It is sometimes said that causal theories of reference -- when conjoined with plausible metaphysical principles -- entail that it is logically or metaphysically impossible for reference to be made to entirely future individuals. In particular, it is sometimes said that, because backwards causation is logically or metaphysically impossible, causal theories of reference entail that it is logically or metaphysically impossible for reference to be made to entirely future individuals. Moreover, it is then said that this claim about the logical or metaphysical impossibility of reference to entirely future individuals entails that four-dimensionalist or tenseless theories of time are mistaken.

The premise about backwards causation is controversial. Many philosophers -- including many who are sympathetic to fourdimensionalist theories of time -- do not believe that backwards causation is logically or metaphysically impossible. Some philosophers hold that backwards causation is merely nomically impossible; others hold that it is merely contingently absent from the world; and yet others hold that, in fact, there is lots of backwards causation in the world, at least at the microscopic level. However, very few philosophers think that there is any macroscopic backwards causation in the world. And, if there is no macroscopic backwards causation in the world, then -- if the argument from causal theories of reference is correct -- there is no reference to entirely future individuals. But that is enough to create problems for four-dimensionalist theories of time, since these theories do suppose, e.g., that tenseless quantifiers range over entirely future individuals. Since I think that it is plausible to suppose that there is no macroscopic backwards causation in the world, I maintain that this weakened argument still presents a prima facie challenge to four-dimensionalism about time.

In order to assess this challenge, we need to know more about the causal theories of reference which are invoked. If all that is intended is Kripke's suggestion that the meaning of proper names is transmitted along causal communicative chains, then it is open to the objection that, for all Kripke says, it may be possible to effect non-causal naming baptisms, by using suitable descriptions to fix the referents of names. Even if one accepts a broadly Kripkean account of names, one can still allow that it is possible to use descriptions to fix the referents of names which refer to entirely future individuals. Clearly, then, the causal theories of reference which are invoked by the argument must impose a stronger constraint.

I conjecture that the intended argument goes like this: There is no macroscopic backwards causation. So there is no direct causal contact with future individuals. So no-one stands in directly causally mediated epistemic relations to entirely future individuals. So no-one has de re singular thoughts about entirely future individuals. But reference to entirely future individuals can only occur if there are

de re singular thoughts about those individuals. So there is no reference to entirely future individuals.

This argument is open to at least the following three objections:

First, it is not clear that a four-dimensionalist about time need be committed to the claim that there is singular reference to future individuals; perhaps it will be enough for at least some four-dimensionalists if there are quantifiers which range over those individuals. Since a further discussion of this point will lead to controversial questions about the connections between names and quantifiers, I shall not bother to pursue it further. ii

Second, it is not clear that the absence of macroscopic backwards causation rules out relevant causal connectedness to future individuals. After all, on the four-dimensionalist view, there are causal chains which stretch from the present to the future; and, on plausible non-four-dimensionalist views, it will be the case that there have been causal chains leading from the present to the future. On either view, in some circumstances, it may be possible now to have a great deal of information about these causal chains. Granted that it was possible for Neptune to be named on the basis of quite scanty causal information -- perturbations in the orbit of Uranus -- why shouldn't it be possible to name entirely future individuals on the basis of currently available information about future causal chains?

For those who don't like unrestricted mereology and scattered objects, the following case may seem compelling: Suppose that an object -- of a kind upon which it is suitable to bestow a name -- is manufactured in two separate parts which have not yet been joined. On the assumptions in question, the object does not yet exist -- but it is hard to see that there is compelling reason to deny the possibility that one introduce a name, say 'a'. And then, surely, sentences of the form 'It will be the case that a is F' will be truth-valued now. E.g., suppose that, in the case in question, two hemispherical parts will be joined to form a sphere. Surely it is true now that it will be the case that a is spherical!

Even friends of unrestricted mereology should, I think, be persuaded that there is a good sense in which things often do get their canonical names before they come into existence. In particular, buildings, large engineering projects, and events are often named before they begin (to exist, in the sense in question). Consider, for example: Parliament House, The Chunnel, Sydney 2000, etc.

Third, it seems very doubtful that claims about 'de-re-ness' or 'aboutness' or 'of-ness' of thoughts are sufficiently robust to bear the weight which the argument requires. As Boer and Lycan have argued in the case of 'knowing who', there is a great deal of context-sensitivity and interest-relativity in the use of these locutions. Moreover -- pace Boer and Lycan -- there is no natural point as which to draw a theoretical line: provided that one can use a definite

description which has a certain object as its denotation, then there is a clear sense in which it is possible for one to have singular thoughts about that object. Of course, in some contexts, relative to some interests and purposes, one will not be prepared to say that someone has a de re singular thought about an object when all that person possesses is a single definite description which happens to pick out the object; but there is no obvious reason why one should think that this observation has any important consequences for four-dimensionalism about time.

Consider Newman 1. The reference of this name is fixed by the description 'the first-born male of the twenty-first century'. Given this much, I say that it is possible to have singular thoughts about Newman 1: it will, after all, be the case that he is the first-born male of the twenty-first century. Of course, there are many sense in which we do not know who Newman 1 will be -- e.g. we don't know what his canonical name will be -- but so what?: the semantic machinery of the language is enough to secure the reference for us via the single description which we do have. Moreover, of course, it is true that, for some kinds of objects -- especially people -- there are lots of good contingent reasons why there is no stable and substantial practice of introducing names for entirely future individuals, even where this could be done. In particular, epistemic uncertainty about the propriety of names -- e.g. about the gender of off-spring -ensures that many canonical naming procedures only occur after the objects in question have come into existence. However, it would be a gross error to suppose that there are grounds here to suppose that four-dimensionalism about time is untenable! Note, by the way, that this suggestion can be made neutral on the question whether the only singular thoughts which one can have about Newman 1 take the form: 'It will be the case that Newman 1 is F' -- i.e. neutral on the question whether there can now be thoughts of the from 'Newman 1 is F'; consequently, it need not beg the question against those non-fourdimensionalists such as Teichmann who like deflationary accounts of reference, substitutional quantification, a Prioresque treatment of propositions, and so on.

On the basis of these considerations, I conclude that there is no reason at all for four-dimensionalists to feel threatened by 'the argument from causal theories of reference. $^{\rm iii}$

Notes

See, for example, R. Teichmann (1991) 'Future Individuals' Philosophical Quarterly 41, pp.194-211, especially at p.194

ii I am prepared to maintain that the following two objections are decisive. However, it is worth noting that more needs to be done to show that questions about singular reference to future individuals have any relevance to four-dimensionalism about time. On the one hand,

even non-four-dimensionalists about time should concede that there will be causal chains which run through the present to entirely future individuals -- and this leaves room for the idea that the currently accessible, i.e. past and present, parts of those chains suffice to provide de re causal relations to future individuals. And, on the other hand, it is not at all clear that de re epistemic relations must be directly causal; indeed, more generally, it is far from clear what is required for de re attitudes about particular objects. Perhaps -- as I suspect -- descriptions can do much more work in mediating de re epistemic relations than strict causal theorists are prepared to allow, at least in a sense which suffices for the introduction of names for those individuals.

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