

Essence and Potentiality

Author Barbara Vetter

Institution University of Oxford (DPhil student)

Contact barbara.vetter@philosophy.ox.ac.uk

phone: +44 1865 251479

mail: Corpus Christi College, Oxford, OX1 4JF, UK

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Abstract

Kit Fine has argued that we should understand necessity in terms of essence, rather than vice versa. I argue for a similar but distinct alternative: we should understand possibility in terms of potentiality (dispositions, abilities, etc.), rather than vice versa. My proposed account, like the essentialist one, grounds modality in the things of the actual world. But it is preferable to Fine's account for two reasons. First, we have a better and more intuitive understanding of potentialities than of essences: they are properties of ordinary concrete things that we deal with in everyday life. Second, there is a more convincing case for the claim that potentiality does not reduce to possibility which, unlike Fine's argument against the reduction of essence to necessity, does not need to appeal to strange properties. I conclude by sketching what a potentiality-based account of modality would look like.

1 Fine on Essence and Necessity

Kit Fine has famously argued that the notion of a thing's essence cannot be reduced to, or derived from, that of metaphysical necessity (cf. especially Fine 1994, but also Fine 1995a and Fine 1995b). Using Fine's notation $\Box_x p$ for 'it is true in virtue of the essence of x that p', the *modal account* of essence says that the equivalence

$$\Box_x \Phi x \equiv \Box \Phi x$$

not only holds, but also characterizes what it is for any object x to be essentially Φ . (The equivalence may be complicated considerably, most obviously by conditionalizing the right-hand side on x's existence; but for present purposes it is sufficient to stick to the simplest version.)

Fine argues that the modal account fails because the equivalence does not hold: it has false instances when read from right to left. Thus it is true that Socrates is necessarily a member of {Socrates}, and that Socrates is necessarily such that $2 + 2 = 4$; but neither of these properties is essential to Socrates. The modal account fails to distinguish necessary from essential properties.

Fine gives a general diagnosis on this result:

Given the insensitivity of the concept of necessity to variations in source, it is hardly surprising that it is incapable of capturing a concept which is sensitive to such variation. Each object, or selection of objects makes its own contribution to the totality of necessary truths; and one can hardly expect to determine from the totality itself what the different contributions are. ... Indeed, it seems to me that far from viewing essence as a special case of metaphysical necessity, we should view metaphysical necessity as a case of essence.

(Fine 1994, 9)

In this passage, Fine is claiming more than merely that essence does not reduce to modality. He suggests further that on the contrary, necessity reduces to (or is constituted by, based on, or what have you) essence. Let me label these two claims for further reference:

First claim: Essence does not reduce to modality. (Modality is not prior to essence.)

Second claim: Modality is constituted by essence. (Essence is prior to modality.)

In the passage I have quoted, the second claim is offered as an *explanation* of the first. If the essences of individual objects each contribute their share to the totality of necessity, we should not expect to be able to trace back the individual contributions when given merely the totality.

Note, however, that the second claim not only explains but also requires the first claim, in two ways. First, dialectically: the first claim is the only argument or motivation we are given for the second claim. Second, materially: if essence is prior to necessity, it cannot be that necessity is also prior to essence.

It is Fine's second claim that I am interested in. Here is what I find attractive about it: the essentialist view roots modality firmly in the things of this world. No possible worlds, genuine or ersatz, are required for understanding the nature of necessity and (thereby) possibility. Ordinary, commonsensical modal facts such as the fact that Socrates might have been a carpenter are based in ordinary, concrete objects on whose existence we can (almost) all agree and that we are all familiar with, objects like Socrates and yourself – not in science-fiction-like entities like Lewisian worlds, nor in such airy entities as propositions or sets. I find this thought intuitively attractive, and while I cannot here argue for it, I rely on your sympathy for it.

Attractive as the second claim may be, there are some problems (noted, for instance, in Gorman 2005).

First problem: Fine's argument for his first claim appeals to strange properties. The modal account seems to work perfectly well for such more natural candidate properties as being human or being a philosopher. Perhaps we should draw from his argument the more modest conclusion that some naturalness restriction needs to be imposed on candidate properties for essentiality? (Or perhaps we do not believe in such made-up properties as 'being such that $2 + 2 = 4$ ' in the first place.) If so, then Fine's argument for the first claim fails, and then so does his case for the second claim.

Second problem: The modal account was meant, I take it, to make the notion of essence less mysterious by basing it on the supposedly better understood notion of necessity. Failing this, we need some alternative model for thinking about essences. And indeed Fine offers us one: essence, he tells us, has to be understood together with, and on the model of, (real) definition. Does that help? I can understand the notion of real definition as applying to (some) abstract entities, but I have no idea how to apply it to a concrete object such as Socrates or myself. And thus the very attractiveness of the second claim is threatened: modality is to be rooted in ordinary, well-known things – but it is to be rooted in them in a way that is anything but ordinary and well-known.

I have certainly not refuted Fine. But I hope to have provided some reason to seek an alternative, one that preserves the intuitive appeal of rooting modality in the things of this world, while avoiding the two problems. That is just what I will try to provide in the rest of this paper.

2 Potentiality

Essence is, as it were, necessity rooted in things. If we want to approach the Finean project from a different angle, how about possibility rooted in things? Let us call such possibility rooted in things potentiality.

Unlike essence, potentiality is ubiquitous in our everyday thought about and dealing with the world. We handle glasses careful if they are fragile; we handle people carefully if they are irascible or vulnerable; we learn languages in order to acquire the ability to speak them, and practise the piano to improve our skills at it. Dispositions, abilities and skills are potentialities (or potentials for short). All of these properties have something in common: they enable a thing to behave (act or react) in certain specific ways; if we are looking for sources of possibility in things, they are the most promising candidates.

I suggest that the following general list of characteristics is intuitively true of the potentialities that we know about and deal with.

- (A) All potentials are properties of individual objects, not just facts about the world as a whole. They may be extrinsic (cf. McKittrick 2003): I may be vulnerable if walking down a dark alleyway at night, and not vulnerable if walking down High Street at day time. But extrinsic properties are properties nonetheless, and they are highly selective about the features of reality that their possession depends on.
- (B) The manifestations that potentials are potentials for are all of the form of the potential's bearer being or doing something – often something that the potential-bearer is not already or actually being or doing. Thus the manifestations of potentials are often processes of change. A potential's manifestation may be an intrinsic change of the potential-bearer (a fragile glass's breaking), or a lack of intrinsic change (hardness, stubbornness), an interaction with something else (a soluble sugar cube's dissolving in water, someone's exercising their ability to play the piano), which may result in a change of that other thing (a dye's exhibiting its power to colour some textile).

(A) and (B) do not establish any interesting disanalogy between potentiality and essence. (A) merely re-states that potentials are 'rooted in things'. (B) points to a difference between essence and potentiality: Having a potential to Φ , unlike being essentially Φ , does not entail being actually Φ . But this difference is analogous to a difference between necessity and possibility: its being possible that p , unlike its being necessary that p , does not entail its being actually the case that p . For all that has been said so far, then, essence and potentiality might be interdefinable just like necessity and possibility, and my account would be merely a notational variant on Fine's. But that is precluded by a third set of characteristics.

- (C) Typically, potentials are

1. *contingent*: I have a potential to play the piano, but I might have lacked it – most blatantly if there had been no pianos, or if I had had no hands.
2. *temporary* (can be lost and gained): For a few years, I had a potential to be a child prodigy, but sadly I have now lost it; on the other hand, I have acquired an ability to deal with the internet which I did not have as a toddler (if only because there was no internet).
3. *graded* (come in degrees): Glasses can be more or less fragile, and some of us play the piano better than others. Taking this feature together with 1. and 2., it is contingent and time-dependent not only which potentials a thing has, but also to what degree it has them. A glass could have been more fragile than it is if a little mistake had been made in its fabrication; it can become more fragile by being subjected to extreme temperatures.

Essence lacks any equivalent to the features listed in (C), and it is because of these features that any definition of potentiality in terms of essence, on the model of the interdefinability of possibility and necessity, must fail. Use $\diamond_x \Phi x$ to mean that x is potentially Φ . Then the equivalence

$$\diamond_x \Phi x \equiv \sim \square_x \sim \Phi x$$

does not hold; like the modal account of essence, it has false instances when read from right to left. For what is excluded by my essence are all the properties I could contingently have or lack; but my potentialities, being contingent, will include only some of them. For instance, my essence does not preclude that I meet the king of France; but since, as a matter of contingent fact, there is no king of France, I have no potential to meet him. Further, essence being time-invariant, it is not now excluded by my essence that I should be a child prodigy, but I have lost the potential to be one. And even if the equivalence did hold, it would not be adequate as a definition of potentiality, as it would fail to capture the third feature listed under (C), the gradedness of potentiality.

My approach, thus, is not reducible to Fine's. And it is precisely the features that distinguish potentiality from essence – i.e. those mentioned in (C) – that provide an argument for my analogue of Fine's first claim: potentiality does not reduce to possibility.

3 The first claim: Why potentiality does not reduce to possibility

I hope to have demonstrated in the last section that potentiality is not subject to the second objection I put forward against Fine's account: potentialities, unlike essences, are intuitive and familiar, and we have plenty of examples readily at hand. How then does potentiality

do on account of the first problem: can it be convincingly argued that potentiality does not reduce to possibility, without appealing to the unintuitive properties that Fine's counter-examples required?

Let me first get an obvious point out of the way. Potentiality does not, of course, reduce to possibility as usually understood and expressed in S5 modal logic; S5-possibility, like essence, provides neither contingency, nor temporariness, nor degrees.

However, it is well known that the apparatus of possible worlds affords greater expressive power than mere talk of possibility and necessity. In particular, possible worlds talk allows us to introduce degrees of possibility, thus promising to satisfy the constraint that we must capture the gradability of potentiality. The degree to which an object x has a potentiality to Φ will then simply be the degree of the possibility that $x \Phi$ s; and it is to be hoped that the apparatus will deliver contingency and temporariness as well. I will, however, concentrate on degrees and argue that degrees of possibility, however understood, cannot deliver the *right* degrees of potentiality.

There are two ways to understand degrees of possibility on a possible-worlds framework: one is in terms of closeness to the actual world, the other is in terms of a probability-like measure or proportion of possible worlds. Let me look at these two options in turn.

First, closeness. On this conception, to what degree it is possible, at w , that p depends on how close to w the closest p -world is. Closeness of worlds is determined by a contextually determined similarity relations between worlds. (Classic statements: Lewis 1973, Lewis 1986.) The degree of a possibility, on this account, is both contingent and temporary: which worlds are close differs from world to world; and as time progresses, worlds that were initially close may diverge and others that were initially farther away may converge. So far, all is well. But while closeness does deliver contingency, it delivers the *wrong contingency*.

The problem is known as 'accidental closeness' (Manley and Wasserman 2008). On the present proposal, the degree of a glass's fragility just is the degree of the possibility that the glass breaks, which in turn depends on how close to the actual world the closest world is in which the glass does break (times being held constant). Now take two glasses that are equally fragile; store one of them safely on a shelf above a soft carpet, and place the other one at the edge of a table on a stone floor. On any reasonable closeness relation, there is a close world where the second glass breaks – one careless movement is enough – but no equally close world where the first glass breaks. But by hypothesis the two glasses were equally fragile. Hence the closeness account gave us the wrong degree for at least one of them (or more likely, for both: too low for the first, too high for the second).

Second, proportion. On this account, to what degree it is possible (at w) that p is determined by the measure of worlds at which p , or the proportion of p -worlds to non- p -worlds. (You may prefer to call these degrees of possibility degrees of probability; never mind the

name.) This is not subject to problems of accidental closeness: any possible circumstance, stone floors as well as soft carpet, will be among the worlds measured, no matter how close to actuality. However, we can see immediately from the characterization above that degrees of possibility on this account are not contingent: there is no relativization to w in the right-hand side (and no space for such relativization). If degrees of potentiality were identical to degrees of possibility on this conception, then worlds where this glass was produced with a fabrication mistake would count into determining its degree of fragility; and worlds where I had piano lessons (which in fact I did not) would count into the degree of my ability to play the piano.

If closeness yields the wrong contingency, and a measure/proportion account yields none at all, how about combining the two? Let us say that the degree of the possibility that p is determined by the measure of reasonably close worlds where p . Then closeness may take care of the contingency and temporariness of potentialities, while the proportion rids us of the problem of accidental closeness. Among the close worlds, there should be those with stone floors and those with soft carpets, and in general enough variation of external circumstances to preclude accidental factors such as the glass's actual storage to matter. Not everything must be varied, however. We want a measure of breaking-worlds out of all the worlds where the glass has been fabricated as it actually has, excluding worlds with fabrication mistakes; and of piano-playing-worlds out of all the worlds where I have had exactly the amount of piano lessons I have had (that is, none). In general, we want to measure the manifestation-worlds out of the worlds where the potential-possessing object is intrinsically just like it is in the actual world (including, if you like, its history). This is the closeness relation that should be at work: closeness is determined by similarity in the intrinsic constitution of whatever object it is whose potentialities are at issue. The degree of x 's potential to Φ is determined by the proportion of worlds, out of those where x is intrinsically just like it is in the actual world, where $x \Phi$ s. (This is, roughly, what Manley and Wasserman 2008 suggest.)

I think this is about as fine-grained as a possible-worlds framework gets. It is not, however, fine-grained enough. For the requirement of intrinsic similarity is both too strong and too weak.

It is too strong because there are extrinsic potentialities. To determine the degree of my vulnerability you have to consider exactly those worlds where not only I am intrinsically just as I am actually, but certain features of my surroundings are too. Which features? Well: those that count towards my vulnerability. In general, the relevant worlds have to include those and only those where the potential-possessing object *and* the relevant features of its environment are just like they are in the actual world. Which are the relevant features of the environment? They are those, if any, that possession of the potentiality in question depends on.

Moreover, the requirement is too weak. Suppose I have had piano lessons, but have made a

firm decision never to play the piano. That decision is part of my intrinsic make-up, just as much as my ability to play the piano. So considering only worlds where I am intrinsically just like I am in actuality (in the supposed scenario) will yield very few if any worlds where I do play the piano, thus misrepresenting the degree of my ability. This is not a far-fetched kind of case: anyone who is irascible but well-bred, disposed to cry but disciplined, or prone to overeat but strictly following a diet will serve as example. To capture all and only the relevant worlds for an object's potential to Φ , we have to include worlds with some variations in the object's intrinsic make-up. But only *some* variation: in fact, variation in anything but the potential itself. Again, the specification of the close worlds cannot help but refer to the very potentiality that is to be reduced – and that, of course, cannot constitute a reduction.

This completes my case for the potentiality analogue to Fine's first claim: Potentiality cannot be reduced to possibility. Unlike Fine's argument for his first claim, my argument did not rely on strange properties, thus avoiding the first of the two problems posed in Section 1.

4 The second claim: how to derive possibility from potentiality

I have argued, so far, that a potentiality-equivalent of Fine's first claim can be defended, and successfully avoids the problems that I sketched in section 1. This should encourage anyone sympathetic to the Finean project to look at an explication of the second claim, as it applies to potentialities rather than essences: the claim that possibility is constituted by potentiality. In this last section, I will sketch the beginnings of such a potentiality-based account of possibility.

First, I need to introduce the notion of *iterated potentiality*. I do not have an ability to play the piano. My desk does not have that ability either. But unlike my desk, I have the ability to *learn* to play the piano. Learning to play the piano is acquiring (in a particular, though certainly the most practicable way) the ability to play the piano. My ability to learn to play the piano, then, is a potentiality to acquire a potentiality – an *iterated* potentiality.

The manifestation of a potentiality, as I have noted above in section 2., can consist in an interaction with another thing, causing a change in that other thing. Thus a dye's manifesting its disposition to dye things red is manifested in those other things acquiring the disposition to look red; and a piano teacher's special skill is manifested in their pupils acquiring the ability to play the piano. These are iterated potentialities too: they are potentialities *for another thing* to acquire a potentiality. It is clear that potentialities can be iterated many times: think of a professor who trains piano teachers, for instance, or the mechanism that produces the dye.

Let us include what we might otherwise call non-iterated potentialities, such as the ability to play the piano, as trivial cases of (one-time) iterated potentialities. Here, then, is a first step towards a potentiality-based account of possibility. For any object x and any property Φ , it is possible that x is Φ just in case some object y has an iterated potentiality for x to be Φ . Thus it is possible that the glass may break because the glass itself has a (one-time) iterated potentiality (for itself) to break. It is possible that I play the Goldberg Variations because I have a (non-trivially) iterated potentiality (for myself) to play them.

Potentiality is contingent, temporary, and graded. In everyday modal talk, we often speak of possibility as if it were so too. Thus we say that something is no longer possible, or that something is more possible than something else, or that something would have been possible if only ... A potentiality approach can make sense of such talk in an obvious way. But of course we also want it to make sense of the possibility we speak of when doing metaphysics, and which does not share any of these features. So let us say that it is metaphysically possible that x is Φ just in case some y , at some time and to some degree greater than zero, has an iterated potentiality for x to be Φ . Thus it is possible that I be a sister of three (instead of two, as I am actually) because, even though no one any longer has any potential to make me a sister of three, my mother and father once had the potential to produce another child.

I have factored out time and degrees; I cannot factor out contingency, on pain of introducing modality that is prior to potentiality. Does this narrow down possibility too much? Can my approach make sense, for instance, of the possibility of alien objects and alien properties? Only to the extent that actually existing objects have, at some time, to some degree, an iterated potentiality for there to be such objects and properties – to the extent, that is, to which the actually existing objects could have produced or constituted those things, or could have acquired, or made something else acquire, those properties. Could the laws of nature have been different? Perhaps: if there are objects that have potentialities to exist under different laws of nature. Could it have been that time had no beginning (assuming that it actually had one)? Probably not: unless you think there are potentials for backwards eternal existence. I think the limitations are not too severe, and may indeed not be as narrow as it seems at first sight. Much depends on further metaphysical inquiry into the nature of potentialities. As for the remaining limitations, I am willing to bite the bullet and say that some of what metaphysicians take to be metaphysically possible turns out to be only epistemically possible; our modal intuitions may not be entirely decisive when pushed to their limits.

I have provided only the bare bones of a potentiality-based account of modality. In particular, I have given truth-conditions only for very simple predicative possibility statements, of the form 'possibly, x is Φ '. I believe that the account can be extended beyond these simple cases, but I cannot here do so (and I have not worked out all the details yet). I hope, however, to have made a convincing case that the project is worthwhile.

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