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Objects, their parts, and essences

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1. WHY DESCARTES COULD NOT HAVE LIVED ANY SHORTER THAN HE DID

There is an interesting question of how to identify objects and their three-dimensional spatial parts or four-dimensional temporal parts across possible worlds. One initially plausible way of doing this leads to paradoxical consequences. Thus consider the following line of thought. Suppose that Descartes lived for 54 years. Intuitively, it is not an essential property of Descartes that he lived for 54 years. It makes perfect sense to suppose that in another possible world Descartes lived for 53 years instead. This intuition seems to be violated, however, when we consider Descartes as a four-dimensional object. Take the 53 years temporal stage of Descartes and call it Joe. Joe and Descartes are two distinct four-dimensional entities. Joe exists for 53 years whereas Descartes for 54. But if Descartes and Joe are two distinct entities in the actual world, then by the principle of the necessity of diversity, Joe and Descartes cannot be identical in any other possible world. So Descartes is not identical with Joe in a possible world where Joe exists as an independent person. So this means that there is no possible world where Descartes lived for 53 years instead of 54 (van Inwagen 1990). Obviously, this is a very counterintuitive conclusion which turns into question the coherence of four-dimensionalism.

A similar problem can be raised for three-dimensional parts of objects. Thus suppose that the cat Tibbles consists of a 7-pound puss, named Tib, and a 1-pound tail. Tibbles and Tib are two distinct objects. Suppose also that in another possible world Tibbles loses its tail. In that possible world Tib seems to exist, too. But Tibbles, the cat without the tail, and Tib cannot be identical in that possible world given the initial assumption that Tibbles and Tib are two distinct objects in the actual world. So

this implies that it is impossible for Tibbles to lose its tail. In any possible world where Tib, the cat without the tail, exists, Tib is not identical with Tibbles. Again, that is counterintuitive but hard to resist.

In this paper I want to challenge those paradoxical reasonings. As I will show, they both depend on a certain tacit and wrong assumption about the criteria for identifying objects and their three-dimensional as well as temporal four-dimensional parts across possible worlds.

2. THE PARADOX MADE EXPLICIT AND WHY WE SHOULD NOT ABANDON ESSENTIALISM

Let's look at our paradoxes more carefully. And let's consider the case of Descartes. The reasoning which leads to the conclusion that Descartes could not have lived any shorter than he did is based on two explicit premises. The first premise is that Descartes and Joe (the 53 years long temporal part of Descartes) are two distinct entities in the actual world. This premise seems unquestionable and is based on *Leibniz's Law*. According to this law, any given objects are identical only if they have the same properties. But obviously, Descartes and Joe do not have exactly the same properties. Descartes has the property of being alive for 54 years, whereas Joe exists for 53 years. So, by Leibniz's law, Descartes and Joe are not identical in the actual world.

The second assumption of our paradox is that Joe and Descartes cannot be identical in any possible world given that Joe and Descartes are not identical in the actual world. This assumption is uncontroversial, too, and is based on the principle of the *necessity of diversity*. According to that principle, any two distinct individuals in the actual world cannot be identical in any other possible world.

The principle of the necessity of diversity has been put forward by Kripke (Kripke 1980) and can be articulated in terms of the idea of *rigid designation*. Thus 'Joe' and 'Descartes' are rigid in the sense that they pick out the same individuals, respectively, in all possible worlds. By contrast, definite descriptions pick out different individuals across possible worlds and are, in this sense, nonrigid. For example, 'the great philosopher born in Stagirus' picks out Aristotle in the actual world and Plato in some other possible world. The idea of rigidity implies that if the referents of any two proper names are different in the actual world, they are different in all other possible worlds. So assuming that 'Joe' and 'Descartes' are rigid and assuming that Descartes and Joe are not identical in the actual world, Descartes and Joe are not identical in any other possible world.

So far then it looks that the paradox of Descartes is perfectly sound and the paradoxical conclusion that Descartes could not have lived shorter than he did seems to be unavoidable. So perhaps we should simply accept this conclusion and give up our essentialist intuitions. That is, we might simply decide that the lesson to draw from

the paradox is that the very idea of speaking of essences of individuals does not make much sense. We thought that some properties of Descartes were essential to him and that some other properties were contingent but on reflection it turns out that this intuition is mistaken.

This move, however, would be quite desperate and, in fact, incoherent. We cannot accept the paradoxical conclusion and give up the essentialist framework simply because our paradox itself presupposes essentialism. The paradox presupposes essentialism because it presupposes the principle of the necessity of diversity and this principle presupposes essentialism because, as we just saw, it can be cashed out in terms of the idea of rigid designation. If we assume that proper names, such as 'Descartes' and 'Joe' pick out the same individuals, respectively, across all possible worlds, then we must assume that there are some criteria of trans-world identity for individuals. And there cannot be any such criteria unless we suppose that individuals have essential properties. Descartes is not identical across possible worlds with anybody who satisfies a certain description and Joe is not identical with anybody who satisfies a certain description, either. The identity of identity for Descartes and Joe across possible worlds must be determined by the essential properties of Descartes and Joe.

Kripke himself thought that the identity of individuals is determined by their origin. On his view, any possible individual who comes from the same sperm and egg as the actual Descartes is identical with Descartes even if its life history is completely different from the life history of the actual Descartes. And on the other hand, any individual with Descartes' name, physical appearance, and character traits but who develops from a different sperm and egg is not Descartes but only a person who resembles him. We may not like the details of Kripke's story. But the key point is that unless we have some story to tell about what is essential to individuals and what is not, the whole idea of rigidity makes no sense.¹ So in so far as the paradox of Descartes presupposes rigidity, we cannot agree with its conclusion and give up the idea that Descartes has essential properties.

3. PARTS OF OBJECTS AND CRITERIA OF THEIR TRANS-WORLD IDENTITY

At this point the natural question to ask is what determines the identity of Joe across possible worlds. By assumption, Joe is a temporal part of Descartes. But in another possible world, call it Alpha*, Joe exists as an independent person. The paradox then tacitly assumes that Joe in the actual world is identical with Joe in Alpha*. Indeed, that is the key premise of the whole argument.

¹ This is true at least in the case of proper names. Kripke assumes that natural kind terms, such as 'water', are also rigid but whether or not the rigidity of those terms presupposes that natural kinds have essences is an open question.

Let's then make this premise explicit in the context of our paradox concerning Descartes. By the initial assumption, in the actual world Descartes is a four-dimensional object that exists for 54 years, whereas Joe is a 53 years temporal part of Descartes. Descartes and Joe are not identical in the actual world. Furthermore, we are assuming that in another possible world, Alpha*, Joe exists as an independent person. Given those initial assumptions, our paradox runs as follows. If Descartes is not identical with Joe in the actual world (the first premise) and if Joe from the actual world is identical with Joe in Alpha* (the second premise), it follows by the principle of the necessity of diversity that Descartes is not identical with Joe in Alpha*. Hence Descartes cannot exist for 53 years in Alpha*. And consequently, he cannot exist for 53 years in any other possible world since Descartes is not identical with Joe in any possible world in which Joe exists as an independent person.

But is it really reasonable to think that Joe in the actual world and Joe in Alpha* are identical objects? Joe in the actual world is a temporal part of a person, whereas Joe in Alpha* is an independent person. The natural thing to say then is that such objects cannot be identical. Intuitively, non-persons are non-persons essentially and persons are essentially persons. So Joe is essentially a non-person and ceases to exist in Alpha*. So Joe from the actual world is not identical with Joe in Alpha* after all.

So this means that even though Descartes is not identical with Joe in the actual world, we are free to assume that Descartes is identical with Joe in Alpha*. And if Descartes is identical with Joe in Alpha*, we are no longer committed to the paradoxical conclusion that Descartes could not have lived for 53 years.

In a similar way we can resolve the paradox of Tib and Tibbles that arises within the three-dimensional framework. Recall that Tib is a spatial part of Tibbles, that is, Tib is Tibbles minus the tail and that the paradox was that assuming that there is a possible world in which Tib exists as a cat and not as a part of Tibbles, it follows that Tibbles is not identical with Tib in any such world and hence that Tibbles could not have lost its tail. To make this whole reasoning explicit, let's now call the puss without the tail that exists as an independent cat in another possible world Tom. Then our paradoxical argument runs as follows. Tibbles and Tib are not identical in the actual world (the first premise) and Tib is identical with Tom in other possible worlds (the second premise). Therefore, by the necessity of diversity, there is no possible worlds in which Tibbles is identical with Tom.

Following the solution of the paradox of Descartes, we can now deny the identity of Tib and Tom. Tib is merely a puss, that is, a part of a cat, whereas Tom is a puss that is a cat. But assuming that cats are essentially cats and that non-cats are essentially non-cats, Tib is essentially a non-cat, whereas Tom is essentially a cat and this implies that Tib is not identical with Tom. When Tibbles loses its tail, Tib ceases to exist. For Tib is only a part of a cat and hence cannot exist as a cat.

So consequently it is false to say that Tibbles could not have lost its tail. Even though Tibbles is not identical with Tib in the actual world, we are free to assume

that Tibbles is identical with Tom in all possible worlds in which Tibbles and Tom exist.

4. TWO OBJECTS IN THE SAME PLACE

The paradoxes I have considered here are to a large extent similar to the problem of two different objects simultaneously occupying the same place. To illustrate this problem, consider the tree Bill. Bill consists of a trunk and branches with leaves. Now let's call the trunk of the tree Fred. Obviously, Bill and Fred are not identical since they have different properties, such as weight and size. But now suppose that when winter comes Bill loses all of its branches and leaves so that only its trunk is left. We are inclined to say that Fred continues to exist in winter along with Bill. But if Fred and Bill are not identical in summer, Bill cannot be identical with Fred in winter, either. And this leads to the counterintuitive conclusion that Bill and Fred occupy in winter the same place even though they are two distinct entities.

Michael Burke (Burke 1994) resolves this puzzle by arguing that Fred ceases to exist in winter. Fred is only a part of Bill and does not exist as an independent object. In general, then, objects do not become identical with their parts through time, according to Burke because spatial parts of objects cannot be identified with independently existing objects.

I have extended this intuition to modal contexts by arguing that parts of objects (either three-dimensional or four-dimensional) are not identical with independently existing objects across possible worlds. This saves four-dimensionalism and three-dimensionalism from incoherence since we can now safely assume *both* that objects and their parts are distinct entities and that objects might be spatially and temporally different from what they actually are.

5. THE NECESSITY OF DIVERSITY AND COUNTERPART MODAL THEORY

My proposed way of solving the paradox concerning parts of objects is not the only solution possible and, in fact, there are other solutions discussed in the literature. Here are some of them: (1) Numerically distinct objects sometimes permanently coincide and when they do so, they stand in the relation of constitution and not identity; so in other possible worlds Descartes and Joe are distinct objects that coincide (Wiggins 1968). (2) Joe does not exist in the actual world since objects do not in general have arbitrary undetached parts (van Inwagen 1990). Both of these solutions are perfectly consistent with four-dimensionalism but, as Ted Sider observes, they are inconsistent with some crucial arguments for temporal parts (Sider 2003, p. 222). So Sider proposes yet another solution which does not have this shortcoming, namely a solution that appeals to modal counterpart theory. That theory is a unified

account of a wide range of modal phenomena and the key intuition that lies behind it is that the content of modal judgments depends on how the content of those judgments is conceptualized. On the counterpart-theoretic account, any claim about an object *a* across possible worlds is a claim about *a*'s counterparts, where the counterpart relation is a similarity relation: *a*'s counterparts in other possible worlds are objects that are similar to *a* in certain respects. In different conversational contexts, different respects of similarity, and hence different counterpart relations, are relevant to the evaluation of a given claim and, in this sense, modal judgments are conceptually relative. Sider argues then that this point undermines the principle of the necessity of diversity on which the paradox of Descartes is based. At least in the case of Descartes and Joe, we cannot say that they are necessarily distinct.

A typical argument for the necessity of the distinctness of Descartes and Joe would appeal to the idea that there is a certain property that Descartes and Joe do not share across all possible worlds. By Leibniz's Law, it would then follow that Descartes and Joe are not identical in any possible world. So here is the relevant property that Descartes and Joe do not seem to share: the property of being necessarily identical to Descartes. Descartes has this property but Joe does not and since this claim is true about Descartes and Joe, respectively, across all possible worlds, it seems to follow that Descartes and Joe are necessarily distinct. Sider argues, however, that the argument is invalid. According to the counterpart theory, the argument equivocates since there is no one *property of being necessarily identical to Descartes* that we attribute to Descartes and deny Joe across possible worlds. This is because when we think of Descartes and Joe across possible worlds, we think of them in the context of different counterpart relations: a *person* counterpart relation in the case of Descartes and a *temporal part* counterpart relation in the case of Joe. So in effect, from the fact that Descartes and Joe are actually distinct we cannot infer that they are distinct in other possible worlds and thereby the paradox of Descartes collapses. We can consistently assume that Descartes is identical with Joe in Alpha* even though Descartes and Joe are not identical in the actual world.

Sider's solution is crucially different from the solution I proposed earlier since I did not reject the principle of the necessity of diversity. Obviously, Sider tacitly assumes that the actual Joe and Joe in Alpha* are identical. So that is another difference between the two solutions. Whereas I claimed that the actual Joe is distinct from Joe in Alpha* because the actual Joe is essentially a non-person, Sider is not committed to this last claim. This should be no surprise given Sider's acceptance of the counterpart theory. According to that theory, it makes no sense to speak of essences in an absolute sense because our claims about individuals across possible worlds are relative to the choice of a counterpart relation. Thus, if we choose to conceptualize Joe's counterparts as *temporal part* counterparts rather than *whole person* counterparts, Joe in Alpha* would be Joe's counterpart.

For someone who accepts the counterpart theory, Sider's solution would be preferable. Still, I take it that there is some advantage in showing that the paradox of

Descartes can be solved even without relativizing modal claims. Notice also that to some extent, Sider's diagnosis of the problem is similar to mine. In so far as Sider rejects the principle of the necessity of diversity, he assumes that the paradox under consideration makes wrong assumptions about the criteria of distinctness for temporal parts and whole objects across possible worlds. This comes close to my diagnosis since from my point of view the paradox makes wrong assumptions about the criteria of identity for temporal parts across possible worlds. In either case, the problem with our paradox lies in its tacit dependence on wrong modal claims about temporal parts.

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