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Truthmakers and Necessary Connections.¹

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Abstract

In this paper I examine the objection to truthmaker theory, forcibly made by David Lewis and endorsed by many, that it violates the Humean denial of necessary connections between distinct existences. In section 1 I present the argument that acceptance of truthmakers commits us to necessary connections. In section 2 I examine Lewis' 'Things-qua-truthmakers' theory which attempts to give truthmakers without such a commitment, and find it wanting. In sections 3-5 I discuss various formulations of the denial of necessary connections and argue that each of them is either false or compatible with truthmaker theory. In section 6 I show how the truthmaker theorist can resist the charge that they are committed to necessary exclusions between possible existents. I conclude that there is no good objection to truthmaker theory on the grounds that it violates the Humean dictum.

1 Necessary Connections

“[T]he demand for truthmakers just *is* a demand for necessary connections.” — Lewis (1999, p219)

The above quote aptly summarises the reason Lewis for so long rejected truthmaker theory; namely, that to accept the theory is to violate the principle that “gives us our best handle on the question [of] what possibilities there are”², namely the Humean denial of necessary connections between distinct contingent³ existents: the principle that “anything can coexist with anything else . . . Likewise, *anything can fail to coexist with anything else*”⁴

Lewis thinks that truthmaker theory violates this principle, because he thinks that the truthmaker theorist has to posit the existence of some thing B, wholly distinct from A, which is the truthmaker for [A is F], and hence whose existence necessitates the existence of A. Lewis finds this necessary connection mysterious, and rejects truthmaker theory because of it. As he puts it⁵

¹Thanks to Elizabeth Barnes, Bob Hale, Andrew McGonigal, Peter Simons and Robert Williams for helpful comments. Thanks also to an audience at the University of Nottingham, especially Gonzalo Rodriguez-Pereyra.

²Lewis (2001, p611)

³I won't keep making this qualification. It is to be assumed throughout this paper that we are dealing with contingent existents.

⁴Lewis (1986), p87-88)

⁵Lewis (1999, p215)

B is entirely distinct from A . . . yet B's existence is necessarily connected to whether or not A has F. Necessarily, if A has F . . . then B must exist; necessarily, if A had lacked F . . . then B would not have existed.

Actually, we're under no pressure to accept the first of these necessary connections: "Necessarily, if A has F . . . then B must exist". Because we need not, and probably should not, accept the doctrine that there is only one possible truthmaker for any truth. A could be F and B not exist, since there could have been something else that made it true that A is F. But the second of the necessary connections is good: if A had lacked F then B would not have existed, because if B exists then it must be the case that A is F.

[A is F], we suppose, is a contingent truth. This proposition, the truthmaker theorist tells us, has a truthmaker which necessitates its truth. The truthmaker for [A is F] is not A, since A might, ex hypothesi, not have been F. Nor is the truthmaker for [A is F] the sum of A and any other thing C which on its own would not suffice for the truth of [A is F], since this sum could also exist in a world in which A is not F. The truthmaker for [A is F], then, must be something distinct from A, call it B. But now we have a necessary connection between distinct existents; for any world in which B exists is one in which A is F, and any world in which A is F is one in which A *exists* (at least for some properties F). So there is a necessary connection between the existence of B and the existence of A.

Nothing we have said yet implies that B is not a proper part of A, or that it does not share a part with A, so we have not been given reason to think that we are committed to a necessary connection between *wholly* distinct existents, and the Humean ban on necessary connections is usually qualified to apply only to wholly distinct things. Perhaps, then, we should take the moral of the Humean principle to be that whenever there is a truthmaker for some truth p then, for all objects whose existence is necessitated by the truth of p, the truthmaker for p has a part in common with each of those objects.

Such a thought would rule out some truthmaker theories, but not all; so if it were true, it could prove a useful arbiter between rival theories of truthmaking. For example, the theory that truthmakers are tropes would only be acceptable given a bundle theory. A's particular F-ness is the truthmaker for [A is F], according to some. Now, the existence of A's F-ness (we are to suppose) necessitates the existence of A, but if A just *is* some bundle of tropes then A's F-ness is a part of A, and so there is no necessary connection between *wholly* distinct existents. But if A is a substance in which properties inhere it looks like A's F-ness is wholly distinct from A, in which case we would face a Humean objection. If the Humean objection is any good, then, that might lead us to reject substance-attribute theory.

Likewise, Armstrong's original views on states of affairs would face a Humean objection. Armstrong thinks that the truthmaker for [A is F] is the state of

affairs of A being F. In every world in which this state of affairs exists A is F, and so A exists. But according to Armstrong's original position⁶ the state of affairs is wholly distinct from both A and F-ness; the particular A and the universal F-ness are *constituents* of the state of affairs of A being F, according to Armstrong, but they are not mereological parts of it, and so Armstrong faces the Humean objection. If the Humean principle is to be upheld, then, we might favour Armstrong's more recent story whereby when A instantiates F-ness there is overlap between the particular A and the universal F-ness.⁷ In that case it looks like we could give an account of states of affairs whereby the state of affairs of A being F had A as a proper part and overlapped with F-ness, in which case we would obey the letter of the Humean law.

But really it's not clear that the ban on necessary connections should be weakened only to cover wholly distinct existents. Is a necessary connection between me and some molecule any less mysterious because the molecule is a part of me? If two terraced houses share a wall, should we not still think that one could exist without the other? Given that, in general, it seems that proper parts of things could exist without being parts of the things they are actually parts of, it looks just as mysterious to me if the existence of some thing which is a proper part of A, or which overlaps A, necessitates the existence of A as if something which is wholly distinct from A necessitates the existence of A. So I reject the claim that the allowable necessary connections are those between overlapping objects. In this paper I offer a different diagnosis of when a necessary connection is objectionable and examine the consequences for the theory of truthmakers.

2 Counterpart Theory to the rescue?

The first thought I want to look at is the thought that we can avoid necessary connections by adopting counterpart theory. Lewis was later to abandon his rejection of truthmaker theory, because he thought his counterpart theory could let him hold both truthmaker theory *and* Hume's denial of necessary connections.⁸ Truthmaker seemingly violated the denial of necessary connections, remember, because objects do not have their properties essentially; thus we cannot claim that in general a thing A is the truthmaker for [A is F] since A might have existed and [A is F] have been false. Of course, once one goes counterpart theoretic, an object is only essentially or not essentially such and such *relative to some counterpart relation*. It may well be true that under the counterpart relations invoked when I speak of A in an everyday context that A might not have been F, but I can invoke a counterpart relation under which A is essentially F by referring to A as 'A-qua-F'. A-qua-F is essentially F, so its existence necessitates the truth of [A is F]. So we can have a truthmaker for [A

⁶Armstrong (1997)

⁷Armstrong (2004)

⁸See Lewis (2003) and Lewis and Rosen (2003).

is F] without committing to necessary connections between distinct existences, for A-qua-F is nothing but A itself; merely A considered under a counterpart relation according to which A is essentially F.

There is an initial worry with this approach that I will not dwell on. Lewis is assuming that we are able to invoke a counterpart relation under which A is essentially F in the same context in which we are trying to determine what the truthmaker for [A is F] is. This is far from obvious. Why should we not think that in invoking such a counterpart relation we have simply changed the context from a context in which we talking about truthmakers? Isn't the fact that we don't think that A is an adequate truthmaker for 'A is F' (and that Lewis thought so for so long!) a datum in evidence of the claim that in a context when we are talking about truthmaking A is not essentially F? If so there is no reason to think that we *can* invoke a counterpart relation according to which A is essentially F without changing the context. If this is right then the things qua truthmakers theory is mistaken. Ordinary objects cannot serve as the truthmakers for the fact that they are a certain way, for even if there is a counterpart relation according to which they are that way essentially, we cannot invoke such a relation without changing the subject. That is a worry; but put it aside for the sake of argument and grant Lewis the assumption that we can truly assert that A is essentially F in a context in which we are looking for the truthmaker for [A is F]. Even granting this his theory has problems.

Let us consider first a worry which Lewis considers and thinks he has an easy answer to. The problem is this: Lewis says that A-qua- Φ is the truthmaker for [A is Φ], but surely B-qua-(A being Φ) would do just as well. But in that case any object can — when appropriately described — be the truthmaker for any truth whatsoever; Plato-qua-p will suffice as the truthmaker for any truth p. But that makes a mockery of truthmaker theory. And Lewis' easy answer is: the counterpart relation invoked by 'B-qua-(A being Φ)' or 'Plato-qua-p' is 'peculiar' in a way that the counterpart relation invoked by 'A-qua- Φ ' is not.⁹ What does this peculiarity amount to? Lewis cites two ways in which the relation is peculiar. First, that the respect in which objects that are counterparts under these relations are similar is "one that would strike us in almost any context as an utterly unimportant similarity."¹⁰ Second, that is is an "entirely extrinsic similarity".¹¹ I am dubious that anything of much philosophical importance can hang on the first consideration. What does it matter how the counterpart relations strike *us*? Whether an object is an adequate truthmaker for some truth p is surely independent of our reactions to hearing that object described in a certain way. If the counterpart relations invoked are to be deemed inadmissible on the charge of peculiarity then, I suggest, it is Lewis' second worry that must do the work. In that case one may justly ask: must an admissible counterpart relation judge *solely* on intrinsic similarity or merely take some intrinsic similarity into account? Lewis — in the postscript written with Gideon

⁹Lewis (2003, p32-3)

¹⁰[ibid. p32]

¹¹[ibid.]

Rosen¹² — answers the latter in order to get truthmakers for negative existentials. The claim is that the truthmaker for [there are no unicorns] is the world-qua-unaccompanied by unicorns; and although being unaccompanied by such-and-such is an extrinsic property, Rosen and Lewis are happy with similarity with this because “the property of being completely unaccompanied . . . does seem quite important to the character of anything that has it.”¹³ But the admission that the truthmaking counterpart relation can judge on matters of similarity which are in part a matter of extrinsic similarity makes it harder for Lewis to avoid the above problem that any object can be the truthmaker for any truth. Consider, for example, ‘Socrates-qua-(snub-nosed and such that the Eiffel tower has 1665 steps)’; that term invokes a counterpart relation that judges similarity on both intrinsic and extrinsic respects. In any world in which there is a counterpart of that object (under the invoked relation) it is true that the Eiffel tower has 1665 steps; but that object is just Socrates — and surely Socrates does not make it true, no matter how we describe him, that the Eiffel tower has 1665 steps.

I think we should take the following conclusion from this problem: that for the counterpart theorist, on the assumption that in the context of discussing truthmakers we can invoke a counterpart relation for any object x and any property Φ of x such that x is essentially Φ according to that relation, the truthmaking relation is simply not an interesting relation. The triviality of finding an object that, according to some counterpart relation, is essentially such that P is true, for any true proposition P , simply shows that the relation of an object necessitating some truth is not an interesting metaphysical relation. But not every counterpart theorist must give up on truthmaking as an interesting theory. Even if the essential properties of a thing are context dependent, I am inclined to think that in the context of determining what the truthmaker is for [A is F] that A is not essentially F and hence that it is not a suitable truthmaker for that truth. I think the triviality of finding a counterpart relation according to which A is essentially F just shows us that that relation is not what the truthmaker theorist was looking for and so is irrelevant in this context. Truthmaker theory is meant to cause problems for Rylean behaviourism, phenomenalism, presentism etc; but it doesn’t if the goal is just to find some counterpart relation according to which some actual thing necessitates the relevant truths in question. Similarly, there is supposed to be a truthmaker argument against nominalism, the view that there are no properties; but there isn’t if the goal is just to find a counterpart relation according to which objects have their properties essentially. So this simply can’t be the goal of the truthmaker theorist: such counterpart relations must be irrelevant in this context. So some counterpart theorists will be in the same boat as the trans-world identity theorist in trying to find some other kind of thing — perhaps tropes or states of affairs — whose existence, in this very context, necessitates the truth of [A is F].

How might such a counterpart theorist, or a trans-world identity theorist,

¹²Lewis and Rosen (2003)

¹³[ibid. p40]

respond to Lewis' claim that while traditional truthmaker theory violates the Humean denial of necessary connections, his things-qua-truthmakers version does not? The trans-world identity theorist in particular might worry about whether we really *have* avoided necessary connections between distinct existences by adopting counterpart theory. Some might say that we have embraced them; after all, in counterpart theory every thing that exists in a world exists *only* in that world. There is no strict trans-world identity. In that case don't we have necessary connections galore? Necessarily, for any actual object x , x only exists in worlds in which all its actual worldmates exist, since x only exists in the actual world. The natural thought to this response, of course, is that one should interpret the denial of necessary connections counterpart theoretically. But to do so is no trivial matter, as we shall soon see.

3 Lonely and Independent existence

Consider again Lewis' statement of the Humean principle; he says "the principle is that anything can coexist with anything else . . . Likewise, *anything can fail to coexist with anything else.*"¹⁴ The latter demand here is ambiguous: it could be read in two ways. It could be a demand that for any thing A , A can fail to coexist with any other *particular* thing, or it could be a demand that for any thing A , A can fail to coexist with anything *per se*. That is, the demand could be understood as saying that there should be no thing B which is distinct from A and which exists in every world in which A exists, or the demand could be understood as saying that there are worlds in which A exists and in which no thing that is wholly distinct from A exists. The two competing principles can be formulated (in QML) as follows:¹⁵

$$HM : \forall x \neg \exists y (x \neq y \wedge \Box (\exists z (z = x) \rightarrow \exists v (v = y)))$$

$$DNC : \forall x \diamond (\forall y (y < x))$$

I am more attracted to HM than DNC, since DNC rules out the existence of Aristotelian universals. On the Aristotelian conception of universals, endorsed recently by Armstrong¹⁶, universals only exist in worlds in which they are instantiated. Any world in which a universal exists, then, is a world in which it is instantiated. But universals do not instantiate themselves; particulars instantiate them.¹⁷ Particulars are not universals, nor are they parts of universals.

¹⁴Lewis (1986, p87-88)

¹⁵Where ' $x < y$ ' is read as ' x is a (perhaps non-proper) part of y ', understood such that $\forall x (x < x)$ is true.

¹⁶See e.g. Armstrong (1978), Armstrong (1989) and Armstrong (1997).

¹⁷That's not quite right. There may be higher-order universals which are instantiated by universals, and some might believe in the universal *being a universal*, which will instantiate itself. Nevertheless, DNC will be false if there are Aristotelian universals, since at least all but one of the first-order universals are instantiated by a particular in every world in which it exists.

So any world in which a universal exists is a world in which something wholly distinct from it exists. So necessarily if some universal exists then something wholly distinct from it exists as well. So we have a violation of DNC, but no violation of HM; there is no thing such that its existence is necessarily tied to the existence of the universal, because each universal can be instantiated by more than one individual. That leaves it open that DNC is true when the quantifier ranges only over *particulars*; but even this is doubtful: it seems whenever there is a thing, there must also be the impure, and contingently existing, sets that have that thing in their transitive closure. Thus nothing can exist lonely: everything will be accompanied by sets.

So I have doubts about DNC; but let us see how the counterpart theorist will view the relevant translation of DNC, and HM. Straightforwardly translating into counterpart theory would give us for HM that for any two things x and y there could exist a counterpart of x without there existing a counterpart of y , and for DNC that for all things x there could exist a world in which there is nothing wholly distinct from a counterpart of x . These are HM_{CT} and DNC_{CT} below.

$$HM_{CT} : a \neq b \rightarrow \exists w(\exists x(Ixw \wedge Cxa) \wedge \neg \exists y(Iyw \wedge Cyb))$$

$$DNC_{CT} : \forall x \exists w(\exists y(Iyw \wedge Cyx \wedge \forall z(Izw \rightarrow z > y)))$$

But neither of these are true. DNC_{CT} cannot be true because there are counterpart relations which weigh heavily extrinsic similarity. As Lewis says “counterparts are united by similarity, but often the relevant similarity is mostly extrinsic.”¹⁸ For example, a counterpart relation is invoked when I consider counterfactual circumstances in which I was born at different times, in different places, perhaps from different parents etc. The important thing in each case is that I am considering myself as something which is *born*; thus it is natural to think that something will only count as my counterpart under this relation if it is something which was born. And hence it seems that in every world in which there is a counterpart of me under this relation there must also be objects which are the parents of that thing; for a thing cannot be born yet not have parents. But the parents of a thing cannot be a part of the child; at least, not so that the child can still be said to have been *born* in the sense we are interested in. Thus whenever a counterpart of me exists under this relation, something which is not a part of my counterpart must also exist

HM_{CT} cannot be true because two distinct things can have the same counterpart, and they can be such that anything that will count as a counterpart of one under some counterpart relation will count as a counterpart of the other under that relation. Consider Max Black’s homogeneous iron spheres, Castor and Pollux, as an example.¹⁹ Each sphere resembles the other precisely, down to the most minute detail, and in the qualitative relations it bears to other things.

¹⁸[Lewis, op cit. p88]

¹⁹Black (1954)

Therefore anything which resembles one sphere enough to be called its counterpart under some counterpart relation resembles the other sphere enough to be called its counterpart under that relation. So even though they are distinct, there cannot exist a counterpart of Castor without there existing a counterpart of Pollux. But this problem seems easily fixed; intuitively there is no problem if whenever there is a counterpart of Castor there is also a counterpart of Pollux, precisely because it is the one thing which is counting as a counterpart of them both. What would be objectionable to the Humean is not that there are two distinct things which must co-exist because anything which represents one as existing also represents the other as existing, but that there are two distinct things such that necessarily if something is a counterpart of one then something *else* is a counterpart of the other. So let us have another go at formulating HM in counterpart theory. What we want to demand is that if the existence of a counterpart of a necessitates the existence of a counterpart of b then it must be because in all the worlds in which a and b have a counterpart the thing (or things) which is/are (a) counterpart(s) of the one necessarily has/have a (perhaps non-proper) part which is a counterpart of the other. That is: what HM demands is that there is a world in which there is a counterpart of a and is such that if there is a counterpart of b also it must be a part of the counterpart of a, or the counterpart of a a part of it. That is HM_{CT}^* below.

$$HM_{CT}^* : a \neq b \rightarrow \exists w \exists x (Iwx \wedge Cxa \wedge \forall y (Cyb \rightarrow (y > x \vee x > y)))$$

Is HM_{CT}^* acceptable? I think not. As we saw above, set theory seems to falsify DNC because according to set theory objects cannot exist lonely — they must be accompanied by the pure sets that have them in their transitive closure. But set theory also seems to falsify HM, for it seems necessary that whenever the singleton of a thing A exists, A exists as well. In counterpart theoretic terms, you can't have a counterpart of singleton A without having something wholly distinct from that counterpart which is a counterpart of A (assuming that the members of a set are not mereological parts of the set). And perhaps this holds the other way as well: that necessarily whenever A exists singleton A exists. (I say perhaps for reasons that will become evident in the discussion of OP and OP* below.)

I should point out that the problems set theory brings for both HM and DNC, and their counterpart-theoretic translations, do not arise for a Lewisian with respect to worlds, since sets don't exist in worlds in the way that concreta do: they are not part of the mereological sum that is the world. Since DNC only demands that objects can exist without worldmates, it is of no consequence to the Lewisian that necessarily whenever there is some object there are the impure sets with that object in their transitive closure, and similar remarks apply with respect to HM. But I am not a Lewisian — worlds, I would hold, represent sets as existing in the same way as they represent concreta as existing — and so I think there is a tension between set theory and DNC or HM.

4 Lonely and Independent duplicates

HM and DNC, and their translations into counterpart theory, are unacceptable. Lewis, however, did not rely on any of them. Lewis instead appealed to the notion of duplication to do the job where the notion of a counterpart failed.²⁰ The principle Lewis held is that for any object a there is a world at which there exists a duplicate of a and nothing else, where a duplicate of a is an object which is intrinsically identical to a . This is implied by Lewis' principle of recombination:

Com: For any individuals x_1, x_2, \dots, x_n there is a world containing any positive number of duplicates of each, and no thing which is not a part of any of those duplicates, if there is a spacetime big enough to hold them all, and such that for any spatiotemporal relation the duplicates in question stand in that relation.²¹

Com aims to capture the truth behind the idea that every object could have existed on its own by entailing that for all objects there is a world in which all that there is is a duplicate of that object. The problem with DNC_{CT} noted above does not arise, since extrinsic similarity plays no role in determining whether or not something is a duplicate of something else. But the problems set theory brings are still a problem. If it's impossible for there to be unaccompanied things then a fortiori it is impossible for there to be unaccompanied duplicates of things.

Note, however, that even if we denied the truth of set theory and held that Com is true, this doesn't seem to be a problem for the truthmaker theorist; for at least some theories of truthmakers are compatible with Com. Hence, by Lewis' own lights, they are compatible with the Humean denial of necessary connections. So where, according to Lewis, is the problem with truthmaker

²⁰[Lewis op cit. p87-88]

²¹The formulation is close to that given by Divers and Melia (2002, p16). One difference is that they do not add the 'and no thing which is not a part of any of those duplicates' qualification, but this is necessary if Com is to have the consequence, that Lewis takes it to have, that for any object there is a world containing a lonely duplicate of that object. The other difference I have made is to insist that Com only entails the existence of worlds with some *positive* number of duplicates of x_1, x_2, \dots, x_n . The point here is to ensure that Com does not entail the existence of the impossible world where there are some positive number of duplicates of me and no duplicates of some proper part of me. One could achieve the same result by demanding that the individuals x_1, x_2, \dots, x_n be wholly distinct. Indeed, this seems to have been Lewis' thought when he said "anything can coexist with anything else, at least provided they occupy distinct spatiotemporal positions." (Lewis [op cit. p88], my emphasis.) I presume he means by distinct spatiotemporal positions non-overlapping spatiotemporal positions, in which case his qualification amounts to the demand for whole distinctness: if the spatiotemporal location of x does not overlap with the spatiotemporal location of y then there is no part of x that shares its location with any part of y ; in which case x and y share no parts in common, in which case they are wholly distinct. I don't think anything hangs on whether you take this route or the one I have taken. For Lewis' original comments on recombination see Lewis (1986, p86-92).

theory in the first place? For example, consider the view that truthmakers are tropes. So the truthmaker for [A is F] is the trope of A's being F. Lewis objects that there is a necessary connection because the existence of the trope entails the existence of A. But there need be no violation of Com. The trope theorist can agree that there can exist a *duplicate* of A's being F without there existing either (a counterpart of) A or a duplicate of A. Indeed if they deny set theory, and depending on the details of their theory, they can agree that it is possible that a duplicate of the trope exist without any other thing existing at all. For while it is an essential property of the trope (we are supposing) that it belongs to A, it is not an intrinsic property of the trope. So there can exist a lonely duplicate of the trope, which is not a counterpart of/identical to the trope itself; and so we have the existence of the trope necessitating the truth of [A is F] with no violation of Com; hence, by Lewis' own lights, no violation of the denial of necessary connections. So Com might be incompatible with *some* theories of truthmaking, but it is not incompatible with them all; and so if Lewis is right that Com captures the Humean denial of necessary connections then he is wrong that the denial of necessary connections is incompatible with the combination of truthmaker theory and trans-world identity (or the kind of counterpart theory discussed at the end of section 2). So even if we could be persuaded that Com is true, we have been given no reason to think that one need turn to Lewis' things-qua-truthmakers theory in order to be a truthmaker theorist.

It is of no help to try and capture DNC using Com if we are to take set theory at face value. If nothing can exist unaccompanied then clearly things cannot have unaccompanied duplicates. Perhaps, however, we could capture the thought behind HM by making appeal to duplicates. There are three options to formulate HM in such a way.

HMD¹: if $a \neq b$ then there could exist a duplicate of a in a world such that any duplicate of b is a part of the duplicate of a, or vice-versa.²²

HMD²: if $a \neq b$ then there could exist a duplicate of a in a world where (a counterpart of) b does not exist.

HMD³: if $a \neq b$ then (a counterpart of) a could exist in a world in which there is no duplicate of b.

Translated into counterpart theory, where 'Dxy' is read as 'x is a duplicate of y', these read:

$$HMD^1 : a \neq b \rightarrow \exists w \exists x (I x w \wedge D x a \wedge \forall y ((D y b \wedge I y w) \rightarrow (x > y \vee y > x)))$$

$$HMD^2 : a \neq b \rightarrow \exists w \exists x (D x a \wedge I x w \wedge \neg \exists y (C y b \wedge I y w))$$

$$HMD^3 : a \neq b \rightarrow \exists w \exists x (C x a \wedge I x w \wedge \neg \exists y (D y b \wedge I y w))$$

But it looks as though there are counter-examples to each of HMD¹, HMD² and HMD³, at least if the following plausible principle is true: that the intrinsic

²²We can't claim that a duplicate of a could exist without a duplicate of b due to the Castor and Pollux example. Since they are intrinsically identical, there cannot exist a duplicate of one without there existing a duplicate of the other; but intuitively this is no problem for the denier of necessary connections. C.f. the discussion of HM_{CT}^* above.

properties of a set supervene on the intrinsic properties of its members. That sounds intuitively plausible: that all one needs to do to fix the intrinsic properties of a set are to fix the intrinsic properties of what is in that set. As a first attempt at making this idea precise let us try: If there is a difference in the intrinsic properties of a set S and a set S^* then one of those sets contains something which differs in its intrinsic properties from some member of the other set. In other words, whenever we have two sets which are not duplicates we can find a pair of objects x, y such that x belongs to one set and y to the other and that x and y are not duplicates. But this can't quite be right because that would make the singleton of A and the set containing two duplicates of A duplicates. But surely it is intrinsic to a set how many members it has. To fix this we need to build in the further condition that duplicate sets be equinumerous. So let our principle be that two sets S and S^* are intrinsic duplicates iff (i) S and S^* are equinumerous, and (ii) there is a bijection from the members of S onto the members of S^* which maps things to intrinsic duplicates. This principle will do, I think.

There are some who will reject the principle. Tom Baldwin, for example, thinks that the singleton of a thing A and the singleton of a duplicate of A which is not A , call it A^* , provide a counter-example to this claim, because he thinks that it is intrinsic to a set what members it has but not intrinsic to things that they are members of the sets they are members of.²³ If that is true then there is a difference in the intrinsic properties of $\{A\}$ and $\{A^*\}$ because $\{A\}$ but not $\{A^*\}$ has the intrinsic property of having A as a member. But I see no reason to treat 'having A as a member' as intrinsic and 'being a member of singleton A ' as extrinsic; the properties should either both be intrinsic or extrinsic, and once this is admitted we no longer have a counter-example. Either A^* is not a duplicate of A because A but not A^* has the intrinsic property of being a member of $\{A\}$ or, what is I think the case, $\{A\}$ and $\{A^*\}$ are duplicates because the only properties they differ in are the external properties of having A or having A^* as a member. With this counter-example dispatched, I see no way to cause trouble for the principle.

In my experience the intuition that having A as a member is intrinsic to the singleton of A but that being a member of singleton A is not intrinsic to A is a common one; so let me offer a diagnosis of why Baldwin's intuition looks appealing. I will point to three mistakes that might account for our sympathising with Baldwin's asymmetric treatment of the properties above; I will list them in what I think is increasing order of the extent to which they are to blame for the mistake. Firstly, I think there may be a hangover here from an old philosophical tendency to conflate what is essential with what is intrinsic. I can grant, with Fine²⁴, that having A as a member is of the essence of singleton A but that being a member of singleton A is not of the essence of A ; but this asymmetry in whether the properties are essential does nothing at all to support an asymmetry in whether or not they are intrinsic. Such a conflation might be partly to explain

²³See Baldwin (1996).

²⁴Fine (1994)

for the Baldwinian intuition. More likely, however, is that the intuition arises from taking literally the idea that a set ‘contains’ its members. This sometimes useful but in this case misleading metaphor encourages the thought that the singleton of A literally has A as a proper part, in which case it is natural to think that it is intrinsic to $\{A\}$ that it has A as a proper part — i.e. has it a member — whereas A is merely extrinsically a proper part — extrinsically a member — of $\{A\}$. But this really is just a metaphor; the set membership relation is not the part-whole relation, and the relation of a set to its members is not literally the relation that a container bears to its contents. Lastly, I think there is a *de re/de dicto* confusion at work. This last confusion is one that also leads us astray when we think about the relationship between a whole and its parts. We are, I think, initially inclined to think that it is intrinsic to us that we have the parts we do. But really this is not right. It is not intrinsic to me that I have *this very hand*, only that I have *a* hand that is a certain way (i.e. the way my hand intrinsically is). Once the *de dicto* property of having a hand that is such-and-such a way is distinguished from the *de re* property of having *this* hand, I think our initial intuition that we have the parts we have intrinsically disappears. It is a similar confusion we make in the case of sets. It is not, contra Baldwin, intrinsic to the singleton of A that it has A as a member, only that it has something as a member that is a certain way (i.e. the way A intrinsically is). But the intrinsicity of this latter property is consistent with my principle that the intrinsic properties of a set supervene on the intrinsic properties of its members.

If the above principle is true then HMD¹ is false. The existence of a thing is sufficient for the existence of its singleton; a fortiori the existence of a duplicate of a thing is sufficient for the existence of the singleton of that duplicate. In which case, since singletons are equinumerous with one another, in any world in which there is a duplicate of A there is also a duplicate of the wholly distinct thing singleton A, making A and its singleton counter-examples to HMD¹.

HMD² will fail if there are any objects such that it is sufficient for them to be that very object that they have the intrinsic properties they in fact have. For suppose there is some such object B. Necessarily if there is a duplicate of B, B exists, since that duplicate would, *ex hypothesi*, be B. But B’s existence is sufficient for the existence of singleton B, so any world in which a duplicate of B exists is a world in which singleton B exists, making B and singleton B counter-examples to HMD². Are there things such that it is sufficient for something to be that very thing that it be a duplicate of that thing? Well, the empty set and universals appear to be good candidates. And again, I don’t particularly want to claim that these things exist, but I don’t want to be told they don’t exist because that would violate HMD².

Similarly, HMD³ will be false if there are objects such that it is a necessary condition for their existence that they have the intrinsic properties they in fact have. For consider some such object, call it C. Necessarily if C exists, a duplicate of C exists, since C would be that duplicate. But the existence of C is sufficient

for the existence of singleton C which, given the principle (defended above) that the intrinsic properties of a set supervene on the intrinsic properties of its members, is also such that it has its intrinsic properties necessarily. This makes C and singleton C counter-examples to HMD³, for C cannot exist without a duplicate of singleton C existing. Are there objects such that their intrinsic properties are essential to them? Again, the empty set and universals seem to be likely contenders, and also tropes. In which case the lack of incoherence surrounding the hypothesis that such things exist is reason not to accept HMD³.

5 Necessary connections and Ontological Dependence

Things are not looking good for the denial of necessary connections; but perhaps all is not lost. Notice that there seems to be an explanation for the necessary connection between a singleton and its member that would be missing in the case of a supposed necessary connection between you and I; namely that in the former case but not the latter there is a relation of ontological priority between the things in question. Ontological priority, as I will use the term, is the converse of Lowe's relation of identity dependence²⁵: if x is identity dependent on y , then y is ontologically prior to x . A set is identity dependent on its members; since what it is to be the very set S is that the members of S are the very things they are; hence the members are ontologically prior to the set.

Now if a is ontologically prior to b — if the identity of b depends on the identity of a — then we are committed to a necessary connection between b and a . The fact that b is the very thing it is depends on the fact that a is the very thing it is. If b exists, then it is the very thing b ; it wouldn't be the very thing b if a were not the very thing a . a is only the very thing a if it exists. So for b to exist, a must exist.

If this line of reasoning is correct, we get the following principle.

OP: If A is ontologically prior to B then, necessarily, if B exists, then A exists.

In symbols.

$$OP : Rab \rightarrow \Box(\exists x(x = b) \rightarrow \exists y(y = a))$$

Where 'Rab' is read as 'a is ontologically prior to b'.

If we accept OP then the necessary connections brought about by some truthmaker theories should not trouble us, for at least some accounts of truthmakers have it so that the truthmakers for truths of the form [A is F] are ontologically posterior to the individual A. In that case the fact that the existence of the truthmakers necessitates the existence of A should not worry us: that is exactly what OP demands.

²⁵Lowe (1998, p147)

So at most, OP puts *constraints* on what truthmakers could be; it does not rule out truthmaker theory altogether. In particular, OP is perfectly compatible with the view that truthmakers are tropes inhering in substrata, since tropes are identity dependent on the substratum to which they belong. What makes the trope of A's F-ness the very trope it is, in part, that it belongs to the very thing A; so the identity of the trope depends on the identity of the substratum, and so the substratum is ontologically prior to the trope. Likewise with the view that states of affairs are truthmakers; states of affairs are identity dependent on the thin particulars which constitute them and so, if OP is true, there is no problem in the necessary connection that obtains between the state of affairs and the thin particular.

That is enough to reject Lewis' complaint that truthmaker theory per se should be ruled out because of its violation of the Humean doctrine. Some truthmaker theories commit only to perfectly acceptable necessary connections. But what can we say about truthmaker theories which posit necessary connections that are *not* licensed by OP? An example of such a theory would be the theory that tropes are truthmakers when combined with a bundle theory of tropes. If A is F, and if the trope of A's F-ness is the truthmaker for the truth that A is F, then there is a necessary connection between the existence of A's F-ness and A. So if A is merely a bundle of tropes, one of which is A's F-ness, then there is a necessary connection between this bundle and that trope: necessarily, if A's F-ness exists, the bundle of tropes which in fact counts A's F-ness as one of its bundled tropes exists. This necessary connection is licensed by OP only if the bundle is ontologically prior to A's F-ness. But it is not; the trope is ontologically prior to the bundle. Particulars are, according to the bundle theory, just what result when properties get together a certain way; so the particular is ontologically posterior to the properties that make it up. And so the necessitation of the particular's existence by the existence of the property is not explained by the ontological relationship between the two things.

What would be nice is if the principle ran both ways; if as well as it being a sufficient condition for there to be a necessary connection between B's existence and A's existence that B was identity dependent on A, that it was also a necessary condition. That is

$$OP^* : Rab \leftrightarrow \Box(\exists x(x = b) \rightarrow \exists y(y = a))$$

For then we could infer that it is possible for a to exist without b on the grounds that a is not identity dependent on b.

But OP*, on the face of it, has counterexamples. The existence of a set depends on the existence of its members; but also, as I said above, it seems that the existence of the members is sufficient for the existence of the set. So necessarily if the members of S exist, then S exists; but the members of S are not identity dependent on S — the members are ontologically prior to the set, not vice-versa — contradicting OP*.

But one can accept OP* and resist this apparent counter-example. To see

how, it is useful to think, initially at least, in terms of counterpart theory. Consider Fine's contention that one cannot give a modal analysis of essence, because essence is asymmetric in a way necessary dependence is not.²⁶ In particular, he says that it is in the essence of singleton Socrates that it has Socrates as a member, but not in the essence of Socrates that he is a member of singleton Socrates, even though necessarily if Socrates exists he is a member of singleton Socrates. The counterpart theorist can account for this asymmetry. The counterpart theorist can define 'A is essentially F' as 'Necessarily if A exists, A is F' and also, if they wish, hold on to Fine's claim that Socrates is not essentially a member of singleton Socrates. Why? Because the set of the counterparts of the members of S need not be a counterpart of S.

The counterpart theorist can agree that singleton Socrates essentially has Socrates as a member. They will analyse this as: every counterpart of singleton Socrates has as a member a counterpart of Socrates. But they are not, in saying this, forced into saying that every singleton of a counterpart of Socrates is a counterpart of singleton Socrates; hence they can reject, with Fine, the claim that Socrates is essentially a member of singleton Socrates. Here is one very easy way they can do this (but not the only way). They can claim that the only counterpart of a set S is S. That does not seem unwarranted; one might think it is the best way to make sense of the intuitive thought that a set is essentially exactly the way it in fact is. But no one would want to claim that the only counterpart of Socrates is Socrates. Socrates has some accidental properties; in particular he has a counterpart who is not snub-nosed; call him SOC. SOC is a counterpart of Socrates but singleton SOC is not a counterpart of singleton Socrates. The only counterpart of singleton Socrates is itself. So while it is necessary that if singleton Socrates exists it has Socrates as a member, Socrates can exist without being a member of singleton Socrates. (This is of course to deny Lewis' view in Lewis (1991, p37) where he holds that the singleton {a} is a counterpart of the singleton {b} iff a is a counterpart of b.)

And of course, talk of counterparts here needn't be taken literally, it is merely useful: the trans-world identity theorist can accept OP* as well. What they would need to hold is simply that being a singleton of some thing is not an individuating essence of the singleton, even if it is essential to it. To be the singleton of Socrates is to fulfil a certain role: a role that could have been played by something else. So while the role of being Socrates' singleton is actually played by the thing we call singleton Socrates, it could have been played by something else, and hence Socrates could have had a different thing as his singleton, and therefore could have existed without his actual singleton existing.

One might be worried at this point that we have violated the other Humean demand — that possible beings be compossible — for it looks like the different possible singletons of Socrates could not coexist: Socrates can only have one singleton in any world. I will show why this is no violation of Humeanism in

²⁶Fine (1994)

section 6.

I think OP* is the best shot at a systematic principle concerning just when necessary connections are permissible. I should point out that OP* is in no sense intended to be an *analysis* of ontological priority. I am making no claim that OP* is a conceptual truth. Such a claim would be hopeless, since the concept of ontological priority is an asymmetric one, whereas the concept of necessary dependence is not. OP* merely expresses the hope that there are no necessary connections other than the sort that we are told to expect by OP. One cannot discover by analysing the concept of ontological priority that there are no other such necessary connections, it is merely a conjecture that there are none; hence it is conjecture, and not conceptual analysis, that leads me to put forward OP*. What right do I have to make this conjecture? As much right as Lewis had to conjecture that there are *no* necessary connections. I have consulted my intuitions concerning the extent of modal space and as a result believe that the only plausible counter-example to OP* is the case of a thing necessitating the existence of its singleton (and the singleton of that singleton, etc); with this counter-example dispatched, then, I am happy to accept OP*. I have offered no argument that there are no other counter-examples looming, but I will accept OP* until one is forthcoming. And let me reiterate: even if I am forced to abandon OP*, OP is enough to show the acceptability of some truthmaker theories.

But before we can conclude that truthmaker theory in general survives the Humean challenge, that there is no reason to think it commits us to unacceptable necessary connections, we must return again to HMD². For once we allow the possibility that things could have had singletons other than the singletons they in fact have, we lose the above counter-example to HMD², since the argument for the counter-example to that principle relied on the claim that the existence of the thing B (which is such that any possible duplicate of B is identical to B) is sufficient for the existence of the singleton of B. This is false if OP* is true; since the singleton of B is not ontologically prior to B, B could exist without the thing which is in fact the singleton of B existing. So HMD² may still be true (the counter-examples to HMD¹ and HMD³ will still go through).²⁷ So let us look at the two options that seemed to be left open by OP*: a substance-attribute trope theory and the states of affairs theory. Does HMD² let us narrow this list down some more? Yes. If HMD² is true then it rules out the states of affairs theory but not the substance-attribute trope theory. For since the state of affairs of a being F is not identical to a, nor to F, HMD² implies that there could exist a duplicate of the state of affairs without a existing, and that there could exist a duplicate of the state of affairs without F existing. But both of

²⁷The counter-example to HMD³ needs to be changed slightly. We can no longer claim that the existence of C is sufficient for the existence of the thing which is actually the singleton of C. But the existence of C is sufficient for the existence of some set which, in that world, is a singleton of C. And this set must be a duplicate of the set which is actually the singleton of C, since C has the same intrinsic properties in both worlds, and the intrinsic properties of a set supervene on the intrinsic properties of its members.

those look false; it appears to be intrinsic to a state of affairs of a thing being a certain way that it is a state of affairs of *that* very thing, and not some other thing, being *that* very way, and not some other way. So in any world in which a duplicate of the state of affairs of a being F exist, a exists to be F, and F exists for a to be it. So HMD² rules out states of affairs. But it does not rule out the substance-attribute trope theory. Since the trope of a's F-ness is not identical to a HMD² implies both that there could exist a duplicate of a's F-ness without a existing, and that there could exist a duplicate of the substance existing without a's F-ness existing. And I think both of these are true. The first is fairly uncontroversial. Any trope theorist will hold that there are distinct tropes which exactly resemble each other (to account for exact similarity in some respect between distinct objects); and it is a small jump to suppose that if b is F, and exactly resembles a with respect to F-ness, that b's F-ness is a duplicate of a's F-ness. Since b's F-ness can exist without a existing (since b can exist without a existing), a duplicate of a's F-ness can exist without a existing. The latter claim is probably more controversial. If a is intrinsically F then any duplicate of a is F, and so any duplicate of a will have some particular F-ness. What needs to be the case then, if HMD² is to be upheld, is that it needn't be the particular F-ness that is actually had by a that is had by the duplicate of a. And that is secured simply by the fact that there can be duplicates of a that are not identical to (or counterparts of) a. Since tropes are non-transferable, the F-ness of a duplicate of a that is not a cannot be the thing that is actually a's F-ness. And so HMD² poses no problem for a substance-attribute trope theory.

I don't think HMD² has anywhere near the intuitive appeal of OP*, but if they are both true this is good news for the view that truthmakers are tropes inhering in substrata. OP* appears to narrow down the options to two contenders, and HMD² knocks out the competition to make this view the winner. This, I think, is progress.

6 Necessary exclusions

So far I have focussed solely on the Humean claim that anything can fail to exist with anything else, and I have argued that there is no plausible reading of this claim that rules out truthmaker theory; but the Humean principle also says that anything can coexist with anything else, and this might be thought harder to reconcile with truthmaker theory.

Truthmaker theory, as well as bringing commitment to necessary connections, apparently brings commitment to necessary exclusions as well: that is, it commits us to thinking that there are possible objects which are not compossible. For consider the truthmaker for some contingently true negative existential. (I am assuming negative existentials require truthmakers; if they don't, so much the worse for the Humean objection to truthmaker theory.) If the possible beings that are said not to exist by this negative existential are such that they are essentially counter-instances to the negative existential (i.e. such that in

any possible world in which they exist the negative existential is false) then the truthmaker for the negative existential cannot coexist with any of these possible beings. For example, if, as seems plausible, unicorns are essentially unicorns (and assuming unicorns are possible, contra Kripke), no possible unicorn can coexist with the truthmaker for [there are no unicorns]. The truthmaker theorist can only avoid necessary exclusions if there are no negative existentials of the form [there are no Fs] such that (i) there could have been Fs and (ii) some possible F is essentially F. But it's a tall order to hope that there are no such truths.

Consider also some contingent truth of the form [A is red all over]. It might be thought that the truthmaker for that truth cannot coexist with the thing that would be the truthmaker for [A is blue all over] in a world in which that proposition were true; for in a world in which both truthmakers existed it would be the case that A would be both red all over and blue all over, which is impossible. How can the truthmaker theorist deal with these apparent necessary exclusions?

Let us deal with negative existentials first. I recommend that the truthmaker theorist adopts Lewis' reading of the no necessary exclusions principle: that given any two possible objects, there is a world in which there is a duplicate of one and a duplicate of the other. That is, we don't demand that the objects themselves possibly coexist, only that it be possible that there be a duplicate of each. This rules out some accounts of truthmakers for negative existentials, but not the one I favour. It rules out, for example, Armstrong's account whereby the truthmaker for [there are no Fs] is the totality fact that actually exists: the second-order state of affairs that the first-order states of affairs are *all* the first-order states of affairs.²⁸ For presumably the only possible object which is a duplicate of some second-order state of affairs is that very second-order state of affairs. As I said above, it seems intrinsic to states of affairs that they are states of affairs of *these* things instantiating *these* universals. So it is intrinsic to the state of affairs of a being F both that it is a state of affairs of a, and not some other thing similar to a, being a certain way, and that the way it is a state of affairs of a being is F, and not some similar property. And likewise it seems intrinsic to the second-order state of affairs that actually exists that it is the second-order state of affairs of *these very first-order states of affairs* (all and only the ones that actually obtain), and not some similar first-order states of affairs, being all and only the first-order states of affairs that exist. And so any duplicate of that second-order state of affairs will be that very second-order state of affairs²⁹ and hence, since the existence of that second-order state of affairs is not compatible with the existence of unicorns, a duplicate of the second-order state of affairs is not compatible with the existence of a duplicate of any possible unicorn (given that unicorns are intrinsically unicorns). Furthermore, no two

²⁸Armstrong (1997)

²⁹Since all it takes to be that very second-order state of affairs is to be a state of affairs that says of the first-order states of affairs there in fact are that they are all and only the first-order states of affairs.

distinct possible totality facts are compossible in the required sense. A world in which there is a duplicate of each would be a world in which both the totality facts existed; since each say different things about what states of affairs exist (otherwise they would not be distinct), this world would have to be one in which some state of affairs both existed and failed to exist, which is impossible.

Clearly, what we need to respect the Humean principle is an account of truthmakers for negative existentials whereby it is not sufficient for an object to be that truthmaker that it be an intrinsic duplicate of that truthmaker. My account of truthmakers for negative existentials yields this conclusion, and is therefore compatible with Humeanism.

I favour an account whereby the truthmaker for negative existentials is simply the world.³⁰ For this to be true then, given truthmaker necessitarianism, the world has to be such that it couldn't have contained any of the things it doesn't in fact obtain. I secure this by claiming that worlds are individuated according to what goes on at them: what makes the actual world *this* world, and not some other world, is what is true according to it. In that case, worlds have all their properties essentially; a fortiori, they contain what they contain essentially. As such they are satisfactory truthmakers for the negative facts or general truths that are true at them. Indeed, a world will be a truthmaker for any proposition that is true at it, although not a minimal truthmaker in the vast majority of cases.³¹

The existence of the world necessitates the non-existence of unicorns, I say. But it doesn't follow that the non-existence of unicorns is necessary; it only follows that a world in which those things exist is not a counterpart of the actual world. So suppose for the sake of argument that, contra Kripke, unicorns are indeed possible. In that case there is a possible world in which there are unicorns. But we are not forced into saying that the object which is the actual world could have been such as to contain unicorns, because we are not forced into saying that this possible world is a counterpart of the actual world. To accept that *p* is possible is to accept that there is a possible world such that *p*; but we are by no means committed to thinking that this world is a counterpart of the actual world, so we are not committed to thinking that the actual world has the *de re* modal property that it could have been such that *p*.

I claim that the actual world makes it true that there are no unicorns. In that case the actual world is not compossible with any unicorn, since its existence necessitates that there are no unicorns. But a *duplicate* of the actual world can coexist with a duplicate of any unicorn. For there is a world *w* which contains as a proper part a duplicate of the actual world and which also contains unicorns. *w* is a world where things are intrinsically exactly as they actually are intrinsically, but with extra stuff going on 'on the outside', and some of that

³⁰See my 'How to be a truthmaker maximalist', unpublished manuscript.

³¹One might be worried that this makes truthmaker theory uninteresting; that if the world can be appealed to as a truthmaker for any truth, then the truthmaker principle is no guide as to what there is. I answer this criticism in my 'How to be a truthmaker maximalist'.

extra stuff involves unicorns. There is a proper part of w that is a duplicate of the actual world, call it w^- ; w^- coexists with a unicorn, a fortiori with a duplicate of a unicorn, hence there can be a duplicate of the actual world which coexists with a duplicate of a unicorn. All we are denying is that w^- is a counterpart of the actual world, and so we are not denying the Humean ban against necessary exclusions by appealing to the world as the truthmaker for negative existentials.³² Nor do I have a problem with the truthmakers for the most general truths concerning exactly how things are, since for all worlds w and w^* , while w and w^* cannot coexist, there can exist both a duplicate of w and a duplicate of w^* .

So if we interpret the Humean denial of necessary exclusions as Lewis does — that given any two possible objects there is a world which contains a duplicate of each — we can have necessitating truthmakers for negative existentials without violating the Humean doctrine. Again, just as it was with necessary connections, we are not free to adopt any theory of truthmakers we like: Humeanism puts constraints on an acceptable theory of truthmakers. Some theories, like Armstrong's, violate Humeanism; others, like mine, do not.

What about the other case: the case where the truthmaker for [a is red all over] appears to exclude the existence of what would make true [a is blue all over] were it true? This case is easily dealt with for the counterpart theorist. For there is only a problem with the coexistence of the truthmaker for [a is red all over] and [a is blue all over] if their coexistence entails the truth of [a is red all over and blue all over], which is impossible. But the coexistence of these truthmakers does not have this consequence given counterpart theory. If the truthmaker for [a is red all over] exists then it is true that a is red all over, and if the truthmaker for [a is blue all over] exists then it is true that a is blue all over; but it does not follow that if both truthmakers exist then the one thing is both red all over and blue all over because there could be two counterparts of a in a world, one of which is red all over and the other blue all over. a could have been twins; it has two distinct counterparts in some world; and a's redness can attach to one and a's blueness attach to the other. So there is no problem with both truthmakers coexisting for the counterpart theorist, hence no violation of the Humean doctrine.

But even if one is not a counterpart theorist there is no problem once the Humean ban on necessary exclusions is interpreted as demanding only that for any two possible objects there could be coexisting *duplicates* of those objects; for even if you reject the claim that two distinct beings at a world could both be (counterparts of) a, you should accept that there could be distinct *duplicates* of a at a world, and hence that there could be a duplicate of a's redness and a duplicate of a's blueness at the same world. So again, the most the Humean

³²Obviously this account is similar to the Lewis-Rosen account for truthmakers for negative existentials; both accounts agree that the world makes negative existentials true. But I am not simply gerrymandering a counterpart relation according to whatever relation of similarity suits my present purpose; it is very natural, I think, to hold that w^- is not a counterpart of the actual world, because it is natural to hold that worlds are essentially worlds.

doctrine does is place constraints on what an acceptable theory of truthmakers is, it does not rule out truthmakers altogether.

And now we can see why OP* does not violate the denial of necessary exclusions. The distinct possible singletons of Socrates can only coexist if distinct things can represent Socrates as existing at the same world. So someone who is not a counterpart theorist will, if they accept OP*, think that there are possible objects that are not compossible. But for any two possible singletons of Socrates it is possible that a duplicate of each coexist. For if SOC is a singleton of Socrates in world w1 and SOC* is a singleton of Socrates in world w2, there is a world containing two things, Socrates* and Socrates**, such that Socrates* is intrinsically identical to Socrates at w1 and Socrates** is intrinsically identical to Socrates at w2. Given the principle from section 4 — that the intrinsic properties of a set supervene on the intrinsic properties of its members — it follows that the singleton of Socrates* is a duplicate of SOC and that the singleton of Socrates** is a duplicate of SOC*; and so even though SOC and SOC* cannot coexist unless one is a counterpart theorist, it is still the case that there can be coexisting duplicates of each, and hence OP* does not violate the Humean denial of necessary exclusions between distinct possible existents.

7 Conclusion

I have argued contra Lewis that the Humean principle that anything can coexist with anything else, or fail to exist with anything else, is compatible with truthmaker theory. But it does put constraints on what an acceptable metaphysics of truthmakers can be. OP*, we saw, ruled out a bundle theory of tropes, but left in the running a substance-attribute trope theory and a states of affairs ontology. But the latter was ruled out by HMD². It seems, then, that if the truthmaker theorist wants to respect Humeanism she should take truthmakers for positive truths to be tropes which are distinct from, but which are ontologically dependent on, substances. A states of affairs solution to the problem of truthmakers for negative or general truths was also seen to be anti-Humean; and so the truthmaker theorist, again if she wants to respect Humeanism, should find my claim that the world is the truthmaker for these truths preferable.

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