comment does not do justice to the highly sophisticated account of potentiality and then of possibility that Vetter gives us. Still, I do think that the basic problem I identify remains.

looks as if it fits the same (stimulus-free) mould, because there is still only a manifestation. But now the manifestation is a conditional. And that raises the problem of non-conditional possibilities. That problem appeared to be absent only when we looked at properties such as fragility and *Erregbarkeit* – which, in my view, are irrelevant to the metaphysics of modality.

This kind of move – drawing conclusions about fundamental aspects of modality from evidence regarding our use of everyday expressions – is widespread in this area, and so this concern applies well beyond Vetter’s work. We need to think carefully about whether this is a legitimate inference and if so why.

## 6. *Conclusion*

I think that the problem of non-conditional possibilities is an important and general one. We want to tie the nature of fundamental properties to their explanatory role. That is, the nature of such properties is such that they generate the laws of nature. But the laws of nature are conditional in nature. So the characterization of the fundamental properties will be conditional too – that’s the case whether we think of this as a conditional relationship between a stimulus and a manifestation (standard account) or as a conditional embedded entirely within the manifestation (Vetter’s account). But if our supervenience/grounding base is conditional in nature, it is difficult to see how this base can ground the non-conditional possibilities.

Alexander Bird  
alexander.bird@kcl.ac.uk

Peter Sowerby Professor of Philosophy and Medicine, King’s College London

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