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TEMPORAL AND COUNTERFACTUAL POSSIBILITY

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Among philosophers working on modality, there is a common assumption that there is a strong connection between temporal possibility and counterfactual possibility. For example, Sydney Shoemaker (1998, 69-70) writes:

> It seems to me a general feature of our thought about possibility that how we think that something could have differed from how it in fact is [is] closely related to how we think that the way something is at one time could differ from the way that same thing is at a different time. In possible worlds jargon, the ways one and the same thing of a given sort can differ across worlds correspond to the ways one and the same thing of that sort can differ at different times in the same world. Could I have been a plumber or an accountant instead of a philosopher? The answer seems to be yes — and this goes with the fact that we acknowledge the possibility of a scenario in which someone who was exactly as I was at some point in my life undergoes a series of changes resulting in his eventually being a plumber or an accountant.

In a footnote, he acknowledges that this connection between counterfactual and temporal possibility needs to be qualified in response to an objection by Randy Clarke: «The property of being the child of someone who has visited Paris is not one that one can have and then lose; but it is one that one can have in the actual world and not have in some other possible world.» (1998, 75n.9) Therefore, he restricts the inference from temporal to counterfactual possibility and vice versa to «non-historical properties.»

In the passage quoted above, Shoemaker stops short of endorsing strict implication relations between temporal and counterfactual possibility. Still, there is a presumption in the work of many philosophers that a *de re* modal claim concerning the possession of a property by an individual usually implies and is implied by a temporal claim concerning the possession of that same property by that individual. For example, it might be argued that Alfred could not possibly have been non-human on the grounds that Alfred cannot become non-human, or that Bertha could possibly have been a plumber on the grounds that she can become a plumber. Generally, we can frame the relevant principles as follows[1]:

(1) If x could have been F in another possible world, then x can become F in the course of time in the actual world.

(2) If x can become F in the course of time in the actual world, then x could have been F in another possible world.

These principles are rarely if ever stated in this stark fashion, but implicit appeal to them (especially the second) abounds in the work of essentialist philosophers. To cite just one

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[1]. One can also formulate contrapositive equivalents of these claims, e.g. (1') If x cannot become F in the course of time in the actual world, then x could not have been F in another possible world. Corresponding claims can also be framed in terms of necessity rather than possibility.

recent example, in a book on scientific essentialism, Brian Ellis (2001, 32) characterizes accidental properties as «properties that a thing can acquire or lose without ceasing to be a thing of the kind it is.» The connection between what is accidental (i.e. non-essential, and therefore contingent) with what can be actually acquired or lost in the course of time seems quite widespread.

However, these principles have been questioned by at least one recent writer on modality. E. J. Lowe thinks that it is neither the case that counterfactual possibility implies temporal possibility ((1) above), nor that temporal possibility implies counterfactual possibility ((2) above). He argues against (1) as follows: «… a sculptor could perhaps have given a somewhat different shape to a statue that he has just made — but it doesn't follow that the statue can now be made to take on that different shape.» (2002, 80) Though Lowe does not elaborate further, it is not difficult to conjure up a case to illustrate the claim. Imagine that a sculptor has taken a block of marble and fashioned it into a bust of Socrates with a small nose. Let us grant that it may not be possible for that sculpture to be reshaped at some later time such that it has a large nose. This would be the case, for example, if the sculpture has been fashioned from a single piece of marble that cannot be repaired by reattaching parts that have been cut from it. However, the sculpture might originally have been capable of being fashioned into a head with a large nose (indeed, the sculptor might first have carved it in such a way as to have a large nose, then made the nose smaller). Thus, this sculpture could have had a different shape from the one that it actually has (counterfactual possibility), but it may not be possible for the sculpture to acquire that shape in the future (temporal possibility).

As for (2), Lowe imagines a certain plant that can acquire a different shape from the shape it now has, though it could not have had a different shape in another possible world. He writes: «it might be that a plant of a certain kind *must* possess a certain shape at a certain stage of its existence — for instance, when it is a seed — even though it is possible for it to change its shape thereafter.» (2002, 80; original emphasis) He holds that it could take on a different shape in the future, when it is transformed from a seed into a seedling. But «it is true to say of it, when it is a seed, that it could not have had a different shape from the shape that it actually has at that moment.» (2002, 80) Hence, even though it is temporally possible to take on a different shape, it is not counterfactually possible for it to have had that shape.

In the rest of the paper, the two principles and their respective counterexamples will be considered in reverse order. After describing a modified version of the second counterexample, in section 2, an attempt will be made to show that it does not, on closer inspection defeat (2). Then, in section 3, it will be argued that the first counterexample does defeat (1), but for a certain set of non-standard «irreversible properties». (The «historical properties» for which Shoemaker issues his restriction are a special case of such properties.) Section 4 will conclude by claiming that it has not been shown that temporal possibility does not imply counterfactual possibility, and that although it has been shown that counterfactual possibility does not generally imply temporal possibility, the exceptions to this principle are nonstandard properties.

2. Does Temporal Possibility Imply Counterfactual?

Let us begin with a modified version of the second counterexample, which purports to show that temporal possibility does not imply counterfactual possibility. When it comes to *de re* modality, it always helps to personalize matters. Consider a certain caterpillar Charlie in the larval stage at time t_1. At that time, it seems correct to say that Charlie must necessarily

be larva-shaped (she cannot, for example, be butterfly-shaped and remain a larva). However, it is clearly possible, and in many cases it is actually the case, that Charlie can become butterfly-shaped at some future time. Is it really impossible for Charlie to be butterfly-shaped in some other possible world? It might be argued that she could not, on the grounds that at that very stage in her life cycle, she must be larva-shaped. However, since we are dealing with *de re* modality, the question is not whether Charlie-as-larva could have been butterfly-shaped, but whether *Charlie* could have been butterfly-shaped. And it is clearly possible for Charlie to have been butterfly-shaped without ceasing to be Charlie. To see this more clearly, let us suppose that we allow some time to pass in the actual world, after which Charlie has been transformed first into a pupa, and then into an imago (butterfly). If we assume uncontroversially that the organism maintains its identity through these transformations, then Charlie the larva will have become Charlie the imago.[2] At that point in time, call it t_2, if we ask ourselves whether Charlie could have been a butterfly, the answer is clearly that she could have been, since she is actually a butterfly, and actuality implies (counterfactual) possibility. Therefore, since it is true of Charlie at t_2 that she could have been a butterfly, it is also true of Charlie at t_1, that she could have been a butterfly.

But what should we make of the claim that Charlie is necessarily larva-shaped at the larval stage of her existence, or that she cannot possibly have been butterfly-shaped while at the larval stage? It is true that it is impossible for a larva to be butterfly-shaped (according to biological laws as we know them). But that does not show that it is impossible *for Charlie* to be butterfly-shaped. The claim that it is impossible for a larva (while remaining a larva) to be butterfly-shaped is quite different from the claim that it is impossible for Charlie (while remaining Charlie) to have been butterfly-shaped. The first is an essentialist claim about properties, while the second is an essentialist claim about an individual's possession of a property. Accordingly, insofar as we are concerned with *de re* modalities pertaining to the possession of certain properties by individuals, the first claim does not lead us to the conclusion that an individual's possession of a property may be temporally possible but counterfactually impossible.

We could try to relativize the counterfactual claim to a time, but that would not help. It might be said that Charlie at time t_1 (while in the larval stage) could not have been butterfly-shaped. But if we assume necessity of origin for organisms, so that Charlie necessarily originates from some particular fertilized egg, then there is a possible world in which Charlie was born at some time prior to the time at which she was actually born. In particular, there is another possible world in which Charlie hatched earlier than t_1 and was already transformed into a butterfly by t_1. Therefore, it is not even true to say of Charlie at time t_1 that she could not have been butterfly-shaped at t_1.[3]

Is this case like Lowe's? It would appear so. In his example, a particular plant, which is a seed at a particular time, could not have had some other (non-seed) shape at that time. But if we frame this in terms of a *de re* modal claim about that particular plant, call it Danny, then it is clearly the case that Danny could have had some other shape, just as Charlie could have

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[2]. If the organism does not survive these transformations then the counterexample cannot get off the ground, since it rests on the idea that it is a temporal possibility for the organism to change in this way.

[3]. Some (e.g. Peter King (1999)) have argued that it is incoherent to effect temporal comparisons across possible worlds. If so, then the onus is on the opponent of principle (2) to show how else to interpret the counterexample so as to defeat (2).

been butterfly-shaped. While it may be true that a seed that necessarily has a particular shape could not have had a plant-like shape at that stage of its existence, that is (again) not a *de re* modal claim about a particular individual.

3. Does Counterfactual Possibility Imply Temporal?

In the above elaboration of Lowe's first counterexample, a bust of Socrates with a small nose, call it 'Soc', cannot at time t_1 (given its dimensions at that time) be carved so that it has a large nose. So it is not temporally possible for Soc to acquire a certain shape from t_1 onwards, but it would have been possible for Soc to have had that shape in some other possible world. Imagine that Soc is first carved into a bust with a large nose at some time t_0 prior to t_1. Now let us suppose that the sculptor has learned that Socrates had a small snub nose and has further chiseled Soc's nose at time t_1, making it smaller. It is not possible at t_1 for the bust to be transformed in such a way that it becomes large-nosed, but it could have been large-nosed in another possible world (indeed, it had a large nose in the actual world at t_0). This is supposed to refute the claim that counterfactual possibility implies temporal possibility.[4]

The general form of such cases is as follows. They ask us to consider an individual *i* that lacks some contingent property *P* at time t_0, where *P* is such that once it has been acquired it cannot be lost. Then they suppose that *i* acquires *P* at some later time t_1. Since *P* is a contingent property of *i*, *i* might not have possessed *P* in the first place, but once it has acquired *P* at t_1 it cannot be without *P* any time after t_1. Thus, when we consider *i* any time after t_1, it is clear that it might not have had *P* but that it cannot come not to have *P*. This shows that something can be a counterfactual possibility but not a temporal possibility. But are there any such contingent properties *P*, which are such that once acquired, they cannot be lost? Here are a few examples: *adult*, *immune to chicken pox*, *war veteran*, and *afflicted with an incurable disease*. Moreover, it is quite simple to construct such an «irreversible property» from certain ordinary «reversible» properties. Take some contingent property *Q*, such as *riding a bicycle*, and then construct a tensed version of *Q*, call it *P*, *has ridden a bicycle*. Clearly, anything that has had *Q* at some time always has *P* at every subsequent time, so *P* is not a property that *i* can lose from t_1 onwards (even though *i* might lose *Q* itself). Thus, an individual can possess *Q* at one time and not another, but having had *Q*, that individual continues to have *P* no matter what. Losing *P* is therefore not a temporal possibility for that individual from t_1 onwards, even though it is clearly a counterfactual possibility not to possess *P*, simply because *Q* is contingent in the first place.

How does this apply to Lowe's counterexample? The bust of Socrates could have been small-nosed in another possible world, but it cannot be made to become small-nosed after t_1 in this world. However, in this case the property *small-nosed* is not obviously an irreversible property, as defined above. What makes it irreversible is the assumption, to which I alluded in section 1, concerning the medium in which the sculpture has been fashioned (though Lowe himself does not make this assumption explicit). In this case, having acquired a small nose, we are assuming that Soc cannot regain the matter in the right location, in order to acquire a large nose (thereby losing the property *small-nosed*). If the sculptor were working in the medium of clay, he could simply replace the bits of matter that had been discarded, and Soc

4. I take it that it is uncontroversial that the sculpture endures through such relatively minor changes to its nose, remaining the same sculpture throughout. If not, the changes can be made as small as one likes so as not to affect the identity of the artifact.

could become large-nosed again. Hence, the irreversible property in this case is something like, *small-nosed bust carved in marble*.

The above scheme also accounts for Shoemaker's counterexample (which was suggested by Clarke) concerning the «historical property» of being the child of someone who has visited Paris. First, consider a simpler case, the property *has visited Paris*. This is indeed an irreversible property, as defined above: it is contingent but cannot be lost once it has been acquired. Moreover, it is a tensed property that can be formed from a reversible property in the manner suggested above. If *Q* is *is visiting Paris*, then *P* is *has visited Paris*, and it is clear that if *Qi* is actual at some time t_1 for an individual *i*, then *Pi* is actual for all times after t_1. In other words, one cannot lose the property *P* in the actual world [5], even though there is a possible world in which *~Pi*. In Shoemaker's case, the matter is complicated somewhat by the fact that the property is possessed not by the individual under consideration, but by that individual's parents. Presumably, this works because many essentialist writers presuppose some form of origin essentialism for human beings, so having the parents that one actually has is also an essential property of an individual. Thus, one can displace the property *P* onto the individual's parents rather than the individual him or herself, but the conclusion remains the same.

Therefore, principle (1) fails for what I have called «irreversible properties» (including some tensed properties that can be constructed in such a way that they are irreversible). Such peculiar properties might be banished by «sparse» theorists of properties, who argue that not all predicates correspond to properties and that only real properties should be admitted into our ontology. But there is no need to resort to such desperate measures, provided we bear in mind that principle (1) does not apply to the class of irreversible properties.

4. Conclusion

This paper has tried to show, by elaborating on Lowe's counterexamples, that they do not block the inference from temporal to counterfactual possibility, and that although they do block it from counterfactual to temporal possibility, they do so only for a class of non-standard irreversible properties (including some tensed properties). The inference from temporal to counterfactual possibility would seem to be more crucial for modal theorizing than the converse, since one plausible guide to what could happen in other possible worlds is what could happen in the course of time in this world. It is still permissible to reason from what properties an individual might come to possess in the future to what properties that individual might have possessed in some other possible world, at least insofar as it makes sense to speak of *de re* modal properties of individuals in the first place. Whether this would enable us to replace our possible-worlds talk with talk about possible futures is a subject for another paper.

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[5]. Hence the phrase, «We'll always have Paris.»

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