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Metaphysical necessity: a skeptical perspective

Graham Priest[1,2]

Abstract

Many people hold that there is a distinctive notion of metaphysical necessity. In this paper I explain why I am skeptical about the view. I examine the sorts of considerations that are adduced for it, and argue that they meet equal and opposite considerations.

1 Introduction

Many people hold that there is a notion of metaphysical necessity distinct from other notions of necessity.[1] I have always been skeptical about this. In what follows, I will explain why. Let me say that I have no particular axe to grind about this matter. If it can be shown that there is such a notion, I am perfectly comfortable with this. It is just that, at least so far, the case seems to me not to have been made.[2]

In what follows, Sect. 2 provides some necessary preliminary discussion. After that, in Sect. 3 I will briefly discuss Aristotle and essentialism. The rest of the essay concerns mainly the views of Kripke. I find in his work two sorts of considerations in support of the claim that there is a distinctive notion of metaphysical necessity. The first may be best described simply as 'intuition pumps'. I will deal with these in Sect. 4. There is

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[1] For example, Kripke (1971) and Fine (1994). Many other people who hold this view are referenced in Robertson and Atkins (2016) and Kment (2017).

[2] If one wishes to invoke Ockham's razor, in the form that the onus of proof in matters of existence is always on the proponent, I suppose that skepticism can turn into disbelief.

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✉ Graham Priest
priest.graham@gmail.com

1   Department of Philosophy, CUNY Graduate Center, New York, USA

2   Department of Philosophy, University of Melbourne, Melbourne, Australia

also one important *argument* for the claim. This concerns the logical principle of the substitutivity of identicals. I will deal with that in the following Sections, Sects. 5–7.[3]

2 Kinds of necessity

To start: modal words, such as *necessary*, *possible*, *can*, *can't*, *must*, *might*, *may*, are highly ambiguous.[4] There are, then, many different notions of necessity; and any discussion of them requires one to keep the various different senses straight. Here are some of the more straightforward ones; I have no difficulty in getting my head around any of them. It may help in what follows to consult the following diagram:
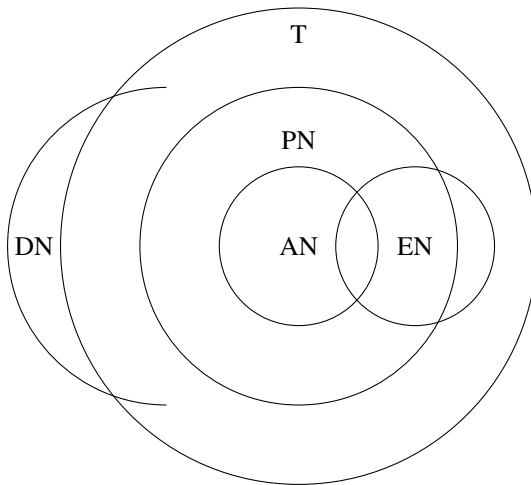
First there are *analytic necessities*, AN. The analytic necessities are the things true simply in virtue of the meanings of words— or if you like, the concepts involved.[5] The class of analytic necessities includes old chestnuts such as 'all bachelors are unmarried' and 'nothing can be red all over and green all over'. The class also includes logical truths, such as 'if it is snowing, it is snowing', 'if it is snowing it is either snowing or raining', and 'the actual most common element is the most common element'. These things are true in virtue of the meanings of words such as *if*, *or*, and *actual*.[6]

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[3] The paper is based on a talk given at the Kripke Center, at the CUNY Graduate Center, in November 2017. I am grateful to the members of the audience for their helpful objections, comments, and suggestions, and especially to Michael Devitt, Hartry Field, Paul Horwich, Saul Kripke, Antonella Mallozzi, Stephen Neale, and Brian Porter. Thanks for written comments also go to Chris Daly and Justin Clarke-Doane. Thanks also go to three anonymous referees of this journal.

[4] For some discussion, see Priest (2008, 3.6).

[5] Sometimes people distinguish between a semantic (sometimes called—misleadingly—'metaphysical') notion of analytic necessity and an epistemic notion. (See Rey (2017)) To make it clear: I am using the semantic notion. There is, of course, a Quinean skepticism about such analyticity. I have never shared this. See Priest (1979).

[6] Of course, one might dispute which things *are* logical truths; but that is an issue that is not relevant here.

Traditionally, the class is also taken to include pure mathematical truths, such as '10 > 5'.[7]

Next there are *physical (natural) necessities*, PN. The physical necessities are those things that are true in virue of the meanings of words and the laws of nature. Thus, it is physically necessary that if I jump up (on Earth) I will come down. It is not physically necessary that if I jump in the pool I will sink.[8]

Next, there are *epistemic necessities*, EN. To say that something is necessary in this sense is to say that it is known. Thus, we will commonly say that it is possible that there is intelligent life in the cosmos other than on Earth; but it is not possible that John Lennon is still alive. This kind of necessity cuts across AN and PN. There are certainly some ANs and PNs that we know. There are many, I'm sure, that we do not. We can surely not claim to have a total grasp of either physics or meaning.

The previous notions of necessity are all veridical, in that, if something is necessary in that sense, it is true. (Hence, all these notions of necessity are contained in the true T circle.) But not all notions of necessity are like that. An obvious example of this is deontic necessity, DN.[9] Thus we say that if you are unkind to someone you must apologise, or that you cannot turn right on a red light. Clearly, people sometimes do not do what they must, and do what they must not. The relationship between AN, PN, EN on the one hand, and DN, on the other, is somewhat murky. But we need not go onto this here. The fact that DN extends outside the T circle shows that it is distinct from these three.

Now, this is by no means an exhaustive taxonomy of modalities. There are, for example, the *can* of ability, the *can* of opportunity, and doubtless others. But this is enough background for what will concern us, which is as follows. Many philosophers take there to be a non-epistemic veridical notion of necessity which is *metaphysical necessity*, MN. This notion is supposed, in particular, to be distinct from both analytic necessity and physical necessity. That is, there are things that are metaphysically necessary, but not analytically necessary. (Presumably it cannot go the other way around). And there are things that are metaphysically necessary but not physically necessary, or vice versa.[10] The question to be addressed in the following sections of this essay is: Do we have good reasons for supposing there to be such a notion?

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[7] Actually, I have my doubts about this. For reasons I won't go into here, it seems to me that mathematical necessity is probably *sui generis*. That issue is not relevant here either.

[8] Note that any analytic necessity is a physical necessity. If the truth of something is determined by the meanings of worlds, it is determined by the meanings of words *and* laws of nature. The analytic necessities are simply limit cases of physical necessities, where the laws of nature required are zero. A referee said that 'the actual most common element is the most common element', might not be a physical necessity, even though it is analytic. They did not explain why, but I suspect that what they are thinking of is this. The actual most common element is hydrogen, and it is (perhaps) not physically necessary that hydrogen is the most common element. But of course this is not analytically necessary either. Analyticity is not closed under sameness of reference, but sameness of sense.

[9] Actually, this notion itself fragments, depending on the kind of norms in question—legal, moral, etc. Again, that is not relevant here.

[10] Some may hold the laws of nature themselves to be metaphysically necessary. (In *Naming and Necessity* (p. 170 of reprint) Kripke himself suggests that this might be the case). So if metaphysical necessity is to be distinct from physical necessity, there must be some things that are metaphysically necessary, but not physically necessary. Kripke, indeed, holds this view: 'Hesperus = Phosphorus' is a truth about identity, not about physics.

I note that, given *any* statement, A, one can define $\square_A B$ as $\square(A \rightarrow B)$, where $\square$ is (analytic) necessity. $\square_A B$ is then true if B is true in all the possible worlds where A is true. $\square_A$ is a perfectly fine *formal* modal operator; but unless there is some principled reason for singling out A, this notion of necessity is completely arbitrary. It might be suggested that there are laws of metaphysics, and that A is exactly the conjunction of all metaphysical laws. But to suppose that there are *laws* of metaphysics, as opposed to simple accidental generalisations, is already to suppose that they have some special modal status, and so to presuppose exactly what is at issue here. The point is made by Rosen.[11] Let NJ be the 'complete intrinsic truths of the state of New Jersey', then $\square_{NJ}$(Rosen is in Princeton), but there is *no sense* (his italics) in which Rosen has his location necessarily.[12]

3 Aristotle and essentialism

The most influential historical proponent of a distinctive notion of metaphysical necessity was Aristotle. For him, this followed simply from his hylomorphism.[13] Substances (the primary substances of the *Categories*) are compounds of form and matter. Thus, the matter of Socrates is his flesh and bones, but this is enformed in a certain way, namely, by the form of being human. This form is the substance of Socrates (the secondary substance of the *Metaphysics*). When Socrates dies, the matter will be the same, but it will be enformed by a different form: the form of being a corpse. So humanity is the form of Socrates. When he loses it, he goes out of existence; it is his essence. The accidents of Socrates are thing like being in Athens and having two ears. He can lose these properties, and still be Socrates. Socrates, then, must be human. This is not true in virtue of words, but in virtue of Socrates' nature. Hence, the necessity is not analytic; and there are plenty of things that are physically necessary of Socrates, but not true in virtue of Socrates's essence—for example, given the technological development of the time, that he was never very far from the ground.

Such was Aristotle's argument. It clearly depends on his metaphysical hylomorphism. I think that this hylomorphism would appeal to few nowadays. I certainly don't believe it. Given that, the argument collapses.

Aristotle was an essentialist: the form (substance) of something is its essence. One might, of course, hold there to be essences without subscribing to Aristotelian hylomorphism. And if one does, one might suppose that this allows an independent argument for metaphysical necessity. Of course, if one simply *defines* an essential property of an object as something which holds of it of metaphysical necessity, or which invokes metaphysical necessity in some other way,[14] then, as an argument for

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[11] Rosen (2006, p. 33).

[12] So when, according to Rosen, does A deliver a genuine notion of necessity? He says (p. 35) that for A to do so, $\square_A$ must be such that 'the boundary it draws between the necessary and contingent is non-arbitrary or non-*ad hoc* from a metaphysical point of view'. I fail to see why a metaphysical point of view is intrinsically different from a New Jersey point of view, if one does not presuppose that metaphysical laws are necessary in a distinctive sense.

[13] On Aristotle's metaphysics, see Cohen (2016).

[14] A number of ways in which one might try to do this are discussed in Robertson and Atkins (2016).

metaphysical necessity, the claim that there are essences is entirely question-begging in the present context.

One might, though, attempt an independent account of essentialism, and then use it to define metaphysical necessity. Crudely:

[**M**] Something is metaphysically necessary if it holds in virtue of the essences of things.

One possible way to attempt an appropriate account of essence is to say that giving the essence of something is saying what it *is*, and not merely what properties it has.[15]

Even assuming that [M] can be worked up into something less hand-waving, this approach is still problematic for at least two reasons. The first is that the distinction between what something is and what its properties are would seem to be entirely a matter of interest, not something about the object itself. Compare this with the question of *who* someone is.[16] Suppose, for example, someone asks 'Who is Richard Sylvan?'. An answer might be 'an Australasian philosopher', 'the husband of Val Plumwood' or 'Richard Routley', depending on the context.[17] Nor does it help much to claim that to say who someone is, is to give its *identity*.[18] Each of the above answers might serve to identfiy Richard, and so give his identity, in a perfectly natural sense. In another perfectly normal sense, Richard had *many* identities: an Australasian, a philosopher, a husband, a political activist.

Similarly, if I ask what oxygen is, appropriate answers might be 'O_2', 'a fifth of the Earth's atmosphere', 'the chemical element which supports respiration and combustion', depending on the context. And again, given the appropriate interests and context, each of these answers might serve to identify oxygen. Similarly, in another sense, oxygen has many identities: a chemical element, a gas (at normal temperatures), a diatomic molecule. To insist that oxygen has an identity in the sense required is exactly to say that there is a unique something such that to be oxygen is to be *that* of necessity, and so beg the question in the present context.

Even assuming that one can make sense of the thought that something has an essence in this sense, this approach meets another problem. The essence of something may simply be a very important physical or biological property. Hence, to define necessity in terms of essences merely succeeds in defining a physical necessity. At this point we need some argument to the effect that essences are not merely physical. So we need an argument that there are some things which are metaphysical necessities; and we have gone round in a circle again.[19]

So in what follows, let us leave Aristotle and essentialism behind. As far as I can see, the person who has given the most extensive arguments for the existence of metaphysical necessity—as opposed to simply assuming it, repeating essentially his arguments, or just taking him to have established it—is Saul Kripke, as advocated in

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[15] Something like this view is to be found in Fine (1994a).

[16] See, further, Priest (2016, 2.4).

[17] A philosophical friend of mine once received a letter. The writer said that they had been trying to contact Richard Routley, without success. They wondered if they would have more success with 'this bloke Sylvan'.

[18] Cf., Fine (1994b, p. 54): to say that 'Socrates essentially thinks' is to say that it is true in virtue of Socrates' identity that Socrates thinks.

[19] See, further, fn 22.

his influential *Naming and Necessity*.[20] So in what follows I will take up the arguments that are used there.

Let me hasten to add that this is not a wholesale attack on the views of *Naming and Necessity*. There is much in the book with which I concur entirely, such as the theory of rigid designation, and driving a wedge between necessity and a priority. It is only the notion of metaphysical necessity which the following targets. And the fact that so much of what *Naming and Necessity* advocates does not depend on this notion is, I think, itself a striking fact.

4 Examples which are intuition pumps

Spread throughout the three lectures of *Naming and Necessity*, there are a number of thought experiments whose intent is to establish that there are things which are metaphysically necessary, in a distinctive sense of necessity. They don't really provide arguments; rather, they function as intuition pumps. In this section let's look at these. My aim here is simply to pump intuitions in the opposite direction.

4.1 Being of a kind

First, there are examples of an Aristotelian kind. Suppose that Socrates ceases to be human. Then he goes out of existence. So being human is a necessary property of Socrates. This is clearly not an analytic necessity; and, the thought is, this is no mere physical necessity. But let us embroider the example a little, in a familiar fairy-tale fashion. Because of corrupting the youth, poor Socrates is turned into a frog by the gods. When Plato discovers this, he kisses him, and Socrates is returned to being human. Whilst in a frog form, Socrates was still thinking Socratic thoughts, wondering whether something is pious because it is loved by the gods or vice versa, and so on. Socrates, then, did not go out of existence when turned into a frog. The example pumps intuition in the other direction.

Let us be clear what is going on here. I am not arguing the following: the frog scenario is conceivable, so it is possible. It is certainly conceivable; but I don't take conceivability to be a mark of possibility.[21] Indeed, I am not trying to establish the possibility of anything. One may certainly feel the pull of the Kripkean intuitions. What the embroidering shows is that intuitions can be pushed in a different way. All I require is that this conflict of intuition deliver a skeptical *epoché*.

4.2 Necessity of origin

Next, there are examples concerning the necessity of origins. If I had been born to different parents, at a different time, then it could not have been *me*. Again, let's flesh out the example in a certain way. In this thought experiment I am born in Japan to

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[20] Kripke (1971).

[21] See Priest (2016, ch. 9). Indeed, I take everything to be conceivable. So if inconceivability is a kind of impossibility, it is a highly degenerate one!

Japanese parents (who were very surprised to have a caucasian child!). I learned to speak Japanese, went to a Japanese school, etc. But it was still *me* doing these things. It might be replied that it was not *me* doing these things; just someone like me. Now, I can indeed imagine this happening to someone like me in a thought experiment. But that is not the content of this thought experiment: it is about *me*. And in the thought experiment I have different origins. Again, I am not arguing from imaginability to possibility. The point of the thought experiment, as with the previous example, is simply to pump intuition in the other direction.

4.3 Necessity of composition

Next, there are examples concerning the necessity of composition. If this table had not been made of wood, but of, say, ice, it would not have been this very table. To make the example colourful, take, not a table, but my hand. If it had not been made of flesh and blood it would not be my hand. But now, suppose that I offend a wizard. To punish me, he turns my hand to plastic. Being merciful, he explains, it will turn back to its normal flesh in five minutes. I suppose that one might say that my hand had gone out of existence for five minutes; but it would be just as natural to say that it was still my hand—indeed, that I was waiting for *it* to be restored to its more usual composition.

It might be suggested that the fact that the hand was *originally* made of flesh is important in the example. It is not. Suppose that because of the sin of Adam, God curses all people to be born with a plastic right hand. The righteous will, however, have their hand turned to flesh if they pray devoutly to God. Again, one could say that when the hand is turned into flesh by prayer, it is not longer that very hand. But it is equally natural, it seems to me, to say that it was the same hand before and after the transition. The person's devotion caused *it* to be become composed as the same stuff as their left hand.

4.4 Natural-kind identities

The next example concerns the necessity of identities of natural kinds. Water is H_2O. If it had some other sort of composition (XYZ), it would not have been *water*. Again, we can tell a now familiar kind of story. Suppose that the laws of physics had been different, and suppose that the cosmos is evolving. At the start, it was phenomenologically the same as our present world, but it was made out of kinds of plasma. As part of the evolution, at some stage, some of the plasma "crystalises" into atoms, in such a way that the phenomenologically watery stuff becomes H_2O. We might even suppose that at a later stage of the evolution it evolves back into plasma. One could say that the water came into existence at a certain time; but it would be just as natural, it seems to me, to say that water became H_2O for a period.

The example pumps intuition in a non-Kripkean direction. But it also suggests something else, namely that, to the extent that it is necessary that water is H_2O, the necessity is simply physical necessity. (Recall that what needs to be established is that something is necessary in a distinct sense.) The thought experiment depends

essentially on the laws of physics being different from what they are.[22] Given what these actually are, nothing like this can happen. Perhaps one might be inclined to say the same thing with the previous examples: there is a necessity, but this is a physical necessity. The matter in these cases is much less clear, though. We have a very good sense of the science of water. We have no similar grasp of the science of people and their parts.

There will be a lot more to be said about the necessity of identities in the next section. But before we come to this, let us take a look at one more Kripkean example.

4.5 Relationships between natural kinds

The final example concerns certain relationships between natural kinds. Cats are animals; and this is a necessary truth. It is not possible that cats are, for example, cunningly designed machines. This example is much like the previous one. This time, let us suppose that it is the laws of biological evolution that are different. Then one might tell a story about the evolution of cats from machines to animals—and maybe back again. And as with the previous example, one may also take the necessity of the relationship between cats and animals to be a physical necessity.

So much for the thought-experiment intuition-pumps. One might reject the examples because the situations they describe are metaphysically impossible. Of course, if this move is not to assume that there is such a notion, and so beg the question, an independent argument for this claim needs to be given. One might also simply stamp one's foot, and insist that the Kripkean intuitions are correct. However, this strikes me as somewhat dogmatic. The non-Kripkean intuitions appear to me just as plausible. Nor am I claiming that they are better: simply that they are just as good. This is good enough to generate a skeptical *epoché*.[23]

5 Necessary identities

In this section let us turn from things which are simply intuition pumps to an argument for a distinctive notion of metaphysical necessity. This brings us back to necessary identities. Let *a* and *b* be different rigid designators which refer to the same thing—so *a* might be *Hesperus*, and *b* might be *Phosphorus*; or *a* might be *water* (the stuff) and *b* might be H_2O (the stuff). Then, it is claimed, it is necessarily the case that

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[22] And I am not against saying that being H_2O is the essence of water. It seems to me that this is as good an example of a Lockean real definition as anything can be. But one can hold this view and take essences to be physical, not metaphysical. This does not, of course, imply that *all* physical necessities are essential in this sense. The most natural thought is the the physical necessities that are essential are those expressed by identity statements, such as 'Water is H_2O'. Nor does it follow that such things deliver a *sui generis* notion of necessity, any more than the fact that some identity statemtents (e.g., $a = a$) are logically true implies that these deliver a *sui generis* notion of logical truth.

[23] A referee of an earlier draft of this paper found some of the thought experiments above problematic since they have fantastical elements. Some of these fantastical elements could be changed at the cost of making the examples less homely. None the less, I agree that they are bound to have a fantastical element. I do not see a problem with this. Think how much mileage has been made in recent philosophy of examples concerning twin earths, brains in vats, swamp men. These are equally fantastical.

$a = b$. This is clearly not an analytic necessity; nor, it would seem, is this simply a physical necessity: the necessity seems to be of a much tighter kind than this. One might certainly dispute the last of these claims, but let it pass.

The crucial question is why we should suppose $\Box a = b$ to be true. Here the argument enters. It deploys the substitutivity of identicals, SI, an instance of which is the following:

- $a = b, \Box a = a \models \Box a = b$

The first premise is true. '$a = a$' is analytically true, so the second premise is true when the $\Box$ is any sense of necessity which this entails. Hence we have the conclusion.

But we now have to face the question of whether the inference SI is valid. Note, first, that identity does not legitimate SI in all contexts. Notoriously, it fails in intentional contexts. Thus, from the fact that Mary believes that Twain is a writer, and that Twain is Clemens, it does not follow that Mary believes that Clemens is a writer. Hence, there is an issue about which contexts SI works in. Moreover, some of the contexts in which it fails are modal, most obviously, epistemic necessity. Mary may know that Twain is Twain, without knowing that Twain is Clemens.

Note, moreover, that, though there are certainly formal systems of modal logic where SI is valid in modal contexts (systems of *necessary identity*), there are formal systems of modal logic where it does not do so (systems of *contingent identity*).[24] I will not go into much detail about systems of contingent identity here, but let me just explain the central ideas.[25]

The domain of quantification consists of functions, f, from worlds to "world parts". (If this notion is strange, consider the temporal-logic analogue, and the notion of temporal parts.) Let us write the part of f at world w as $|f|_w$. The denotation of a name, a, $\delta(a)$, is the same thing at every world, namely, one of these functions. And the denotation (extension) of an n-place predicate, P, $\delta_w(P)$, is a set of n-tuples of parts. So the truth conditions of an atomic sentence, $Pa_1 \ldots a_n$, are as follows:

- $w \Vdash Pa_1 \ldots a_n$ iff $\langle |\delta(a_1)|_w, \ldots, |\delta(a_n)|_w \rangle \in \delta_w(P)$

For comparison, think again of the temporal analogue. 'Mary is sitting' is true at time t iff the temporal part of Mary at time t is sitting then.

Now simply apply this to the identity predicate. Let a and b denote the functions f and g, respectively. Let @ be the actual world, and w be an accessible world. Then since $|f|_w = |f|_w$, @ $\Vdash \Box a = a$; and more generally, @ $\Vdash \forall x \Box x = x$. But it may well be the case that $|f|_@ = |g|_@$ without having $|f|_w = |g|_w$. Then @ $\Vdash a = b$, but @ $\nVdash \Box a = b$. SI fails in the scope of a modal operator.

I emphasise that the constants here are rigid designators: their denotations do not change from world to world. In particular, their logical behaviour is different from

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[24] Full details of both can be found in Priest (2008, chs. 16 and 17). Systems of contingent identity are described and discussed by many modal logicians. For example, Kanger (1957), Hughes and Cresswell (1968, ch. 11), Parks and Smith (1974), Parks (1974).

[25] The semantics has a class of worlds. It might be thought that this presupposes a notion of metaphysical necessity. It does not—or at least, if one is to take the class to characterise metaphysical necessity, as opposed to some other kind—say, analytic necessity—one needs an independent argument for this. The point of the argument by SI is to establish that there is something that is necessary, and whose necessity can be of no other kind; in other words, it is an argument to *force* a certain kind of interpretation on the $\Box$.

that of non-rigid designators, such as definite descriptions. The denotations of these are still functions; but which function they denote may change from world to world. Thus, in the semantics just described, $\Box Pa \models \exists x \Box Px$. This would fail if a were a definite description. The premise would tell us that, at any world, what 'a' denotes there is P. The conclusion tells us that there is something (the same thing) that is P at every world.[26]

Now, the question is: is the proponent of this argument for metaphysical necessity entitled to assume that the pertinent logic is one of necessary identity, and not one of contingent identity? Proponents of the argument standardly assume that we may take it to be so, though this is virtually never argued for. And it is by no means clear that it is, since there appear to be clear counter-examples. I will turn to these in a moment, but first I want to consider one argument that might be given for SI.

6 Matters *de re*

This goes as follows. Suppose that $a = b$. It is necessarily the case that a is identical to a, and since 'a' is a rigid designator, a is such that it is necessarily identical to a. Hence, by SI (which is permissible, since we are talking of *a, an sich*), b is such that it is necessarily identical to a. So necessarily b is identical to be a.

The argument works by forming something that is a *de re* predication, and applying SI to that. However, the argument begs the question. To see this, think first about how to express *de re* predication. The point of *de re* predication is to ensure that we are talking about the object itself. To do this, we must suppose that reference to the object is secured outside of a modal context. Since reference to objects themselves is carried by quantifiers, we may do so by "quantifying in". Thus, we may take $A(x)$ to deliver a *de re* predication of a if it occurs in a context of the form: $\exists x(x = a \land A(x))$. Cashing out *de re* predication in this way, the argument becomes:

$$a = b$$
$$\Box a = a$$
$$a = a \land \Box a = a$$
$$\exists x(x = a \land \Box x = a)$$
$$\exists x(x = b \land \Box x = a)$$
$$\Box b = a$$

The argument is fine until the last line; but the final step clearly uses SI in a modal context, and so begs the question.[27]

Matters are essentially the same, though less obviously so, if we use λ-abstraction to form a predicative phrase, and apply λ-conversion:

- $A(a)$ iff $[\lambda y A(y)]a$

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[26] For further discussion, see Priest (2008), 17.2.

[27] For further discussion of contingent identity in intensional contexts, see Priest (2016, ch. 2).

The argument then goes as follows:

$$a = b$$
$$\Box a = a$$
$$[\lambda y \Box y = a]a$$
$$[\lambda y \Box y = a]b$$
$$\Box a = b$$

What, exactly, to say about this version of the argument depends on the precise semantics of λ-terms deployed. A flat-footed approach to these takes the extension of the predicate $[\lambda y A(y)]x$ (or the property which it denotes) at world w to be the extension of the formula $A(x)$ at w. Given this, λ-conversion is certainly satisfied. But just because of this coextensionality, if SI fails for $\Box x = a$, it fails equally for $[\lambda y \Box y = a]x$. Of course, this may fairly be taken to show that predication by the λ-term is not *de re* predication. To ensure that it is, the extension of $[\lambda y A(y)]x$ at world w has to be something like the extension of $\exists y(y = x \land A(y))$ at w. But now the final step of the argument will break down for exactly the same reasons as before.

A final way that one might attempt to repair the argument is to appeal to the thought that $=$ does not really express identity. It expresses something like *identity at a world*. Real identity, it might be suggested, is identity between the functions that names denote. Given that functions are extensional entities, and employing an S5 modality, the identity of the denotations of a and b can be expressed by $\Box a = b$. (The functions have the same modal part at every world.) Let us write this as $a \equiv b$. It is not hard to show that the truth of $a \equiv b$ at a world does suffice for SI in modal contexts. Hence we might try to run the original argument as: $a \equiv b, \Box a = a \models \Box a = b$.[28] The argument is certainly sound. But as an argument for the necessity of an identity, it is question-begging, since the first premise is itself such a statement. Its truth requires (in a way that the original SI argument does not) the truth of $a = b$ at every world.

7 Some metaphysical scenarios

Let us now turn to the apparent counter-examples that I mentioned in Sect. 5. These are counter-examples to SI in modal contexts, and appear to show, specifically, that identities do not carry across worlds. I will give three such, and they are all very well known.[29] In each case there is a temporal analogue, which is perhaps easier to get one's head around. So I will give this first.

7.1 Wholes and parts

Let p be a person, and let s be the mereological sum of their parts. Then $p = s$. At a later time, the person loses their ear. Let s^- be the resulting mereological sum. Then at that time, $p = s^-$; but it is not the case that at that time $s = s^-$, so it is not the

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[28] Or even as $a \equiv b, \Box a \equiv a \models \Box a \equiv b$. The soundness of the argument then requires *S4*.

[29] See, for example, Priest (2010).

case that $p = s$ (or $s = s^-$ would follow by the transitivity of identity). Again, let $p = s$, but now suppose that at another possible world, the person never had that ear. Then at that world $p = s^-$, but it is not the case that $s = s^-$, so it is not the case that $p = s$. One thing one might say here, is that a person is not the mereological sum of their parts. Their parts have to be configured in a certain way. The example can accommodate this thought by taking the configuration (however one understands this) as a further part.

7.2 Lumps and statues

Suppose we have a lump of clay, l, and it is made into a statue of the Buddha, b. Then $l = b$. At a later time it is refashioned into a statue of Socrates, s. Then at that time $l = s$, but it is not the case that $b = s$ (b is a statue of the Buddha; s is not); so it is not the case that $l = b$ (or $b = s$ would follow by the transitivity of identity). Again, let $l = b$, but now suppose that in a different world l is made into a statue of Socrates, s. Then at that world, $l = s$; but it is not the case that $b = s$. One thing one might say here is that l and b are really two objects, so that $l \neq b$. However, if, on the table there is just a statue of the Buddha, it seems wrong to say that there are *two* configurations of clay there.

7.3 Fission and fusion

Suppose that we have an amoeba, a. At some time, it divides into two amoebas, b and c. Where is b before the fusion? It can only be a. Ditto for c. So before the fission, $b = c$, but not after it. Again, suppose that in this world a certain zygote produces a foetus, a. At another world it splits to produce two foetuses, b and c. Where is b at *this* world? It can only be a. Ditto for c. Hence, at this world, $b = c$, but at that world this is not the case. One might say that b does not exist before the split, or at the world without the split. But that seems odd. If c had died immediately after the split, we would have no hesitation in saying that b was a. How can the identity of something depend on some *third* party?

   Of course, what to say about these cases is contentious, and one might try to defend SI with various suggestions. (I have indicated what some of these might be, and some of of their problems.) However, these defensive manoeuvres are not obviously right, and the contingent identity stories are very natural. This is all that is needed here. I do not need to establish that the contingent identity story is correct. It is sufficient for my purposes that one might plausibly go either way on these matters. This produces an *epoché* as to which system is right, and therefore to sustain a skeptical position with respect to the SI argument for metaphysical necessity.[30]

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[30] A referee of an earlier draft of the paper commented that one might well accept these examples, and merely conclude that the notion of metaphysical necessity is one of contingent identity. That is certainly compatible with the examples. However, it still leaves us wanting an argument for the existence of metaphysical necessity as a distinctive notion of necessity. Note the dialectic of this part of the paper. It is not an argument against the existence of a notion of metaphysical necessity. It is an objection to a standard argument that there are some things (identities) which are necessary in this distinctive sense, so that there must be such a sense.

8 Conclusion

What we have now seen is that, in all the cases in which some considerations might be thought to push towards the claim that there is a distinctive notion of metaphysical necessity, there seem to be equally plausible considerations which undercut these. And that's why I'm skeptical about metaphysical necessity.

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