Humean and anti-Humean Metaphysics

The world as I see it is a world of potentials: it consists of individual objects that have powers, dispositions, abilities, and capacities. I have the ability to write this paper and the capacity for rational thought. The computer in front of me has the power to connect to the Internet, and the cup from which I am drinking my coffee has a disposition to break if dropped on a hard surface.

On one level, there is nothing controversial in what I have just said. Everyone can agree on the truth of the sentences I wrote. Philosophical disagreement comes when we consider the underlying metaphysics in which their truth-conditions are ultimately to be formulated. I believe that these sentences wear their truth-conditions very much on their sleeves: they are true just in case (in fact, they are true because) I, my computer, and my cup have certain properties – abilities, capacities, powers, dispositions – and that’s all there is to it. The world contains irreducibly modal properties, among which are the properties just mentioned; all it takes for the ascription of such a property to an object to be true is for the object to possess the property. David Lewis, to pick an obvious opponent of my view, thinks otherwise: while all our talk of modal properties is fine, it is far from being the ultimate analysis of such statements as ‘I have the ability to write this paper’. Ultimately, what is needed in such an analysis is reference to possible worlds: my having an ability to write this paper amounts to nothing more than my or my counterparts’, in some relevant possible worlds, doing just that: writing (a counterpart of) this paper.

The world (the actual world, which we inhabit), for Lewis and his followers, is modally empty: it contains ‘a vast mosaic of local matters of particular fact, just one little thing and then another. ... we have an arrangement of qualities. And that is all.’ (Lewis 1986, ix f.) Modality, for Lewis and Lewisians, has to come from outside that mosaic if it is to be real: it has to be outsourced to other possible worlds. Following Lewis, this thesis has come to be known by the name ‘Humean supervenience’, and its adherents as Humeans.
My own view is anti-Humean: I believe that this, the actual, world abounds in modality, or more precisely, in modal properties possessed by individual objects. I have no need to outsource modality to other possible worlds. In recent years, the anti-Humean view has found an increasing number of defenders coming from the philosophy of science. The metaphysics of science thus joins forces with a more traditional Aristotelian outlook in rehabilitating a metaphysics that is, on the one hand, deeply engrained in our ordinary, everyday view of ourselves and the world around us, and which provides, on the other hand, a better understanding of the natural sciences.

Lewis’s own stated motivation for Humean supervenience was ‘to resist philosophical arguments that there are more things in heaven and earth than physics has dreamt of’ (Lewis 1994, 474), but it is precisely this naturalistic motivation that has come under attack. As Maudlin (2007) has argued, contemporary physics itself provides cogent arguments that there is more, in both heavens and earth, than Humean supervenience has dreamt of. Moreover, the Humean herself seems committed to more than physics has dreamt of, namely, purely qualitative properties or quiddities with no dispositional profile. The assumption of such quiddities has little basis in scientific practice; science, as Simon Blackburn has put it, ‘finds only dispositional properties all the way down’ (Blackburn 1990, 63).

Given this motivation, it should not come as a surprise that anti-Humeans have proved quite fruitful in the metaphysics of science. Its most pronounced proponents in recent years have been dispositional essentialists, who hold that the laws of nature are grounded in the essentially dispositional properties of the fundamental physical objects.

Anti-Humeans have also begun to put dispositional properties or powers to use, for instance, in thoroughly actualist theories of modality and dispositional theories of causation.

These anti-Humeans have in common that, rather than reducing dispositions or explaining them in terms of something else, they try to explain a variety of other phenomena in terms of dispositions. They may appeal, for heuristic purposes, to such notions as that of necessity or of a possible world – thus, the dispositional essentialists are prone to say that fundamental properties have their dispositional profile necessarily, or in every possible world. But at bottom, their metaphysics is not going to contain possible worlds or irreducible necessities. It contains, rather, irreducible dispositions. The metaphysics of irreducible dispositions will be spelled out in some more detail in section 3.

I am not going to discuss the merits of the various anti-Humean projects in metaphysics here. Instead, I am going to focus on an area that is as yet unexplored in the growing anti-Humean literature: the semantics of natural language. I have said that in accepting such modal properties as dispositions or powers, the metaphysics of science joins forces with a more everyday view of ourselves and the world as deeply modal, or as Goodman (1954) put it, ‘full of threats and promises’, possessing a variety of abilities, powers, capacities and dispositions. Our everyday view is expressed in everyday language, which contains an abundance of modal expressions such as ‘can’ and ‘would’, ‘possibly’ and ‘necessarily’, and various others. One of the major achievements of the apparatus of possible worlds is its success in the semantics of such modal expressions. If the anti-Humean is to do without such tools as possible worlds, she will do well to develop a modal semantics of

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1. They include Bird (2007), Molnar (2003), Ellis (2001), and Cartwright (1989), to name but a few.
2. See also Molnar 2003 and Bird 2007.

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4. Proponents include Borghini and Williams (2008), Jacobs (2010), and Contessa (2010); see also Vetter 2011.
6. The claim is not that every disposition is irreducible. A glass’s fragility, for instance, can presumably be reduced to properties of the glass’s constituents and relations between them. The claim is that the basis of this reduction will itself be dispositional. What is claimed to be irreducible is not this or that particular disposition but dispositionality itself.
her own, linking everyday statements of a modal character to what she takes to be the fundamental modal character of the world: the modal properties of individual objects.

The aim of this paper is to take the first steps towards such an anti-Humean modal semantics. My aim is constructive, not destructive. I do not aim to refute possible-worlds semantics, or any other candidate modal semantics (whatever that would mean). Rather, I want to show what can be done if we allow ourselves the very different resources of an anti-Humean metaphysics. Section 2 prepares the ground by delineating the scope of the theory and its main challenge. I argue that the most congenial starting point for an anti-Humean semantics is what linguists often call ‘dynamic’ modality, and in particular the modal auxiliary ‘can’; and that its most formidable challenge is to provide the materials for the well-known flexibility and context-sensitivity of ‘can’ (and, in a second step, of other modal expressions). Section 3 examines the anti-Humean metaphysics in more detail to show that it provides the materials required to meet the challenge. Sections 4–5 present the core of the semantic account: it specifies the truth-conditions for ‘can’ statements and an account of their context-sensitivity (4) and subsequently extends them to other expressions of dynamic modality (5). Section 6 briefly discusses further issues that arise in spelling out the semantics that I present: the relation between de re and de dicto modality, and the relation between the different types of modality. My aim is to present the view, not to argue for its superiority. Its chief attraction lies in linking our modal language to the modal reality which, according to anti-Humean metaphysics, it must be about.

2. Setting the stage

Before we begin to formulate the semantics, we should get a clearer view of its target. Modal language is a ubiquitous and variegated phenomenon; to make it tractable, we need to define the scope of our theory and set out its main explanandum.

2.1 The scope

Modality is a many-headed beast. Where should an anti-Humean semantics begin? I hold that the best starting point is dynamic possibility, and in particular, the modal auxiliary ‘can’. My reasons for starting here are pragmatic: it is the starting point that best suits the anti-Humean metaphysics. I will explain why this is so in three steps: first, explaining why the semantics should focus on dynamic modality; second, explaining why it should focus on a modal auxiliary rather than, say, the adverb ‘possibly’; and third, explaining why it should focus, among the modal auxiliaries, on ‘can’ rather than, say, ‘would’ as it occurs in counterfactual conditionals.

Why choose a starting point at all? Should we not try to cover all of linguistic modality at once? As we shall see at the very end of the paper, the anti-Humean semanticist has reason to believe that not all of linguistic modality is of one kind. Linguistic modality, on the approach advocated here, is a complex and semantically heterogeneous phenomenon, which has to be understood in a piecemeal fashion. So let us begin by isolating the best starting point for this piecemeal approach.

First, why dynamic modality?

Linguistic modality is standardly partitioned into epistemic, deontic, and dynamic. Roughly, epistemic modality is about what is compatible (or not) with our knowledge, deontic modality is about permission and obligation, and dynamic modality – or ‘circumstantial modality’, as it is sometimes called – is about developments that are open (or not) given how things really are. Let me briefly illustrate these three types of modality with three typical examples.

First example: a detective reviews the inconclusive evidence in a murder case and says, ‘John might be the murderer’. The detective expresses an epistemic possibility of John’s being the murderer; it is compatible with the detective’s evidence that John is the murderer. Second example: a mother tells her son, ‘you may go out and play now’. ‘May’...
here, as often, expresses deontic possibility: the son is permitted to go out and play. Third example (from Kratzer 1991): a botanist analyses the soil in a foreign country, thinking about which plants to import. She informs her colleague, ‘Hydrangeas can grow on this soil’, thus expressing that given the circumstances there is a real possibility of hydrangeas growing on the local soil, even though she is fully aware that no hydrangeas are growing on it now. This is a dynamic or circumstantial possibility.

The natural province of the anti-Humean semanticist is dynamic modality. Dynamic modality arises from how things actually are, and this is precisely where the anti-Humean wants to locate the modal properties of her metaphysics. Epistemic modality concerns our knowledge of things, with which the anti-Humean semantics has no special connection. Deontic modality, finally, requires an element of normativity that the metaphysics, so far, is in no shape to offer. This is not to deny that the anti-Humean semantics might eventually be extended to cover deontic and epistemic modality as well; I will sketch some options for doing so at the end of this paper. But a natural place to start is dynamic modality.

Second, why a modal auxiliary?

I am going to focus on a modal auxiliary, rather than on the philosopher’s preferred idioms ‘possibly’, ‘necessarily’, and ‘it is possible/necessary that...’. One very simple reason for this is that I will be concerned with the semantics of ordinary language, and it is the modal auxiliaries that dominate our ordinary modal discourse. (They have also been the subject of a number of systematic empirical inquiries, on which I shall draw occasionally.) Like Mondadori and Morton (1976), I think this is reason enough to focus on the ‘sturdier laboring class of idioms’ (Mondadori and Morton 1976, 237) that are the modal auxiliaries.

But there is a more systematic reason for this focus. Modal adverbs and adjectives of the kind that is wide-spread in philosophical discourse do not express dynamic modality in ordinary English. They are typically used to express epistemic modality. Sentence-adverbs such as ‘possibly’ and sentence-modifying constructions such as ‘It is possible that’ are used, outside the philosopher’s vernacular, to express that something is compatible with what we know. Dynamic modality is expressed primarily by modal verbs and auxiliaries, such as ‘can’ and ‘be able to’. Syntactically, these expressions function not as sentence modifiers but as predicate modifiers. To form a declarative sentence, they require a noun phrase and a verb phrase. Sentence-modifying adjectives such as ‘possibly’, on the other hand, require a complete sentence of any form. Where an expression such as ‘possible’ is used to express dynamic rather than epistemic possibility, it tends to have predicate-modifier structure as well, as in the construction ‘it is possible for ... to ...

Compare the following four sentences (the example is Keith DeRose’s):

(1) a. It is possible that Frank runs four-minute miles.
   b. Possibly, Frank runs four-minute miles.
   c. It is possible for Frank to run four-minute miles.
   d. Frank can run four-minute miles.

(1-a) and (1-b) express an epistemic possibility of Frank’s running a four-minute mile, while (1-c) and (1-d) express a dynamic possibility. As DeRose (1991) points out, when Frank’s new friends begin to suspect that he is a track star, they may truly and adequately utter (1-a) or (1-b) even though Frank in fact, and unbeknownst to them, is quite incapable of running a four-minute mile (‘his only event is throwing...’). Or, perhaps, what we could easily come to know (as argued in DeRose 1991); or ... (insert your favourite theory of epistemic modality). Kratzer (1981) observes the same pattern in the case of German: ‘Sentence adverbs like wahrscheinlich or möglicherweise [‘perhaps’ and ‘possibly’] always express epistemic modality – if they express modality at all.’ (Kratzer 1981, 56)
the javelin’, DeRose 1991, 602). But given Frank’s incapability to run four-minute miles, (1-c) and (1-d) are false.

Conversely, (1-c) and (1-d) may be adequately asserted by someone who knows that Frank has never run a four-minute mile, judging merely from the constitution of his legs, lungs, etc. (1-a) and (1-b), on the other hand, are not adequately asserted by a subject who knows that Frank does not actually run four-minute miles.

The contrast between sentence-modifying adverbs or adjectives and predicate-modifying verbs or auxiliaries has double impact for our purposes. First, it supports the exclusion of those adverbs and adjectives from an account that is, as we have seen, aiming to account for dynamic modality. Second, it provides further motivation for the anti-Humean to focus on dynamic, rather than epistemic, modality. For the predicate-modifying expressions are naturally construed as ascribing to the sentence’s subject (Frank, in (1-c) and (1-d)) a modal property appropriately related to the property expressed by the verb phrase (in our examples, the ability to run a four-minute mile). Sentence-modifying expressions, on the other hand, are best construed as ascribing a certain status to the propositions expressed by the sentences in their scope (e.g., the proposition that Frank runs four-minute miles). But it is precisely the ascription of modal properties that an anti-Humean semantics should take as basic in its modal semantics: after all, modal properties such as dispositions, powers, or potentials are precisely what the anti-Humean metaphysics has to offer.

Third, why ‘can’?

10. The contrast as I have drawn it is a syntactic one. The anti-Humean semantics argues that it is also a semantic one. The syntactic contrast takes us only so far. Some modal auxiliaries, which syntactically function as predicate modifiers, express epistemic modality – ‘might’ is a case in point. Conversely, a semantics that treats modal expressions uniformly as sentence modifiers – such as standard possible-worlds semantics – may argue that the semantic structure of dynamic modals differs from their syntactic surface structure. I cannot pursue this question in any more detail here. See, however, Brennan 1993, who provides genuinely linguistic evidence that the contrast is a semantic one and that all dynamic modality ascribes modal properties to individuals.

‘Can’ without possible worlds

‘Can’ is one of the most common modal auxiliaries, matched only by ‘would’.11 It is, moreover, the modal that is most closely associated with dynamic modality. According to a recent corpus survey, ‘can’ was used dynamically in 81% of its occurrences throughout a large corpus.12 It has a deontic reading (‘Can I go now?’) and, especially in its negated form, an epistemic reading (‘This cannot be true!’), but those are the minority of cases. Other modals, such as ‘may’, ‘might’, or ‘must’, are primarily deontic or epistemic. So, if the anti-Humean semanticist wishes to focus on dynamic modality, ‘can’ is the paradigmatic case.

To those familiar with the literature on dispositions, the focus on ‘can’ may still come as a surprise. Dispositions are generally held to be closely connected to counterfactual conditionals. Thus a fragile glass is one that would break if it were struck or dropped, an irascible person is one who would get angry if provoked, and the fundamental dispositions – take electric charge as an imperfect approximation – are dispositions to respond in a lawful way to certain circumstances: for instance, to attract positively charged particles when in their vicinity. So why not start with these counterfactual conditionals and give their semantics in terms of the dispositional properties which – on the anti-Humean view – are their grounds or truthmakers?

The problem with this approach has been noted by Eagle (2009). The possession of a disposition by some relevant object is neither necessary nor sufficient for the truth of a corresponding counterfactual conditional. It is not sufficient because the disposition may be masked: pack a fragile glass in Styrofoam, and it is no longer true that it would break if struck; sedate an irascible person with a drug, and it is not true that she would get angry if provoked; place another particle close to the electrically charged particle, and it may no longer be the case that it would attract a positively charged particle if that particle were

12. Collins 2009, 98. In contrast, ‘may’ was used dynamically in only 8.1%, ‘must’ in 6.3%, and ‘would’ in 22.9% of occurrences (Collins 2009, 34, 92, 140).
to come into its vicinity. Nor is a disposition necessary for the truth of the conditional, for conditionals can be mimicked: place a non-fragile block of concrete at the edge of a windowsill on the 50th floor, and it would break if struck (because it would fall down to the street 50 floors below); let a good-tempered person go without sleep for three nights, and it may well be true that she would get angry if provoked; place a sufficient number of electrons close to a positively charged particle $p$, and it is true that another positively charged particle would be attracted if it were in $p$’s vicinity. In general, it appears that while a disposition is typically an intrinsic and relatively durable property of an individual, the truth of a counterfactual conditional is highly sensitive both to matters extrinsic to the object in question, and to its momentary condition.\(^{13}\)

Dispositionalists themselves have used such counter-examples to resist a reductive account of dispositions in terms of conditionals (starting with Martin 1994); but the same problems frustrate their own efforts at a reduction or explanation that goes in the opposite direction. In fact, the Humean is in a better position, since she can produce a more complex conditional that does capture the disposition. The anti-Humean, if she wants to come up with a semantics for counterfactual conditionals, should not make the same move: after all, the semantics is meant to apply to all counterfactual conditionals, or else it is of little use.

I will suggest a solution to this problem later in the paper. In the meantime, it seems, again, that a better place to start is ‘can’. Unlike the counterfactual conditional, ‘can’ has a well-established use in which it ascribes to individuals relatively intrinsic and durable modal properties: abilities. In saying ‘Sally can play the piano’ or ‘Linda can run a mile in five minutes’, we are most naturally understood to ascribe to Sally or Linda an intrinsic property, which is acquired and sustained by practice and exercise. Abilities of this kind are modal, and they are intrinsic properties of the individuals concerned – they are just the kind of property in terms of which the anti-Humean semantics is to be framed. Thus the modal auxiliary ‘can’ is more congenial to the anti-Humean semantics from the start.

In section 4, therefore, I will start by outlining in some detail the semantics of ‘can’. Other expressions of dynamic modality will be treated more briefly, and mostly by reference to the paradigmatic case of ‘can’. I have given some pragmatic and some linguistic reasons for preferring ‘can’ as a starting point. None of these considerations is decisive, but they should be sufficient to motivate the approach that I am recommending. The proof, as so often, is in the details.

2.2 The challenge
The modal auxiliary ‘can’, I have said, is a congenial starting point for anti-Humean semanticists, due to its ability-ascribing uses. This observation leads directly to a first challenge. ‘Can’ is used not only to ascribe an ability (‘I can play the piano’) but also to express that an ability is possessed and conditions are suitable for its exercise (‘You can buy a kettle in that store’), or just that there is a possibility of something coming about (‘You can fall off the cliff if you’re not careful’).

The anti-Humean approach to semantics, while tailor-made for the ability uses, appears by the same token to be ill-equipped to account for most others. While ‘I can play the piano’ plausibly ascribes to its subject (the speaker) an intrinsic modal property, the other two sentences and myriads like them do not. How is the anti-Humean semantics to account for such sentences?

Moreover, not only do different sentences with ‘can’ express different things. One and the same sentence can express all these different things in different contexts. Is it true to say of me, right now, that I can swim? Yes and no. Yes: I have learned to swim; my muscles are in

\(^{13}\) Further, it is not so obvious that conditionals do provide the best parallel to dispositions. As Manley and Wasserman (2008) have noted, the idea that each disposition has a stimulus condition corresponding to the antecedent of a conditional ‘is plausible only given a paltry diet of examples’ (Manley and Wasserman 2008, 72). I have argued elsewhere that dispositions are closer to statements of possibility than to counterfactual conditionals (Vetter 2013, Vetter forthcoming).
working order; of course I can swim. Then again, no: there is no body of swimmable water anywhere near me. How should I swim if there’s no water? Clearly, I cannot swim. Or suppose that I am celebrating my birthday on the beach and have had one glass of wine too many. Can I swim? Yes and no. Yes: not only have I learned to swim, but there is plenty of water around for me to swim in. Then again, no: given the amount of wine I have had, I would certainly drown if attempting to swim here and now, so I cannot swim.

The same sentence (‘I can swim’), applied to the same situation, may with equal right be either affirmed or denied, held true or false. This is witness to the fact that ‘can’ is context-sensitive: it is used to express different things in different contexts. We have shifted the context of assertion by focussing, first, on my muscles etc. and, second, on the availability of swimmable water; or in the second case, by focussing first on my training and the opportunity to exercise it, and second, on my temporary state of inebriation. Some of these aspects appear to be a matter of my intrinsic abilities, but others concern matters that are extrinsic to me (such as the presence or absence of water in the vicinity) or too temporary to count towards or against my abilities (such as the fact that I have had too much wine). If the semantics offered by anti-Humeans has only intrinsic modal properties, such as my abilities, at its disposal, it will fail to account for the latter two kinds of aspects. And if it fails to account for them, then a fortiori it will fail to account for the context-sensitive variation regarding which of these aspects are relevant.

According to the anti-Humean metaphysics, modal properties such as dispositions and abilities are real properties of individuals. They themselves cannot, therefore, be context-sensitive: context-sensitivity is a matter of language, not the world. So what happens when the same sentence, applied to the same situation, seems to change its truth-conditions from one context to another? In general, such contextual variations are modelled against the background of something that is not itself subject to such variation. Contexts supply criteria for relevance, and it is only the relevant parts of the background that go into the truth-conditions of the sentence as uttered in a context. The anti-Humean semantics, if it is to follow this general strategy, must supply a sufficiently rich background against which contextual variation can take place. Abilities alone cannot do the job.

‘Can’, of course, is not a special case; our modal language is context-sensitive through and through. If we develop an account for ‘can’, it must be applicable to other cases as well.

Indeed, this is precisely where the standard, possible-worlds-based approach to modal semantics gets its force: it offers an elegant and unified account of the shifting and context-sensitive meaning of modal expressions. A sentence ‘S can Φ’, in possible-worlds semantics, says that S (or S’s counterpart) Φs in some possible world where certain contextually selected facts hold. Different contexts select different facts: in its ability-ascribing use, ‘I can swim’ says that I swim in a possible world that holds fixed certain intrinsic features of me; in its ability-plus-opportunity use, it says that I swim in a possible world that holds fixed those same features plus certain aspects of my environment, such as the fact that I am not near any swimmable body of water; and so on. If the anti-Humean semantics is to be a serious competitor, it has to find some way of matching the flexibility of possible-worlds semantics.

We have set a challenge to the anti-Humean semantics we are about to formulate. The semantics has to provide the materials for the opportunity- or possibility-expressing sentences, and generally for non-ability-ascribing sentences with ‘can’, to come out true. In addition, those materials must be suited to explain the context-sensitivity of sentences such as ‘I can swim’; it must be such as to make sense of our focussing on one kind of truth-conditions in one context and on a different kind in another context.

I hold that the anti-Humean metaphysics, once it is spelled out in sufficient detail, has all the resources to answer this challenge. The next section will be devoted to providing those details. Sections 4-5

14 For a classic exposition, see Kratzer 1977.
will then put them to use in, first, formulating a semantics for the dynamic ‘can’ (4) and, second, applying the insights gained from this paradigmatic case to give a sketch of the semantics for other modal expressions, such as ‘could’, ‘might’, and ‘would’ where they are used dynamically (5). For the reasons given above, I will focus on dynamic uses of those words, excluding epistemic and deontic ones. This exclusive approach will be explicitly addressed again only once the semantics is formulated, in section 6.

But first, the metaphysics.

### 3. The metaphysics of potentiality: Three observations

The anti-Humean metaphysics sketched in section 1 affords the materials for modal semantics, but it needs to be worked out in considerably more detail. The aim of this section is to provide those details. I will develop the metaphysics at an intuitive level, beginning with the familiar examples of dispositions and abilities that we started with and gradually generalizing from them to highlight certain general features of modal properties within the anti-Humean framework.\(^{15}\)

Objects, I have said earlier, have a host of modal properties: dispositions, capacities, powers, tendencies, propensities, and so forth. I see no point, at the moment, in trying to draw sharp distinctions between these kinds of modal properties. Rather, I trust that we can all agree that these kinds of modal properties, if they differ from each other at all, are species of a common genus. I call that genus potentiality, so as to have a name for it. As potentiality is going to be my metaphysical primitive, I shall give no reductive definition of it. It has been introduced by example. It can be introduced by analogy too, though the analogy is of a purely heuristic value: potentiality is to possibility as essence, on a prominent contemporary position, is to necessity. The contemporary position I have in mind is Kit Fine’s. Fine (1994) has argued that essence does not reduce to necessity and suggested instead that necessity rests on essence. The important point for my analogy is that essence, unlike necessity, is always bound to one or more particular objects: it is the essence of a particular object to be so-and-so, while a necessity is simply a necessity that . . . Similarly, a potentiality is always the potentiality (the power, capacity, disposition, etc.) of a particular object to do so-and-so, while a possibility is simply the possibility that . . . Possibility and necessity attach to whole states of affairs (or propositions, or sentences) regardless of their finer structure; potentiality and essence attach to, or relate, an object and a property.

I will now offer three observations about potentiality based on familiar and mundane examples, which will prove crucial for the semantics.

#### 3.1 First observation: Potentialities come in degrees.

Most glasses are fragile, but a delicate champagne glass is more fragile than an ordinary tumbler. Gasolene is more flammable than vegetable oil. An object’s mass, which many philosophers think of as a disposition, can be greater or lesser. Some of us have the ability to play the piano to a greater degree than others. In general, rational capacities and practical skills can not only be acquired but also be improved with practice: that is why we take maths or piano lessons, even long after we have achieved the capacity to calculate a differential or the ability to play the piano. Likewise, tendencies towards certain behaviour can be strengthened or weakened by behavioural therapy or by self-education.\(^{16}\)

Noting that potentialities come in degrees, we can also see that there are more potentialities than we would normally name. Take

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\(^{15}\) Note that I am not here concerned with arguing for the superiority of this metaphysics as compared to, say, Lewisian modal realism. My concern is merely to develop the anti-Humean semantics in a way that will provide the materials for a viable semantics but is plausible – by the anti-Humean’s lights – independently of such a semantics.

\(^{16}\) The gradability of dispositions has been stressed by Manley and Wasserman (2007).
fragility. A champagne glass is more fragile than a tumbler; the tumbler in turn is more fragile than, say, a plant pot; the plant pot is more fragile than my desk. We can go on: the desk is more fragile than a rock, the rock more fragile than a chunk of diamond. But surely, a chunk of diamond is not fragile? And come to think of it, neither is the rock or my desk, or at least we would not call it so in an ordinary context.

This illustrates two points. First, what counts as fragile depends on context. Under normal circumstances, we may be just about still prepared to call a plant pot fragile, but not my desk. Move my desk to a building site, and it becomes much more plausible to call it ‘fragile’. Second, the background for this variation over contexts is a spectrum from the more to the less fragile things on which we can order the champagne glass, the tumbler, the plant pot, etc. in descending order of their degree of fragility; and this spectrum goes well beyond the range of things which we would be prepared to call ‘fragile’ in any easily conceivable context, as is witnessed by the chunk of diamond at or near the very bottom of the line. Given that spectrum, a particular context can operate for ‘fragile’ as it does, for instance, for ‘tall’: by setting a threshold such that everything above that threshold counts as fragile (in the context at issue) but nothing below it does. Reserving the term ‘fragile’ for this context-dependent property, I would like to call that which all things on the spectrum have in common, and by whose degrees they are ordered, their potentiality to break. (Compare: in the case of ‘tall’, that which all things on the spectrum have in common and by whose magnitude they are ordered, is height.) I shall later suggest that a similar mechanism is at work in the semantics of ‘can’.

3.2 Second observation: Potentialities may be intrinsic or extrinsic.
While it had long been assumed in the debate about dispositions that all dispositions were intrinsic properties, McKitrick (2003) has successfully challenged that assumption. McKitrick adduces a list of intuitive cases that we would classify as dispositional properties but the possession of which depends on circumstances extrinsic to the object possessing the property. Her examples include vulnerability (a city may become less vulnerable to attacks, without changing intrinsically, when it is surrounded by a defense system), a key’s power to open a particular door (which the key possesses only so long as the door, an entirely distinct object, exists and has a lock of a particular shape), and weight (which, unlike mass, depends on the gravitational field in which an object is situated).

It is safe to assume that the same kinds of example can be construed for other kinds of potentiality. In the case of ability, the intrinsic/extrinsic distinction is similar to, though not entirely coextensive with, the well-known distinction between general and specific abilities. I may have the general ability to swim, but if I am tied to a chair 100 miles away from the nearest swimmable body of water, I lack the specific ability to swim. In this case, the general/specific distinction aligns nicely with the intrinsic/extrinsic distinction: being tied to a chair and being far away from the nearest body of water are external conditions that affect my ability to swim as things stand, but intrinsically I am no less able to swim. Suppose, however, that I have the general ability to swim but am drugged or drunk so that I would perform pathetically to the point of drowning if I were to be immersed in a body of water. If we ascribe to me, in this situation, the general but not the specific ability to swim, this distinction does not align with the intrinsic/extrinsic distinction. I will say more in a moment about how to understand such cases. First, let me return to the easier cases of extrinsic vs. intrinsic potentiality.

How does an object come by its extrinsic potentialities? Here’s a very simple picture. It comes in two steps.

Step 1: Objects can have potentialities jointly. You and I both have the ability to see; together, we have the ability to see each other. A fragile glass, when wrapped in Styrofoam, is still fragile, i.e. disposed to break; but the glass and Styrofoam together are not disposed to break, nor are they disposed to be such that one of them, say the glass, breaks. There are two kinds of jointly possessed potentiality here. One has as
Barbara Vetter

‘Can’ without possible worlds

...its manifestation a relation between all of the potentiality’s possessors: such is your and my potentiality to see each other. The other kind has as its manifestation a property possessed by only some of the potentiality’s possessors: such is the glass-cum-Styrofoam’s potentiality to be such that the glass breaks.17 Both kinds of jointly possessed potentiality can be understood in parallelism to the potentialities of complex objects. Take biological organisms, such as ourselves. We have parts – organs, bones, muscles, etc. – which have their own potentialities. Put them together just so, and their potentialities ‘combine’ (I wish I knew how to cash out that metaphor!) to yield potentialities of the whole: the potentiality to walk, to metabolise, or to raise one’s hand. Some of these potentialities have manifestations that concern the entire organism: such is the potentiality to raise one’s left hand. To be sure, a biological organism is a much more closely-knit whole than a glass wrapped by a piece of Styrofoam. But the principal model appears to be the same.

Step 2: Jointly possessed potentialities give rise to extrinsic potentialities. Jointly possessing a potentiality is one relation in which objects can stand to each other. Relations generally give rise to extrinsic properties: if you and I stand 2m apart, that relation gives rise to my possessing the extrinsic property of being 2m from you. I do not know exactly what the metaphysics of that ‘giving rise to’ is. But as the example illustrates, it is something which, one way or another, we need to have in a metaphysics of extrinsic properties anyway. It is not a special need of the anti-Humean metaphysics of potentiality. Now I want to utilize it to give a metaphysics of extrinsic potentialities: by virtue of having, jointly with you, the potentiality to see each other, I have an extrinsic potentiality to see-and-be-seen-by you. By virtue of the glass and the Styrofoam together not being disposed (or being only very slightly disposed) to be such that the glass breaks, the glass is not, or only very slightly, extrinsically disposed to break; its intrinsic disposition to break remains, however, unaffected by this.

With this picture in hand, we can generalize beyond the intrinsic/extrinsic distinction. We have the following picture: objects come together, each equipped with its own potentialities; given those potentialities and the objects’ relations, the whole will have certain potentialities of its own. The same picture, however, can be applied within any of the objects, at least given a certain level of complexity. Remember the drunk swimmer: she is equipped with an ability to swim, but her drinking has also induced certain more temporary dispositions, such as the disposition to get disoriented and erratic in her movements. Perhaps, indeed very plausibly, these different potentialities belong to different parts of the individual. But we may think of her simply as a locus of various potentialities, which combine, much like the component forces of physics, to yield the ‘resultant force’ or overall potentialities of the individual. This suggests that the ‘intrinsic’ part of our intrinsic/extrinsic distinctions was over-simplified: there are finer structures of potentiality within the intrinsic makeup of most objects.

The same goes for the ‘extrinsic’ part of the distinction. Suppose I raised my arm. Did I have an ability not to raise my arm? Plausibly, I possess the general ability to not raise my arm; very likely, I also have an overall (intrinsic) ability not to raise my arm, since no disposition that is intrinsic to me prevents me from not raising my arm. Did I have an extrinsic ability not to raise my arm? That depends: which jointly possessed potentiality is to ground the extrinsic potentiality at issue? If it is just potentialities that I possess jointly with everyone and everything in this room, and if no one in this room was intrinsically necessitated to make me raise my arm, then I did have the extrinsic ability not to raise my arm. But we may think bigger. In particular, we may wonder whether I had an extrinsic ability not to raise my arm grounded in my joint potentialities with everything else; could I

17. The two cases also contrast in that the first, but not the second, involves what C.B. Martin (1996) has called ‘dispositional partners’. You and I are dispositional partners – or ability partners – in that we provide for each other an opportunity for the exercise of the abilities in question. The glass and Styrofoam are not dispositional partners; the Styrofoam detracts from, rather than providing an opportunity for the exercise of, the glass’s disposition to break.
have not raised my arm, given the way the world is as a whole? That is (one version of) the question of determinism, and nothing in my metaphysical story answers it. The important point is that extrinsicality comes, as it were, in degrees: the possession of an extrinsic potentiality may depend on more or less of the world surrounding the object in question.

It appears, then, that we have another spectrum: from the most finely-grained potentialities of individual objects through their overall (normally so-called) intrinsic potentialities, to the extrinsic potentialities arising from their joint potentialities with bigger and bigger parts of the world. Let us call this the spectrum from fine-grained (intrinsic) potentialities to the coarse-grained (extrinsic) potentialities. Granularity is a matter of degree, with a minimum and maximum value. The picture remains the same: starting with the individual, fine-grained potentialities as our ‘component forces’, we build up more and more complex combinations yielding ‘resultant forces’. The picture fits well with the anti-Humean metaphysics I have introduced in section 1.

3.3 Third observation: Potentialities change over time.

Potentialities are lost and gained: I once had the potential to be a child prodigy, but having grown up I have sadly lost that potentiality without ever realizing it. When the Internet was introduced over 20 years ago, humans gained the ability to communicate by e-mail. When an apple turns from green to red, it loses the disposition to cause sensations of green in normal human observers, while gaining the disposition to cause sensations of red.

But change in potentialities is not restricted to gaining and losing them. The degree to which a potentiality is possessed may increase or decrease. Thus by practising the piano we increase our ability to play it; if we neglect to practise, or (more drastically) lose a finger, that ability is decreased in degree. In educating children or ourselves, we aim to increase the degree of some dispositions – such as the disposition to tell the truth or feel empathy – while effecting a decrease in the degree of others – such as the disposition to act rashly or egoistically.

Extrinsic potentialities, too, are subject to change. McKitrick’s city becomes more vulnerable when the defence system ceases to operate, a key may lose its disposition to open a door when the door has its lock changed, the vase’s extrinsic disposition to break is decreased in degree when it is wrapped in Styrofoam and increased again when it is unpacked, and so on.

In fact, as a general rule, the more coarse-grained a potentiality, the more likely it is to change. For first, anything that leads to a change in an object’s intrinsic or more fine-grained potentialities will affect the more extrinsic or coarse-grained potentialities as well, but many factors that affect the coarse-grained potentiality have no effect on the more fine-grained one. The more coarse-grained a potentiality is, the more numerous and diverse are (typically) the factors on which it depends. Second, the external factors that affect only the more coarse-grained extrinsic potentialities are typically less stable than the intrinsic factors that affect both types of potentialities. It is easier to pack or unpack a glass than to change its internal structure; the former affects its extrinsic disposition, but only the latter would affect its intrinsic disposition to break. My intrinsic (‘general’) ability to swim remains the same, whether or not I am near a swimmable body of water; my extrinsic (‘specific’) ability to swim is easily increased in degree by taking me to a lake and decreased again by my going back into town.

In general, the extrinsic circumstances of an object – its position in space and time, its external relations to other objects – are typically more changeable than its intrinsic make-up – the constitution of the vase’s materials, or the constitution of a swimmer’s brain and muscles. Cambridge change is easier to come by than real change. Typically, not necessarily: a caterpillar about to transform into a butterfly is likely to undergo an intrinsic change that is more radical than most Cambridge changes which may befall it in the same period of time. But typically things are the other way around.

Because they are subject to change, both the possession and the degree of a potentiality must be specified relative to a time. Objects do
not have their potentialities timelessly; they have them at a time. It is important, however, to distinguish this relativity to times from another way in which times can enter into the specification of a potentiality: by modifying its manifestation, rather than the potentiality ascription itself.

Being a moderately skilled typist, I have the ability to type one page in two minutes. Some people have the ability to run a mile in four minutes, though I do not. Some radium atoms have a disposition to decay within five years. In these cases, a time interval is part of the potentiality’s manifestation. In one sense, these potentialities are more specific than the potentialities to type, to run, or to decay simpliciter. But they are not ‘specific abilities’ in the sense outlined earlier. Specific abilities are coarse-grained or extrinsic abilities; they are abilities whose possession depends on objects other than their possessor. My ability to type a page in two minutes, on the other hand, is an intrinsic or general ability. What is specific about it is not the possession conditions but the manifestation.

The temporal specifications in the previous paragraph concerned intervals and were perfectly compatible with the potentiality itself being intrinsic. Other temporal specifications can be made sense of only in the context of extrinsic potentiality. Given that I am now sitting, unimpeded, in front of a functioning computer, and given my intrinsic ability to type a page in 2 minutes, I now possess the extrinsic ability to type a page within the next 2 minutes. Supposing that Frank has the ability to run a four-minute mile, and given that he is now situated, unimpeded, at a distance of one mile from the finishing line, Frank now has the extrinsic ability to reach the finishing line within the next four minutes. Further, if it is now 4.00pm, then we may re-describe Frank’s extrinsic ability as an ability to reach the finishing line by 4.04pm. That description, to be sure, ceases to be adequate within a few seconds if Frank does not start running. But at 4.00pm, it seems fine.18

Potentialities come in degrees; they may be intrinsic or extrinsic; and they change over time. With these observations in hand, we can now proceed to the formulation of a potentiality-based semantics for modal language.

4. Modal semantics with potentiality: the paradigmatic case of ‘can’

4.1 The account in outline

The basic idea of the anti-Humean semantics is that ‘can’ is used to ascribe potentialities. But not any potentiality is relevant in any context. So, more precisely, ‘can’ is used to ascribe relevant potentialities, and context determines which potentialities are relevant. We will examine conditions for relevance in more detail below. But it is worth stating outright what the three observations from the metaphysics of potentiality will be good for in the semantics of ‘can’.

Potentialities come in degrees: this observation has a double purpose. First, it helped us introduce potentialities that we would not ordinarily ascribe as dispositions: for instance, my desk’s potentiality to break. So we can count the sentences ‘My desk can break’ as true in virtue of the desk’s potentiality to break, even if ‘The desk is fragile’ seems false. Second, degrees account for some contextual variation. A potentiality that is ascribed in a given context may need to have a certain minimum degree. ‘The bridge cannot break’ may be true in a number of practical contexts where we do not encounter greater risks to the bridge than trucks crossing it, but false in a wartime scenario where the risks include bombs and such-like dangers.

Potentialities can be intrinsic or extrinsic: this observation will play a key role in accounting for the contextual variation of ‘can’ statements. In particular, it accounts for what is often referred to as the distinction between ability-ascribing and opportunity-ascribing uses of ‘can’. The basic idea is that what would ordinarily be counted as a possibility or
Meta-linguistic talk of relevance in (POT*) is merely a way to capture the varying restrictions on the domain of the existential quantifier. It is open to the defender of (POT*) to formalize this quantification over properties either as first-order quantification over abstract objects or as second-order quantification. In the former case, but not in the latter, a special relation of ‘having’ or instantiation will be needed.

For those who object quite generally to quantifying over properties, first- or second-order, an alternative paraphrase of (POT) can be provided: take ‘has a potentiality to be Φ’ as an unanalysable predicate with no quantificational structure indicated by ‘a’, or alternatively reformulate it as ‘is potentially Φ’. The relevance restriction, instead of being part of the quantificational structure, then becomes adverbial: we cannot predicate contextual relevance of a potentiality, but we must rather say of x’s having-the-potentiality that it happens in the contextually relevant way. Say that x is C-relevantly potentially Φ just in case x’s being potentially Φ happens in the right way to be relevant in context C. Then (POT) becomes

(POT**) ‘x can Φ’ is true in a context C iff, at t, x is C-relevantly potentially Φ (or: x C-relevantly has a potentiality to Φ).

A further noteworthy feature of (POT) and its reformulations is their relativization to times. As we have seen, objects lose and gain opportunity-ascribing use of ‘can’ is simply an ascription of an extrinsic potentiality. And as there are gradations in the distinction between intrinsicality and extrinsicality – I have called the spectrum one of granularity above – so there are gradual variations in uses of ‘can’, from the ascription of a maximally fine-grained potentiality to that of the most coarse-grained extrinsic potentialities.

Potentialities change over time: this, and the related observations, will serve a double role. First, it goes into the formulation of the truth-parameter of a given context C quantifies over a special class of objects, worlds. To make this more quantification. The difference is that (POT) quantifies over a special informational backgrounds of the participants, and let t be the time parameter of a given context C. Then

(POT) ‘x can Φ’ is true in a context C iff, at t, x has a potentiality to Φ that is relevant in C.

The context-sensitivity of ‘can’ is captured by varying conditions for a potentiality to count as relevant.

On its simplest reading, (POT) exhibits the same quantificational structure that a possible-worlds semantics for ‘can’ does: existential quantification. The difference is that (POT) quantifies over a special class of properties, potentialities, where possible-worlds semantics quantifies over a special class of objects, worlds. To make this more explicit, we might rephrase (POT) as

(POT*) ‘x can Φ’ is true in a context C iff, at t, the following holds: there is a property P such that P is a potentiality to Φ, P is relevant in C, and x has P.

¹⁹. The question whether to adopt (POT*) or (POT**) is not simply the question whether to be a realist or a nominalist about potentialities. Most anti-Humeans are realists, but Whittle (2009) has recently suggested that there is a nominalist version of the anti-Humean ‘causal theory of properties’ available, which reduces each property to a causal profile as expressed in a Ramsey sentence. Note that Whittle’s causal nominalist is not afraid to quantify over properties, since she is ‘not denying the existence of properties, [she is] just claiming that they are not sui generis entities. Consequently, since Ramsey sentences do not presuppose any particular ontological analysis of properties, causal nominalists can utilise them just as other causal theorists can.’ (Whittle 2009, 247) However, causal nominalism, since it relies on the notion of a causal or modal profile in reducing properties, is in tension with the idea driving the anti-Humean semantics I am presenting: that our modal talk ultimately comes down to the ascription of modal properties.
potentials, possibilities with time. For instance, I once had some potential to become a child prodigy, but I no longer have that potential; before the invention of the computer, no one had the ability to access the Internet, but now most of us do. The degrees of possibilities change too – a glass becomes more fragile when it acquires a small crack, and practice increases the degree to which we possess various abilities.

It is vital, then, that the potentiality ascribed is possessed and of the relevant kind at the time of the ascription, not before or after that time. In saying ‘The vase can break’, I am ascribing to the vase a potentiality to break, of the relevant kind, possessed now, at the time of utterance; in saying ‘I can play the piano’, I claim that I possess the relevant ability now. The truth-conditions for ‘can’ statements take care of this by relativizing to the time parameter of the context of utterance, \( t_C \).

In so doing, the truth conditions given in (POT) and its reformulations also provide for tensed ‘can’ statements. For the past tense, simply replace the temporal clause ‘at \( t_C \)’ with ‘at a time \( t \) prior to \( t_C \)’; for the future tense, replace ‘at \( t_C \)’ with ‘at a time \( t \) after \( t_C \)’. Or else, if you are an A-theorist and reluctant to capture the tenses of ‘can’ with time-indices \( t \) and \( t_C \), prefix the whole right-hand side of (POT) or its successors with the relevant tense operator ‘it was the case that ...’ or ‘it will be the case that ...’. The potentiality semantics can go either way.

How, then, do we express tensed ascriptions of potentiality? For the past tense, we have two options: ‘could’ and ‘could have’. (‘Could’ has a second and distinct function as the subjunctive form of ‘can’, more about which in section 5.)20 The two expressions differ in that the latter, but not the former, appears to carry an implication (or perhaps only an implicature) of the past potentiality not being exercised, as is witnessed by the following pair of statements:

\[\begin{array}{ll}
\text{(2)} & \begin{array}{l}
\text{a. Mozart could play the piano while blindfolded (and he did so on many occasions).} \\
\text{b. ?Mozart could have played the piano while blindfolded (and he did so on many occasions).}
\end{array}
\end{array}\]

If (2-b) is semantically bad, then the assumption of non-exercise is part of the truth-conditions of ‘could have’ statements and should be included in them. If (2-b) is only pragmatically bad, then the assumption is a mere implicature and should, accordingly, not be written into the truth-conditions. Again, the potentiality semantics can go either way.

There is no distinct future tense for ‘can’, but like other English verbs, ‘can’ itself sometimes functions as a future tense, as in (3-a), which is paraphrased by (3-b):

\[\begin{array}{ll}
\text{(3)} & \begin{array}{l}
\text{a. This time next year, I can go on a long vacation.} \\
\text{b. This time next year, I will be able to go on a long vacation.}
\end{array}
\end{array}\]

Where ‘can’ is semantically future-tensed, the right truth-conditions will, of course, have to be appropriately tensed or time-indexed too.

We must, again, be careful to track the scope of a temporal modifier. In (3-a), the expression ‘this time next year’ modifies the ‘can’ statement as a whole. It is therefore construed to date the time of the potentiality’s possession. But temporal modifiers may occur in the scope of ‘can’, as for instance in

\[\begin{array}{ll}
\text{(4)} & \begin{array}{l}
\text{a. I can type a page in two minutes.} \\
\text{b. I can be home by 8pm.}
\end{array}
\end{array}\]

In these examples, the temporal modifiers are naturally read to specify what exactly it is that the speaker can do: typing a page within two minutes and being home by 8pm. The potentialities ascribed must therefore have a temporally specified (or specifiable) manifestation. We have seen examples of such potentialities in section 3: (4-a) ascribes a potentiality of the same type as Frank’s ability to run a mile in four minutes, while (4-b) ascribes a potentiality of the same type as Frank’s
ability to be at the finishing line by 4.04pm. The former specify a time interval, the latter only an end-point.\textsuperscript{21}

So much for the general form and structure of the truth-conditions. A crucial factor in (POT) as well as the reformulations was the appeal to \textit{relevant} potentialities. We will now go on to consider these in some more detail.

\subsection*{4.2 Relevant potentialities}

We have seen in section 3 that potentialities vary along at least two axes: their degree, and their granularity. Both turn out to be crucial in understanding the context-sensitivity of potentiality ascriptions. I will take them up in turn.

On a potentiality-based semantics, ‘\textit{x} can break’ works in much the same way as does ‘\textit{x} is fragile’, sketched in the previous section. Both ascribe to \textit{x} a potentiality to break, but both are selective about the kind of potentiality that they ascribe. Just as ‘My desk is fragile’ is false in many contexts, so ‘My desk can break’ will not be true in all contexts: both statements require the ascribed potentiality to have a certain minimal degree. It would seem, however, that the threshold set by ‘\textit{x} can break’ is lower than that for ‘\textit{x} is fragile’. In many ordinary contexts, I would be prepared to say that my desk can break though it is not fragile. Perhaps a closer analogy is with more regularly formed disposition terms such as ‘breakable’. I, at any rate, cannot detect any difference in the threshold degree required for ‘\textit{x} is breakable’ and that required for ‘\textit{x} can break’.

\textsuperscript{21} (4-b) and similar examples might seem to spell trouble for the potentiality semantics: it specifies, within the scope of ‘can’, what looks like a dated event rather than a general property. But the manifestation of a potentiality, on a standard anti-Humean metaphysics, should be a property. I cannot fully address that worry here, but I have indicated a response at the end of section 3: the potentiality with an apparently dated manifestation is just a redescription of (or, at any rate, based on) a potentiality with a non-dated manifestation, whose manifestation involves doing something within a given \textit{interval}. In the case of (4-b), this might be, say, a (specific/extrinsic) ability to run one’s errands and cover a distance of two miles within six hours, if the sentence is uttered at 2pm at a distance of two miles from the speaker’s home.

A more notable difference between ‘can’ and disposition ascriptions relates to intrinsicality or granularity. Typically, dispositional terms (terms of the form ‘\textit{Φ}-able’ and related terms) ascribe potentialities that are very close to the intrinsic or maximally fine-grained end of the spectrum I have described towards the end of the last section: ‘\textit{x} is breakable’ does not become false when the object \textit{x} is packed in anti-deformation packaging, nor does it become true when the object is put in front of a bulldozer, but in some contexts the truth value of ‘\textit{x} can break’ may change with such circumstances. Dispositional terms, it seems, typically come with a strong and relatively stable implication of intrinsicality which is held fixed across contexts. Even terms for extrinsic dispositions, such as ‘vulnerable’, will be quite selective and, more importantly, quite fixed in the kinds of external circumstances that are relevant for the property they are used to ascribe. ‘Can’ is much more flexible in this respect, and accordingly more sensitive to our interests in a given situation.

Suppose I am moving to a new flat and considering where to store my valuable vase on the moving van. Since I have taken care to pack the vase in anti-deformation packaging, it is perfectly natural to say, ‘the vase cannot break, it is so safely packed’, thus denying the vase an extrinsic (and otherwise relevant) potentiality to break. In another context, say, considering where to put the vase in my new flat, I may then switch to the more intrinsic potentialities and say, ‘The vase should be in a safe place, it can break so easily’. In the first case, my practical interest is in the extrinsic or relatively coarse-grained potentialities of the vase. After all, the more extrinsic a potentiality, the more possible interferences with its manifestation are taken account of. My vase may have the potential to break to a great degree, but since it is so safely packed, I need not worry about its breaking for the moment. As things stand, we interact not with the vase on its own but with the vase plus packaging; and it is our interactions with the things I am moving that are currently of significance. In the second case, on the other hand, the long-term interest brings with it an interest in the vase’s more fine-grained (intrinsic) potentialities, because these are generally more per-
manent. As we have seen in section 3, intrinsic (or more fine-grained) potentialities are typically more stable over time than extrinsic (or more coarse-grained) potentialities. So it is not surprising that the nature of our interests – long-term or short-term – is one determining factor in selecting the fineness or coarseness of grain that is required of a relevant potentiality in a given context.

In some cases, our practical interests underdetermine the requirements on relevant potentialities. In such contexts, the guiding principle may simply be what Lewis has called a ‘Rule of Accommodation’: ceteris paribus, context fixes the relevant values so that the utterances made in it come out true (Lewis 1979, 347). Thus, of a drunk swimmer, we may say, ‘She can swim’, ascribing to the swimmer the maximally fine-grained (and otherwise relevant) potentiality to swim; or we may say, ‘She cannot swim’, denying her the overall intrinsic (and otherwise relevant) potentiality to swim. Of a well-trained and sober swimmer who is tied to a chair we may say, ‘She can swim’, ascribing to her the intrinsic (and otherwise relevant) potentiality to swim, or we may say, ‘She cannot swim’, denying her the extrinsic (and otherwise relevant) potentiality to swim. Of a competent, sober, and unimpeded swimmer who did not, at a particular occasion, swim: ‘She could have swum’, ascribing to her an intrinsic or a mildly coarse-grained potentiality, taking into account only objects of her closer surroundings at the time. Or we may say that, assuming truth of determinism and the fact that she did not in fact swim, ‘She could not have swum’, denying her the maximally coarse-grained potentiality to swim.

Not all sentences vary as freely in the required granularity as does our example ‘She can swim’. Consider our earlier examples of intuitively opportunity- or possibility-expressing sentences:

(5) a. You can buy a kettle in that store.
   b. You can fall off the cliff if you’re not careful.

Neither of these has a plausible reading that ascribes to the sentence’s addressee an intrinsic potentiality (to buy a kettle or to fall off the cliff). But that should not come as a surprise. Both sentences ascribe potentialities whose manifestations consist in a particular relation (buying a kettle in ..., or falling off ...) to a particular object (‘that’ store, or the cliff that is contextually relevant). Potentialities of this kind are generally extrinsic. Consider a key’s potentiality to open a particular door d, or my potentiality to see you. The key would lose its potentiality if the door ceased to exist or merely had its lock changed, and I would lose my potentiality if you no longer existed or became invisible. A potentiality to stand in relation R to a particular object b, as possessed by an object a distinct from b, is always extrinsic, for it depends on the existence of b, on the intrinsic potentialities that b has, and on the relations that hold between a and b. (As I have argued in section 3, such an extrinsic potentiality of a arises from a potentiality that is possessed jointly with b.) Both our examples are of this kind: they ascribe extrinsic potentialities that depend on the existence and the potentialities of another object (the store and the cliff), as well as the relation in which the addressee stands to them. In general, the present approach treats ‘can’ statements that appear to express opportunities or possibilities as ascriptions of extrinsic potentiality.

Degrees and, more importantly, granularity account for a great deal of context-sensitivity, but not for all. A third factor that is of great importance may be labelled agency.

In a great many contexts, when confronted with a sentence ‘S can Φ’ where ‘S’ denotes an agent and Φ is a verb of action, we understand ‘can’ to ascribe to an agent not just any potentiality but an ability, capability, or rational capacity in a stronger sense. Thus when I say ‘I can play the piano’, what I say is at least misleading, and more likely false, if I possess merely the general potentiality to play the piano but not the skill or know-how that is acquired by lessons and practice. And when I say ‘I can hit the bull’s-eye’, what I say is taken to be false if I’m a hopeless darts player who hits the bull’s-eye every now and then by sheer accident (Kenny 1976).
This way of construing the relevant ‘can’ sentences (with agentive subject terms and predicates) is natural but not mandatory. Consider David Lewis’s well-known discussion of the sentence ‘I can speak Finnish’:

An ape can’t speak a human language—say, Finnish—but I can. Facts about the anatomy and operations of the ape’s larynx and nervous system are not compossible with his speaking Finnish. The corresponding facts about my larynx and nervous system are compossible with my speaking Finnish. But don’t take me along to Helsinki as your interpreter: I can’t speak Finnish. (Lewis 1976, 77)

Unlike an ape, Lewis has the potentiality to speak Finnish. The contrast together with a principle of accommodation manipulates the context so that Lewis’s potentiality to speak Finnish counts as relevant. Without the contrastive preparation, it would be difficult to hear the sentence as true; in ordinary contexts, the presumption that an ability in the stronger, agentive sense – a capacity, a skill – is ascribed with a sentence such as ‘I can speak Finnish’ is very strong.

Abilities in this strong sense, on the anti-Humean metaphysics that I have sketched, are a kind of potentiality. But what kind? What sets them apart? This is a difficult question, which cuts across the distinction between Humean and anti-Humean metaphysics.

On one tradition that goes back at least to G.E. Moore, abilities are related to conditionals of the form ‘If x wanted (decided, chose, intended, or tried) to Φ, then x would Φ’. The conditional approach has faced a number of objections, most famously from Austin (1961) and Lehrer (1968). It has recently made a comeback in the form of a ‘New Dispositionalism’, defended by Vihvelin (2004) and Fara (2008). For the New Dispositionalism, an ability is tantamount to a disposition to Φ if one wants (decides, chooses, intends, or tries) to Φ. The dispositional approach solves some of the problems that the original conditional ac-
bull’s-eye – do not. Exactly how that distinction is captured is a question independent of the choice between Humean and anti-Humean metaphysics. And whatever it is that sets abilities apart from other potentialities will, in some contexts, be among the conditions for a potentiality to count as relevant. This I call the factor of agency.

We thus have three factors that make for the relevance of a potentiality in a given context: degrees, granularity, and agency. There may be other factors. But those three are certainly central, and they account for a great deal of variation in the truth-conditions of ‘can’ statements.

5. Dynamic modality beyond ‘can’
I have so far focussed on the auxiliary ‘can’ for two reasons. First, it is most favourable for a potentiality semantics due to its use in ascribing (intrinsic) abilities. Second, it is the most common expression of dynamic modality, and dynamic modality is the species of modality on which an anti-Humean semantics ought to focus. The discussion of ‘can’, however, has provided the resources to deal with other expressions of dynamic modality: the modal auxiliaries ‘might’, ‘may’, ‘must’, and ‘would’; the modal verbs ‘be able to’ and ‘have to’; the suffixes ‘-able’/-ible’; and the adjectives ‘possible’ and ‘necessary’ as they occur in ‘it is possible/necessary for ... to ...’. I will not treat sentence adverbs and other sentence-modifying constructions (‘possibly’ and ‘it is possible that ...’). As we have seen in section 2, those typically express epistemic, not dynamic, modality. (The relation between dynamic and epistemic modality will be considered in section 6.) Throughout the discussion of this section, the paradigmatic case of ‘can’ will serve as a useful point of reference and contrast. Many considerations that we have developed with a view to ‘can’ will carry over to other modal expressions, so we can be much briefer in this section.

We begin with expressions of dynamic possibility other than ‘can’. These include the modal verb ‘be able to’, the suffixes ‘-able/-ible’, the adjectival construction ‘it is possible for ... to ...’, and some uses of ‘may’ and ‘might’. Like ‘can’, these will be treated as ascribing potentialities to the sentence’s subjects; the truth-conditions for sentences including them follow (POT) and its reformulation. They will, that is, be of the general form

\[(\text{POT}') \quad '...' \quad \text{is true in a context } C \text{ iff, at } t_C, \ x \text{ has a potentiality to } \Phi \quad \text{that is relevant in } C,\]

with the right kind of construction replacing the blank ‘...’. Where these other expressions differ from ‘can’ and from each other, they do so in the general conditions that they impose on relevant potentialities. Such differences, as we shall see, lie mostly in the dimension of agency, though sometimes also in the requirements concerning granularity.

The verb ‘be able to’ is closest to ‘can’ and sometimes even used to supply grammatical forms that the auxiliary ‘can’ does not have.\(^{23}\) We made use of that fact above in paraphrasing sentence (3-a). However, there are some differences between ‘can’ and ‘be able to’, both with respect to agency and with respect to granularity. ‘Be able to’ seems more closely tied to agency than ‘can’: it sounds infelicitous when used with non-agentive subjects or predicates (witness (6)). It also appears to be more closely tied to extrinsic potentialities, where ‘can’ is neutral or, in the absence of further context, more naturally read as ascribing an intrinsic potentiality (witness (7)):

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| (6) | a. The vase can break.  
|    | b. ?The vase is able to break.  
|    | c. The boy can fall off the cliff.  
|    | d. ?The boy is able to fall off the cliff. |
| (7) | a. John can swim, though he is not able to right now.  
|    | b. ?John is able to swim, though he cannot swim right now. |

Next, we turn to the suffixes ‘-able’ and ‘-ible’. These are not discussed much in the philosophical literature on modal semantics, but rather form the topic of a separate debate on dispositional predicates. As Mondadori and Morton (1976) and Kratzer (1981) note, however,

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they constitute an expression of modality which combines compositionally with other expressions, and should fall within the purview of a more general modal semantics. In general, the suffixes are appended to a verb (‘wash’, ‘break’, ‘read’) to yield an adjective (‘washable’, ‘breakable’, ‘readable’). These adjectives in turn are naturally read as expressing potentialities: washability, breakability, and readability. Thus the Oxford English Dictionary tells us that the suffixes form ‘adjectives denoting the capacity for or capability of being subjected to or (in some compounds) performing the action denoted or implied by the first element of the compound’.

The semantics of these suffixes differs from that of ‘can’ in two crucial ways, again connected to the two dimensions of agency and granularity.

First, where ‘can’ through the dimension of agency has a certain affinity to what are traditionally called active powers, adjectives on ‘-able’ or ‘-ible’ are closely linked to passive potentialities or dispositions. To be Φ-able, typically, is to have a potentiality to be Φed. Thus to be washable, breakable, or readable is to have a potentiality to be washed, broken, or read; and so on for most (not for all24) adjectives of the kind.

Second, the suffixes tend to be tied to intrinsic potentialities. (Exceptions to this rule are found among McKitrick’s examples of extrinsic dispositions, discussed in section 3.) A text does not become unreadable in the dark, though it becomes true to say of it that it cannot be read; a sugar cube does not become more or less soluble by being at greater or lesser risk of being immersed in water. A little contextual variation is to be expected in their meaning; to be readable is to be capable of being read under normal conditions, to be washable is to be capable of being washed under normal conditions, and so forth. As normal conditions change, so do the meanings and extensions of those adjectives. But this contextual change is nowhere near the extreme flexibility exhibited by ‘can’.

Further expressions of dynamic possibility include the ‘possible for ... to...’ construction as well as the modals ‘may’ and ‘might’. The latter two modals only rarely express dynamic modality. They are mostly used for epistemic possibility.25 ‘Might’, in particular, is the primary modal of epistemic modality. But as Stalnaker (1981) and others have noted,

might sometimes expresses some kind of non-epistemic possibility. John might have come to the party could be used to say that it was within John’s power to come, or that it was not inevitable that he not come. (Stalnaker 1981, 99)

On this reading, ‘might have’, like ‘could have’, ascribes a potentiality, but it does so in the past tense (and with an implication or implicature of non-manifestation).

On the potentiality semantics, all of these expressions ascribe potentialities where they are used dynamically. They vary with regard to intrinsicality and extrinsicality in much the same way as ‘can’ does; but unlike ‘can’, they have no connection to the factor of agency. Contrast the following variations on sentence (8-a):

(8) a. She can play the piano.
   b. It is possible for her to play the piano.
   c. She may play the piano.
   d. She might play the piano.
   e. She might have played the piano.

(8-b)–(8-e) do not have the strong association with skill or ability that (8-a) does. (It is difficult to hear (8-c) and (8-d) as dynamic at all; (8-c) seems to express permission, and (8-d) an epistemic possibility, of her playing the piano. But even if they are read dynamically, there is

24. Exceptions include: ‘honorable’ and ‘payable’, which appear to have a deontic meaning, the latter atypically expressing deontic necessity; and ‘capable’, ‘feasible’ and others that have lost, as it were, their compositional nature.

25. Collins 2009, 92, Table 4.2; 118, Table 4.10.
no strong implication of skill or ability.) Apart from tenses, sentences (8-b)–(8-e) seem semantically equivalent.

The modals that I have looked at so far were modals of what is generally classified as dynamic possibility. But what about dynamic necessity?

Again, we must be careful to prize apart the dynamic reading from epistemic and deontic ones. The auxiliary ‘must’ and the verb ‘have to’ are most often used deontically (as in (9-a)) or epistemically (as in (9-b)):

(9) a. He must/has to go to school.
   b. This must/has to be where she lives.

But they have some dynamic readings as well. Consider, for instance,

(10) a. I must sneeze.
    b. She is obsessive-compulsive; she just has to wash her hands once every hour.
    c. Like-charged particles must repel each other; it’s a law of nature.

Especially where the subject is agentive, a natural paraphrase uses ‘can’: what an individual must do is what she cannot help doing, or what she cannot refrain from doing. The aspect of agency, which we have seen to arise with ‘can’, is relevant here too. Here, however, it is not the agent’s control over her actions but her lack of control that is expressed in sentences (10-a) and (10-b). What the subject of these sentences is said to lack is the (intrinsic or extrinsic) ability to do other than sneeze or wash her hands. (10-c) does not carry such an implication of agency, but it too can be understood as the negation of a ‘can’ statement: like-charged particles cannot fail to repel each other; they lack the potentiality to do so.

A natural treatment for expressions of dynamic necessity, then, is via their duality with modals of dynamic possibility. A sentence of the form ‘x must Φ’ or ‘x has to Φ’ is true just in case x lacks a contextually relevant potentiality not to Φ. The requirements on relevant potentialities will be much the same as they are for ‘can’.

We now turn, finally, to counterfactual conditionals. In section 2, we had set aside the attempt to provide a semantics of ‘would’ counterfactuals in terms of a disposition’s stimulus and manifestation. The problem, recall, was that the disposition was neither sufficient nor necessary for the truth of the corresponding counterfactual conditional: a fragile vase may be wrapped in Styrofoam, so that it is not true that it would break if it were struck; a non-fragile concrete block might be attached to an explosive so that it is true that it would break if it were struck. We now have the resources to answer this challenge: the ‘would’ counterfactual is tied not to the vase’s or the block’s intrinsic dispositions, but to suitably extrinsic ones. Thanks to its joint potentialities with the packaging material, the vase lacks an extrinsic disposition (of a high enough degree) to break if struck; thanks to its joint potentialities with the attached explosive, the concrete block has such an extrinsic disposition. The moral to draw is not that counterfactuals do not ascribe dispositions, but that they do not (or only rarely) ascribe intrinsic dispositions.

What about another species of subjunctive conditionals, the ‘might’ or ‘could’ counterfactuals? On one approach, these are simply the dual or the corresponding ‘would’ conditional. Consider the three sentences in (11):

(11) a. If John came to the party, he would enjoy himself.
    b. If John came to the party, he might enjoy himself.
    c. If John came to the party, he could enjoy himself.

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26. See Collins 2009, 34, Table 3.2; 60, Table 3.12.

(11-a) ascribes to John a relevantly extrinsic disposition to enjoy himself if he came to the party. On the duality approach, (11-b) and (11-c) (when read dynamically) are equivalent to

(12) It is not the case that: If John came to the party, he would not enjoy himself.

For the potentiality semantics, this is to say that (11-b) and (11-c), like (12), deny to John the relevantly extrinsic potentiality not to enjoy himself if he came to the party. However, this approach sits uneasily with other uses of ‘could’ and ‘might’. We have treated those locutions as ascribing, not as denying, potentialities. A more congenial approach for the potentiality theorist is to read (11-b) and (11-c) as paraphrased in (13):

(13) If John came to the party, it would be that: he might/could enjoy himself.

On this approach, ‘might’ or ‘could’ counterfactuals are treated not as duals of ‘would’ counterfactuals, but effectively as ‘would’ counterfactuals whose consequents are ‘might’ or ‘could’ statements. This reading is less widely accepted than the duality reading, but it is advocated (as one available reading) by Lewis (1973, 63–65) and Eagle (2007)28 (13), on the potentiality semantics, says that John has a relevantly extrinsic potentiality whose stimulus condition is coming to the party, and whose manifestation is the possession of another potentiality: the potentiality to enjoy himself. The potentiality ascribed by (13), in other words, is an iterated potentiality: it is a potentiality for the acquisition of another (relevant) potentiality.

This section has provided no more than the bare outlines of an anti-Humean semantics beyond ‘can’. But it should give a feeling for how the semantics goes, and some hope that it will go well. Much work remains to be done. But the task looks to be rewarding.

6. Further issues

I have argued that the anti-Humean metaphysics of potentiality, when spelled out in sufficient detail, affords the materials to meet the main challenge formulated in section 2: to give an account of context-sensitivity that is general enough to cover not only the ability uses of ‘can’ but also its possibility (or opportunity) uses, as well as contextual shifts between and within these. Given the dimensions of degree, granularity, and agency, I believe such an account can be given. Granularity, or in general the observation that there are extrinsic potentialities, has proved particularly useful in meeting the challenges. Using ‘can’ as a paradigm case, the prospects for an anti-Humean semantics of dynamic modality in general look hopeful. In this final section, I want to address what I take to be the two main remaining issues for the proposed semantics. One concerns its expressive limitations, the other its systematic connection with flavours of modality other than dynamic.

6.1 All modality is de re

For the anti-Humean, the chief advantage of the semantics that I have so far described is the link that it provides between our modal talk and the underlying structure of modal reality – the modal properties that constitute the bedrock of anti-Humean metaphysics.

It is a consequence of this link that the anti-Humean semantics treats all (dynamic) modality as de re. In this, it is in sharp contrast with the more familiar approaches to modal semantics. For possible-worlds semantics, the smallest unit to which a modal operator (such as ‘can’) is applied is a sentence, such as ‘I play the piano’, to yield a complex sentence with the structure ‘Can (I play the piano)’. For the potentiality semantics, a modal verb such as ‘can’ is embedded more deeply in the structure of a sentence: it is applied first to a predicate (‘play the piano’) to yield a complex predicate (‘can play the piano’),

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28. Eagle (2007) labels this reading ‘ontic’ and suggests that it is ‘more widespread than this single citation [Lewis 1973] suggests’ (Eagle 2007, 4, fn.5).
which is then applied to a singular term (‘I’) to yield a sentence (‘I can play the piano’). What we do with such modal terms is ascribe modal properties to individuals. In this sense, all dynamic modality is de re.

As may be expected, problem cases for the potentiality semantics arise where there are no individuals for the modal properties to be ascribed to. This may be so because, while the sentence is syntactically of the right form, its subject is not best understood as denoting an object. Consider (14):

(14)   a. The debt rate can rise next year.
   b. My great-granddaughter can be a painter.

While (14-a) appears to ascribe a potentiality to an object referred to by ‘the debt rate’, many will doubt that there is any such object, or that, if it exists, it can function as a bearer of potentiality. And while (14-b) appears to ascribe a potentiality to an individual denoted by ‘my great-granddaughter’, it would seem again that there is now no such individual, and there might never be. Nevertheless, it may be said, both sentences have a dynamic reading, and both sentences may well be true on that reading. So, the objection goes, not all ‘can’ statements that express dynamic possibility can be construed as ascribing a potentiality (or any other property) to an object.

A second type of problem concerns not so much the absence of suitable individuals for the ascription of modal properties, but targets the construal of modal statements as ascribing such properties more generally. For the potentiality semantics, all dynamic modality is de re; but, the objection goes, there are de dicto statements of dynamic modality, which are not concerned to ascribe a modal property to some individual or other. Consider

(15)   Someone can see us.

(15) has a de re reading. On that reading, it says that there is someone of whom it is true that they can see us; someone, that is, who has a potentiality (of suitable grain and degree) to see us. But (15), it may be said, also has a de dicto reading. On that reading, it says that it is possible for there to be someone who sees us. The de re reading is committed to the existence of someone, the potential seer; the de dicto reading is not. But if (15) was used, as the potentiality semantics has it, to ascribe a modal property, it cannot be neutral on whether or not there is someone to possess the relevant property. Moreover, the de dicto reading requires ‘can’ to take scope over the quantifier in ‘someone’. A sentence modifier such as ‘possibly’ can do that; but a predicate-modifying verb cannot. So, the objection goes, ‘can’ must be a sentence-modifier after all, in which case it is, again, less naturally construed as ascribing potentialities (or any other properties).

The two worries seem to be related, since modal sentences with the wrong kind of subject – as in (14) – are often analysed as de dicto modal sentences. That strategy, of course, is not available to the potentiality semanticist.

In responding to these worries, the potentiality semanticist has three basic options: acceptance, analysis, and rejection.

Straightforward acceptance of the examples in (14) entails ontological commitments: to abstract objects such as debt rates, to possible future objects such as my great-grandaughter (who may never be born), and to whatever else further examples may commit us to. Such liberalism is not unheard of. The debate about abstract objects is well-worn. The existence of mere possibilia has more recently found an eloquent defender in Timothy Williamson.29 For Williamson (2002), an object is ‘essentially a locus of potential’. The accepting potentiality semanticist may take this literally.

With respect to de dicto quantified statements, straightforward acceptance is not an option. But the Williamsonian, believing as she does in the Barcan equivalence, has a de re substitute for each de dicto statement, and she may take to analysing the latter in terms of the former.

Analysis, quite generally, is an option that may be applied to both kinds of case. Let us begin with (14) again. True sentences with ontologically suspect subjects are not limited to modal language. Those who reject abstract objects will want to analyse not only (14-a) but also sentences such as

(16) The debt rate is rising.

They may do so by substituting, in the analysans, a different subject or subjects – debtors and creditors, in our case – for the suspect subject of the analysandum; and accordingly, a different but related predicate – e.g., lending and owing larger sums of money – to preserve the sense of the sentence. The same strategy may be applied, then, to our sentences above. In the analysans, we will refer to respectable objects – debtors and creditors, or myself – and ascribe to them suitably related properties. Only now the related properties will have to be potentialities: the joint potentiality to lend and owe larger sums of money, respectively; or my (iterated) potentiality to have a daughter with a potentiality to have a daughter with a potentiality to be a painter. Corresponding analyses can be applied to the allegedly de dicto statements.

Rejection is the final option, which may be applied judiciously or sweepingly. To reject the examples, we need not reject them as ungrammatical or false – we do say such things as (14) and (15). It is, rather, to reject them as falling within the purview of the proposed theory: dynamic modality. We have seen earlier that sentence modifiers tend to express epistemic modality. If a de dicto reading of statements such as (15) and, by the right analysis, (14) requires that ‘can’ be read as a sentence modifier, then so be it! But then the sentences must have an epistemic reading after all; or so the strategy of Rejection has it.

Rather than choose between the three strategies, I would like to end by following on a theme of the third, the relation between dynamic and epistemic modality. For this, it seems, is another challenge to the potentiality semantics: to situate dynamic modality within the broader framework of linguistic modality in general, including as it does the epistemic and deontic flavours.

6.2 Situating dynamic modality

I have been careful throughout the paper to distinguish dynamic modality from other species of modality, and in particular from epistemic modality. The potentiality semantics has been developed for dynamic modality alone. But it is well known that the different species of linguistic modality – dynamic, epistemic, and deontic – are closely related. Most modal expressions can be used to express two or all three types of modality. That is hardly a coincidence. So what can the anti-Humean, potentiality semanticist say about linguistic modality in general?

There are certainly ways of fitting epistemic and deontic modality into an anti-Humean framework. Consider, by way of example, DeRose (1991)’s truth-conditions for a typical statement of epistemic modality:

S’s assertion “It is possible that P” is true if and only if (1) no member of the relevant community knows that P is false, and (2) there is no relevant way by which members of the relevant community can come to know that P is false. (DeRose 1991, 593f., my italics)

We need not accept DeRose’s account, but we can use it as an example to illustrate the relation between epistemic and dynamic modality. Clause (2) contains the dynamic modal ‘can’. The potentiality semanticist will construe the sentence as denying members of the relevant community the relatively coarse-grained (extrinsic) ability to come to know that P is false. Both the relevant community and the exact extent of the ability’s extrinsicality, as well as the ability’s required degree, will be contextually specified and, presumably, highly flexible, thus accounting for some of the context-sensitivity of epistemic possibility claims. In this way, epistemic possibility becomes a matter of our extrinsic abilities to rule out a hypothesis. Knowledge itself, the core of
clause (1), is sometimes linked to abilities. Virtue epistemologists such as Greco (2007) or Sosa (2007) take knowledge to be the exercise of certain abilities, while others, such as Hyman (1999), think of knowledge itself as an ability. Even when no appeal to abilities is made, virtually any account of knowledge appeals to some aspects of dynamic modality: the reliability of a method in process reliabilism, counterfactual conditionals in safety and sensitivity conditions, or easy possibility in Williamson 2000.30

Obligations and rights, the subject of deontic modality, have recently been linked to dispositions in a series of papers by Luke Robinson.31 According to Robinson,

the metaphysical grounds of our moral obligations are dispositions (or powers), rather than (say) rules or laws. Specifically, they are obligating dispositions: real, irreducibly dispositional properties (powers, capacities, etc.) of moral persons—agents and patients—that can and do ground the moral obligations of moral agents without the metaphysical backing (so to speak) of duty-imposing moral rules or other moral laws. (Robinson 2013, 6)

If statements of deontic modality could be construed as ultimately ascribing such obligating dispositions, we would get a thoroughly anti-Humean semantics of deontic modality to accompany the anti-Humean semantics of dynamic modality which I have presented.

Even if other species of modality can be incorporated in some such way, the anti-Humean semantics remains a disunified one. Take, for instance, the following sentences:

(17) a. Frank can run a four-minute mile.
   b. It is possible that Frank runs four-minute miles.

c. Frank might run four-minute miles.

The first, which is clearly dynamic, ascribes to Frank— the sentence’s subject—a potentiality to run a four-minute mile. The latter two, both statements of epistemic possibility, deny the sentence’s speaker and her community an ability to rule out that Frank runs four-minute miles. Similar considerations will apply to alternative construals of epistemic modality. Epistemic modality applies to a sentence as a whole (‘Frank runs four-minute miles’) and relates the proposition expressed by it to the epistemic state of the speaker or other subjects; dynamic modality is embedded into the very structure of the sentence, relating the object that is referred to by the sentence’s grammatical subject to the property that is expressed by the following verb phrase. Even if both are a matter of potentialities, they differ fundamentally from each other.

This is in striking contrast to the more entrenched approach to modal semantics based on possible worlds. For possible-worlds semanticists such as Lewis and Kratzer, the distinction between dynamic and epistemic modality is no more a deep distinction than that between, say, the ability use and the possibility use of ‘can’. Both are a matter simply of how we restrict the possible worlds over which a modal expression is taken to quantify: those which hold fixed certain actual facts (dynamic), those which hold fixed everything that is known by relevant subjects (epistemic), or those in which everything goes as it ought to go (deontic).32 Possible-worlds semantics provides unity where potentiality semantics sees deep differences. Unity may seem preferable, given that we use the same words for different types of modality. Is the price for the anti-Humean semantics therefore too high?33

30. Alternatively, the relevant potentialities might be ascribed not to epistemic agents, but to their belief states. Thus p’s being epistemically possible for me might consist in my overall belief state’s having a potentiality to update so as to include p. Thanks to an anonymous referee for this suggestion.


32. In Kratzer’s semantics, this is complicated by the distinction between modal base and ordering source: dynamic and epistemic modality concern the former, deontic modality only the latter. But for our purposes, no such subtlety is needed.

33. Some developments in linguistics may suggest that the price is not high at all: many linguists see a deep divide, syntactic and semantic, between epistemic modality on the one hand and ‘root’ modality (including dynamic and deontic) on the other, and have argued that the difference is indeed one of...
I do not think so. Metaphysically speaking, dynamic and epistemic modality appear to be two very different kinds of animals: one concerns reality; the other concerns, roughly, our knowledge of it. The distinction is not an artefact of the anti-Humean semantics. Rather, it was what motivated the semantics’ initial focus on dynamic modality. In sharply distinguishing between the two (as well as between the dynamic and the deontic) types of modality, the anti-Humean semanticist is guided by metaphysical considerations.

Unity of linguistic expression may have different sources. One source is unity in the underlying reality: all the phenomena described with the relevant type of expression have something in common. Another source may be unity in the pragmatic significance of the underlying reality: while the phenomena described with the relevant type of expression differ from each other substantially, they play the same role for our deliberation, planning, and action. If we take possible-worlds semantics seriously, its diagnosis of the unity in modal language is of the first type. The anti-Humean semanticist should instead opt for the second type of diagnosis. Knowing that the vase can break (dynamic modality) or not being able to rule out that it will break (epistemic modality) both lead to the same result: I will pack the vase safely. A child’s knowing that she is unable to do a cartwheel in the classroom (dynamic modality) and her knowing that she is not allowed to do a cartwheel in the classroom (deontic modality) both have the same result, at least in a rational and obedient child: she will not attempt to do a cartwheel in the classroom. Dynamic, deontic, and epistemic modality alike play the role of delimiting the space of options in our practical deliberation. Their metaphysics may be very diverse, and they may easily come apart in more sophisticated deliberation. But the basic function of the different types of modal knowledge is the same. It

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References


Eagle, Antony. 2007. “’Might’ Counterfactuals.” Unpublished manuscript.


Barbara Vetter

‘Can’ without possible worlds