The Disjunction and Conjunction Theses

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This paper is a response to replies by Dan López de Sa and Mark Jago to my 'Truth-making, Entailment, and the Conjuction Thesis'. In that paper, my main aim was to argue against the Entailment Principle by arguing against the Conjunction Thesis, which is entailed by the Entailment Principle. In the course of so doing, although not essential for my project in that paper, I defended the Disjunction Thesis. López de Sa has objected both to my defence of the Disjunction Thesis and my case against the Conjunction Thesis. I shall show that his objections are unfounded and based on serious misunderstandings of my position, what the relevant debate is, and some fundamental notions of Truthmaker Theory.

Jago argues that accepting the Disjunction Thesis and rejecting the Conjunction Thesis is hard to maintain. But I show that Jago has not shown that accepting the Disjunction Thesis while rejecting the Conjunction Thesis is impossible or even hard to maintain. Jago believes that, to accept the Disjunction Thesis while rejecting the Conjunction Thesis, one needs to reject his axiom (T3), which says that all the truthmakers for ⟨P&P⟩ are truthmakers for ⟨P⟩. I argue that there are reasons to reject such a principle, and the version of it that says that what makes ⟨P&P⟩ true makes ⟨P⟩ true.

1.

In my 'Truthmaking, Entailment, and the Conjunction Thesis' my main aim was to argue against the Entailment Principle by arguing against the Conjunction thesis, which is entailed by the Entailment Principle. In the course of so doing, although not essential for my project in that paper, I defended the Disjunction Thesis. Dan López de Sa has objected both to my defence of the Disjunction Thesis and my case against the Conjunction Thesis. I shall show that his objections are unfounded and based on serious misunderstandings of my position, what the relevant debate is, and some fundamental notions of Truthmaker Theory.

In his very good paper Mark Jago argues that accepting the Disjunction Thesis, but rejecting the Conjunction Thesis, is hard to maintain. He argues that acceptance of the Disjunction Thesis can be combined with rejection of the Conjunction Thesis if one rejects his axiom (T3), which says that all the truthmakers for ⟨P&P⟩ are truthmakers for ⟨P⟩.

I shall argue that, if one thinks that the truthmakers for conjunctions are conjunctive facts, then one has reasons to reject this axiom; and if one thinks that conjunctions are collectively made true by the non-conjunctive facts that are the truthmakers for their conjuncts, then the axiom, as formulated, need not be rejected in order to accept the Disjunction Thesis and reject the Conjunction Thesis. Indeed when one thinks conjunctions are collectively made true by the truthmakers for their conjuncts one needs to make a distinction, which I shall introduce in section 4, between the truthmakers for a proposition and what makes that proposition true; when this distinction is made the relevant axiom says that what makes ⟨P&P⟩ true makes ⟨P⟩ true—and this principle, I shall argue, should be rejected.[1]

Sections 2 and 3 contain my reply to López de Sa, and section 4 contains my reply to Jago.

2.

These are the relevant theses:

(EP)   If *e* is a truthmaker for ⟨P⟩ and ⟨P⟩ entails ⟨Q⟩, then *e* is a truthmaker for ⟨Q⟩

(DT)   If *e* is a truthmaker for ⟨P∨Q⟩, then either *e* is a truthmaker for ⟨P⟩ or *e* is a truthmaker for ⟨Q⟩

(CT)   If *e* is a truthmaker for ⟨P&Q⟩, then *e* is a truthmaker for ⟨P⟩ and *e* is a truthmaker for ⟨Q⟩[2]

Since a conjunction entails its conjuncts, (EP) entails (CT). But (EP) is very problematic, since it leads, in conjunction with other principles, to the implausible theses that every entity is a truthmaker for every necessary truth (*Global Supervenience of Necessity*), that every entity is a truthmaker for every truth (*Truthmaker Triviality*), and that there is only one truthmaker (*Truthmaker Monism*). Since the common element in the derivations of these implausible theses is (EP), I think it is plausi-

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[1] The distinction between the truthmakers for a proposition and what makes that proposition true should not be presupposed before it is explicitly explained in section 4. When, before section 4, I refer to what makes some proposition true, I refer to the truthmaker for that proposition.

[2] Stephen Read and others call *Conjunction Thesis* and *Disjunction Thesis* the biconditionals corresponding to (CT) and (DT) (Read 2000, p. 71), but in this paper I shall reserve those names for (CT) and (DT), respectively. Although for simplicity and conformity with the existing literature I have formulated (CT) using singular language, it is usual to accept that several entities together make a proposition true, and so the thought behind (CT) is that the *truthmaker or truthmakers* for a conjunction makes or make each conjunct true. It is thus how I shall understand (CT) (I shall understand (EP) and (DT) in a similar way).

ble to see it as the problematic element to be rejected. Of course, by rejecting some of the additional principles required in the derivations one may block the derivation of these implausible theses from (EP). But, as I pointed out in my original paper (Rodriguez-Pereyra 2006, p. 968), rejecting (DT) would not be sufficient to retain (EP), since (DT) is necessary only to derive Truthmaker Triviality, but not to derive the other two implausible theses. So it is wrong to claim, as López de Sa does (2009, p. 417), that in my attempt to argue against (EP) I *crucially* defended (DT). As I made clear, my rejection of (EP) was independent of my upholding (DT) (2006, pp. 986–69). This reveals one misunderstanding of my paper, among many others as we shall see, on the part of López de Sa. Nevertheless, since I did defend (DT), I shall here reply to López de Sa's objections against my defence of (DT).

My defence of (DT) consisted basically in answering the argument against it produced by Stephen Read (2000). After a discussion of Read's argument against (DT) I concluded that it uses (EP) and that, since one cannot save (EP) by rejecting (DT) on the basis of an argument that uses (EP), one cannot save (EP) by rejecting (DT) on the basis of Read's argument against (DT) (2006, p. 967). I then said that I was not aware of any arguments against (DT) that were independent of (EP). López de Sa thinks he is in the position of adding to my philosophical awareness by presenting such arguments, for he thinks there are such arguments, given certain plausible views. What are these views? Some are views about vagueness. For instance it is plausible that a borderline patch of colour is red or orange, but since it is a borderline case it is true neither that it is red nor that it is orange. This, according to López de Sa, is a case in which (DT) fails, since it is plausible that there is something that makes true that the patch is red or orange but there is nothing that makes true that it is red and nothing that makes true that it is orange. He gives a further example, that of open futures. If the future is open, when I toss a coin it is true that it will land heads or tails, but it is true neither that it will land heads nor that it will land tails (López de Sa 2009, p. 419).[3]

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[3] In a footnote, López de Sa says that 'the sense in which what things there are and how those things are determine that coin *c* will land heads or tails need not be *causal*, so that Rodriguez-Pereyra's criticism of Read (in Rodriguez-Pereyra 2006, pp. 966–7) is clearly ineffective' (López de Sa 2009, pp. 419, n. 4). Here López de Sa gets things wrong in more than one way. First, whatever may be the case with his coin example, I was not criticising that example, but Read's, so what he should argue is that in Read's example the determination is not causal—and not merely point out that in his (López de Sa's) example the determination need not be causal. But since in the same footnote López de Sa himself acknowledges that his interpretation of Read's example might not be Read's own interpretation, López de Sa has, in effect, left himself with little ground to support his claim that my criticism of *Read's* example is ineffective. Second, it is important to note that after

But these arguments are not arguments against (DT). This is because the disjunction in (DT) is truth-functional disjunction. That is, the disjunction in question is that which is true if and only if one of its disjuncts is true. Is this an *ad hoc* claim I am making *now* to meet an objection? No. I claimed in my original paper that the disjunction in question was the truth-functional one (2006, p. 968). Even so, is this an arbitrary restriction that makes (DT) an unduly narrow and uninteresting thesis? No, it is not. On the contrary, what is uninteresting is a (DT) formulated to apply to a disjunction that can be true even if neither disjunct is, because such (DT) is obviously false. What is interesting is whether (DT) applies to a disjunction of a kind whose truth requires the truth of at least one disjunct. Thus it is the (DT) restricted to truth-functional disjunction that is an interesting thesis. Furthermore, what I was trying to defend was the principle attacked by Stephen Read. But the disjunction featuring in Read's Disjunction Thesis (the biconditional corresponding to my (DT)) is clearly truth-functional disjunction. There are signs that indicate that Read was using truth-functional disjunction in his article; for instance, he uses '∨' to symbolize it, and after formulating his Disjunction Thesis he compares it with the corresponding truth-conditions, namely that 'p∨q is true iff p is true or q is true' and he says that this sound principle is possibly expressive of the meaning of '∨' (Read 2000, p. 73). But if any doubts remain, the following quotation should dispel them: 'If *p ∨q* is true, then something must make *p* or *q* true, and whatever does that will verify *p ∨q*' (Read 2000, p. 74). Since nothing can make *p* true or *q* true without *p* being true or *q* being true (Read 2000, p. 68), Read was clearly committing himself to truth-functional disjunction, that is, he was committing himself to a disjunction such that its truth requires that of at least one of the disjuncts.

Thus I was right in restricting my (DT) to truth-functional disjunction. By presenting his arguments against (DT), López de Sa fails to attack what I defended and gives arguments against an uninteresting and obviously false thesis.

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criticising Read's example I explicitly said that the problems I was pointing out were problems with the example and not with the point Read tried to exemplify with it (2006, p. 967). Then I proceeded to criticize the point (explicitly acknowledging that I was criticising it from the perspective of a paper whose central issue is the acceptability of (EP) and that although this was the issue of *my* paper it was *not* that of Read's). So even if López de Sa had shown that my criticism against Read's example is ineffective—which he has not—that would still have left untouched my criticism of the point Read exemplifies with his example—a criticism which López de Sa has failed to take notice of.

In my article I gave a brief argument in favour of (DT):

> Since disjunction is a truth-functional connective, disjunctions have their truth-value fixed by those of their disjuncts. So if ⟨P⟩ is true, the truth of ⟨P∨Q⟩ is thereby fixed. But the idea behind truthmaker theory is that, in general, alethic facts (i.e. facts about propositions being true) obtain in virtue of non-alethic facts. So if the truth of ⟨P∨Q⟩ is fixed by the fact that ⟨P⟩ is true and alethic facts obtain in virtue of non-alethic facts, what ⟨P∨Q⟩ is true in virtue of is what ⟨P⟩ is true in virtue of. So [(DT)] is true: whatever makes a disjunction true makes some disjunct true. Thus [(DT)] should not be rejected. (Rodriguez-Pereyra 2006, p. 968)

López de Sa says that there are several grounds for dissatisfaction with this argument, but he identifies only two. The first is that it depends on disjunction being truth-functional. But I have already explained why restricting one's view to truth-functional disjunction is the right thing to do in this context. The second ground for dissatisfaction he mentions is that I commit a *non sequitur* in arguing from the fact that whatever makes a disjunct true also makes the disjunction true to the fact that whatever makes a disjunction true makes some disjunct true.[4]

But where does López de Sa see the *non sequitur*? Nowhere do I argue from the fact that whatever makes a disjunct true also makes the disjunction true to the fact that whatever makes a disjunction true makes some disjunct true. In fact, although I believe that whatever makes a disjunct true also makes the disjunction true, I do not assert this in the quoted passage. Since López de Sa says that I commit the *non sequitur* in the last line of the quoted passage he seems to have taken the phrase 'what ⟨P∨Q⟩ is true in virtue of is what ⟨P⟩ is true in virtue of' to indicate that whatever makes a disjunct true also makes the disjunction true. In fact the phrase is more naturally read as indicating the opposite, namely that every truthmaker for the disjunction is also a truthmaker for a true disjunct. And this is what I meant. Now since a (truth-functional) disjunction cannot be true without having at least one true disjunct, if it is the case that every truthmaker for the disjunction is also a truthmaker for a true disjunct, then (DT) is true. I was indeed inferring (DT), but not from what López de Sa thinks, and there was no *non sequitur* in the inference.

What I have said is sufficient to refute López de Sa. But I am aware that my presentation of my brief argument was itself too brief, and so it

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[4] As I said in the introduction, I shall introduce in section 4 a distinction between the truthmakers for a proposition and what makes that proposition true. Let me remind the reader that that distinction is not presupposed here. Thus when in this section, and the next one, I speak of what makes a proposition true, I mean its truthmaker. Thus in this section 'whatever makes a disjunction true makes some disjunct true' means that every truthmaker for a disjunction is a truthmaker for a disjunct (of the disjunction in question). Similarly for similar phrases.

may not be clear how I got to conclude that a truthmaker for a disjunction is also a truthmaker for a true disjunct. The idea was that, in general, alethic facts obtain in virtue of non-alethic facts or entities, and that when a true proposition ⟨X⟩ is a truth-function whose truth is fixed individually by the truth-value of other propositions of which ⟨X⟩ is a truth-function, what the truth of ⟨X⟩ obtains in virtue of are the non-alethic facts or entities in virtue of which the truth-value of those other propositions obtain.[5] Now since the truth of a truth-functional disjunction is fixed individually by the truth of its true disjuncts, what the truth of such a disjunction obtains in virtue of are the facts or entities in virtue of which the truth of its true disjuncts obtains (i.e. assuming that ⟨P⟩ is the true disjunct, what ⟨P∨Q⟩ is true in virtue of is the facts or entities ⟨P⟩ is true in virtue of). Thus, every truthmaker for a disjunction is also a truthmaker for a true disjunct.

Note, by the way, that nothing here legitimizes (CT). The truth of ⟨P&Q⟩ is fixed by the truth of *both* ⟨P⟩ *and* ⟨Q⟩, but not by the truth of any one of them individually. Thus it does not follow that every truthmaker for ⟨P&Q⟩ is a truthmaker for both conjuncts.[6]

3.

López de Sa defends (CT) from my argument against it. My argument against (CT) consists in noting that what a conjunction is true in virtue of is not what its conjuncts are true in virtue of. For instance, although ⟨Peter is a man and Saturn is a planet⟩ is jointly made true by the facts *that Peter is a man* and *that Saturn is a planet*, it is not the case that ⟨Peter is a man⟩ is true jointly in virtue of the facts *that Peter is a man* and *that Saturn is a planet*. What ⟨Peter is a man⟩ is true in virtue of is simply the fact *that Peter is a man* (Rodriguez-Pereyra 2006, p. 971).

López de Sa finds this puzzling. He asks how it follows from the fact that ⟨Peter is a man⟩ is made true by the fact *that Peter is a man*, that it is not also made true jointly by the facts *that Peter is a man* and *that Saturn is a planet*. He then notes that in response to a similar worry I said

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[5] Note that in the original paper I spoke simply of alethic facts, in general, obtaining in virtue of non-alethic facts. That was sloppiness on my part: it would have been more accurate to say that alethic facts obtain in virtue of non-alethic facts *or entities*. Another clarification: I said (and I say) that *in general* alethic facts obtain in virtue of non alethic facts (or entities) because sometimes alethic facts might not obtain in virtue of non-alethic facts (or entities). This might be the case of propositions like ⟨This proposition is true⟩ when it is true (see Rodriguez-Pereyra 2005, p. 22).

[6] Note that since ⟨P&P⟩ is a truth-function whose truth is fixed individually by the truth-value of ⟨P⟩, my argument for (DT) sanctions that every truthmaker for ⟨P&P⟩ is a truthmaker for ⟨P⟩. This is Jago's (T3), which I shall discuss in section 4.

that I was not arguing that *since* ⟨Peter is a man⟩ is true in virtue of the fact *that Peter is a man*, *then* it is true neither in virtue of the conjunctive fact *that Peter is a man and Saturn is a planet* nor in virtue of the joint action of the facts *that Peter is a man* and *that Saturn is a planet*, but my argument was that it is clear that that in virtue of which ⟨Peter is a man⟩ is true is neither the conjunctive fact *that Peter is a man and Saturn is a planet* nor the facts *that Peter is a man* and *that Saturn is a planet* taken together, but simply the fact *that Peter is a man* (Rodriguez-Pereyra 2006, 971–2). At this point, after a mere appeal to the authority of Armstrong to support the idea that what contains a truthmaker for a certain proposition is also a truthmaker for that proposition, he claims that it is unfortunate that I do not explain why it is clear that the more 'embracing candidates' fail to be truthmakers, by which he means that I have not explained why conjunctive facts or groups of facts fail to be truthmakers for the conjuncts of the conjunctions they make true. And then he proposes a hypothesis: I am appealing to mere intuitions concerning the oddity of asserting, in the presence of less embracing and more discerning truthmakers, that the more embracing entities are truthmakers. Again López de Sa fails to take notice of parts of my article. I did explain why I think that conjunctive facts or groups of facts fail to make true the conjuncts of the conjunctions they make true:

> Why is it that that in virtue of which ⟨Peter is a man⟩ is true is neither the conjunctive fact that *Peter is a man and Saturn is a planet* nor the facts that *Peter is a man* and that *Saturn is a planet* taken together? Because the fact that *Saturn is a planet* is not anything in virtue of which ⟨Peter is a man⟩ is true and it is totally irrelevant to the truth of ⟨Peter is a man⟩. And when a fact is totally irrelevant to the truth of a proposition, no plurality of facts one of which is that fact, and no conjunctive fact of which that fact is a conjunct, is something the proposition in question is true in virtue of.
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> A proposition is true *jointly* in virtue of several facts only if *all* these facts contribute to the truth of the proposition in question. But there is no way in which the fact that *Saturn is a planet* contributes to the truth of ⟨Peter is a man⟩. So it is not the case that ⟨Peter is a man⟩ is true jointly in virtue of the facts that *Peter is a man* and that *Saturn is a planet*. Similarly, a conjunctive fact is what a certain proposition is true in virtue of only if *all* the conjuncts contribute to the truth of the proposition. When some but not all the conjuncts of a conjunctive fact contribute to the truth of a certain proposition, the proposition is true in virtue of a part of the conjunctive fact, but not in virtue of the conjunctive fact itself. But then, again, since the fact that *Saturn is a planet* contributes in no way to the truth of ⟨Peter is a man⟩, this proposition is not true in virtue of the conjunctive fact that *Peter is a man and Saturn is a planet*. (Rodriguez-Pereyra 2006, pp. 972–3)

No one who has read this can say that I failed to explain why I think that conjunctive facts or groups of facts fail to make true the conjuncts of the conjunctions they make true.

Strangely enough, although in the main text of his article he asserts that I did not give the explanation in question, in his footnote 17 López de Sa acknowledges the existence of this explanation. And he says that it merely amounts to a re-description of the fact that the more embracing candidates are precisely more embracing than other available truth-makers, and hence it does not give a reason for their not being truth-makers.

This is obviously wrong. Whether or not the reasons I give in the passages quoted above are compelling, it is clear that what I say goes beyond a mere re-description of the fact that the more embracing can-didates are precisely more embracing than other available truthmakers. For what I say is that the more embracing entities I am talking about (conjunctive facts or groups of facts) are not truthmakers of a certain proposition (a conjunct of the conjunctive proposition made true by the conjunctive fact or the group of facts) because they involve entities that are *irrelevant* to the truth of the proposition in question. But it is not always the case that the more embracing or inclusive entity involves entities that are irrelevant to the truth of the proposition in question. For instance Calliope, Melpomene, and Thalia contribute and are rele-vant to the truth of ⟨There are more than two muses⟩, but the more inclusive group of Calliope, Melpomene, Thalia, and Clio also contrib-ute and are relevant to its truth. Indeed both the group of three muses and the group of four are truthmakers for the proposition ⟨There are more than two muses⟩. Or consider ⟨There are some gods⟩. Any group of gods contains entities that are relevant to the truth of the proposition in question. Thus it is false to say that what I said in the passages quoted above amounts to a re-description of the fact that the more embracing entities are precisely more embracing than the less embracing ones.

And for that reason it is irrelevant to say, as López de Sa says in his footnote 17, that although it is true of any non-minimal truthmakers that they are more embracing than the truthmakers they contain I do not want to argue against them in general. It is irrelevant because although indeed I did not want to argue against non-minimal truth-makers in general, I did not take the fact that an entity is more inclusive than another to indicate that the former is not a truthmaker for a prop-osition made true by the latter.

López de Sa is also wrong when he adds, in the same footnote, that any non-minimal truthmaker provides a counterexample for the prin-

ciple that for any entity *e*, *e* is *the* truthmaker for ⟨*e* = *e*⟩. For consider a world in which there are only two atomic things, *a* and *b*, and their sum *a*+*b*. There *a* is a truthmaker for ⟨There is at least one thing⟩, but so is *a*+*b*. *a*+*b* is therefore a non-minimal truthmaker for ⟨There is at least one thing⟩. But it does not follow that *a*+*b* is a truthmaker for ⟨*a* = *a*⟩ or for ⟨*b* = *b*⟩. So not every non-minimal truthmaker provides a counterexample to the principle in question. López de Sa seems to be confused about what a non-minimal truthmaker is. A non-minimal truthmaker for a proposition ⟨P⟩ is an entity that makes ⟨P⟩ true and such that some of its parts are also truthmakers for ⟨P⟩. But a non-minimal truthmaker need not be one such that it makes true all the propositions that are made true by its parts.

It should now be clear that, contrary to what López de Sa asserts, I was not appealing to the oddity of asserting, in the presence of less embracing truthmakers, that the more embracing entities are truthmakers. I was appealing to the idea that if a conjunctive fact, or a group of facts, contains one fact which is irrelevant to a certain truth, then neither the conjunctive fact nor the group of facts are the truthmakers for the truth in question. This does not make it odd to assert that such more inclusive entities are the truthmakers for the truths in question: it makes it wrong to do so.

In conclusion, López de Sa's criticisms of my defence of (DT) and my rejection of (CT) are completely ineffective. They are based on his misunderstanding my arguments, the debates to which they belong, and fundamental notions of Truthmaker Theory, such as the notion of a non-minimal truthmaker.

4.

Mark Jago argues that accepting the Disjunction Thesis and rejecting the Conjunction Thesis is hard to maintain. If it were impossible to combine acceptance of the Disjunction Thesis with rejection of the Conjunction Thesis, I would reject the Disjunction Thesis, since I am more certain of the falsity of the Conjunction Thesis than of the truth of the Disjunction Thesis. But I think Jago has not shown that accepting the Disjunction thesis while rejecting the Conjunction Thesis is impossible or even hard to maintain. Jago believes that to accept the Disjunction Thesis while rejecting the Conjunction Thesis one needs to reject his axiom (T3), which says that all the truthmakers for ⟨P & P⟩ are truthmakers for ⟨P⟩ (Jago 2009, p. 414). I shall argue that there are rea-

sons to reject such a principle, and the version of it that says that what makes ⟨P&P⟩ true makes ⟨P⟩ true.

Before arguing against (T3) let me consider briefly what Jago says in support of it. He says that it is intuitively appealing because there is an intuitive sense in which the propositions ⟨P&P⟩ and ⟨P⟩ say the same thing, and that it would be strange for two propositions to say the same thing as one another, yet for one to require more to be made true than the other (Jago 2009, p. 414). But Jago does not explain in what sense he thinks that propositions say anything; nor does he attempt to specify the sense in which these two specific propositions allegedly say the same thing. So his claim that ⟨P&P⟩ and ⟨P⟩ say the same thing is difficult to evaluate. One sense in which it might be thought that ⟨P&P⟩ and ⟨P⟩ clearly say the same thing is that they are logically equivalent. But I see no reason why it would be strange for two propositions to be logically equivalent and yet for one to require more to be made true than the other. Of course if ⟨P&P⟩ and ⟨P⟩ are one and the same proposition, then all truthmakers for ⟨P&P⟩ are truthmakers for ⟨P⟩. But Jago speaks as if they were *two* propositions and his claim is that it is intuitive that these two propositions say the same thing.

Thus Jago has not given enough support to his claim that (T3) is intuitive, and so it is not yet clear who has the onus of proof—whether those who reject (T3) or those who accept it. Nevertheless I think reasons can be given to reject (T3), and the version of it that says that what makes ⟨P&P⟩ true makes ⟨P⟩ true. This is what I shall do now.

I know of two general stories about the truthmakers for conjunctions. One is to say that they have conjunctive facts as truthmakers. The other is to say that conjunctions are collectively made true by the non-conjunctive entities that are the truthmakers for their conjuncts. Several options are possible as to what these non-conjunctive entities are. In this response I shall focus on a version of the second view according to which the truthmakers for the conjuncts are non-conjunctive facts.[7] But nothing depends on this particular choice and other versions of this view have similar consequences about (T3).

I shall argue first that, assuming the view that the truthmakers for all conjunctions are conjunctive facts, one has reasons to reject (T3). But let me note first that since my argument for (DT) implies that every truthmaker for ⟨P&P⟩ is a truthmaker for ⟨P⟩, and I believe that no non-conjunctive propositions have conjunctive facts as truthmakers, I do not believe that all conjunctions have conjunctive facts as truthmak-

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[7] For a discussion of some of the other options, in the context of Resemblance Nominalism, see my 'Resemblance Nominalism, Conjunctions, and Truthmakers' (MS in progress).

ers. But for dialectical reasons I want to keep the view that all conjunctions have conjunctive facts as truthmakers as a theoretical possibility in this reply. This is because what Jago argues for is the general point that rejection of the Conjunction Thesis is hard to combine with acceptance of the Disjunction Thesis as opposed to the more specific one that rejection of the Conjunction Thesis is hard to combine with acceptance of the Disjunction Thesis *on the basis of my argument for it*. There might be some who accept the Disjunction Thesis based on other reasons, reject the Conjunction Thesis, and believe that all conjunctions have conjunctive facts as truthmakers. I want to show that Jago has not shown that that combination of views is impossible or hard to maintain. (Of course I can adopt the view that conjunctions are collectively made true by the non-conjunctive facts that are the truthmakers for their conjuncts, and on this view, as I shall argue below, it has not yet been shown that acceptance of the Disjunction thesis cannot be combined with rejection of the Conjunction Thesis.)

(T3) says that all truthmakers for $\langle P \& P \rangle$ are truthmakers for $\langle P \rangle$. Suppose conjunctions are made true by conjunctive facts. Then $\langle P \& P \rangle$ is made true by the conjunctive fact *that P&P*. Even if the fact *that P&P* and the fact *that P* are necessarily coexistent, in virtue of being a conjunctive fact the former fact has a structure that the latter fact lacks. Thus the fact *that P* and the fact *that P&P* are two different facts. But $\langle P \rangle$ is not true in virtue of the conjunctive fact *that P&P*: it is true in virtue of the fact *that P*. Thus if the truthmaker for $\langle P \& P \rangle$ is the conjunctive fact *that P&P*, it is not the case that all truthmakers for $\langle P \& P \rangle$ are truthmakers for $\langle P \rangle$.

It might be thought that the fact *that P&P* just is the fact *that P*. But this makes no sense, because the fact *that P* is not a conjunct of itself. Even if there are conjunctive facts, it might be that these always have distinct conjuncts, and so there is no fact *that P&P*. But if so $\langle P \& P \rangle$ is not made true by the conjunctive fact *that P&P*. What is its truthmaker then? If the proposition $\langle P \& P \rangle$ just is the proposition $\langle P \rangle$, then it might be claimed that its truthmaker is the fact *that P*. But on the most plausible conceptions of propositions, conceptions on which they have structure, $\langle P \& P \rangle$ and $\langle P \rangle$ should come out as distinct propositions, due to their difference in structure.

But the view that $\langle P \& P \rangle$ is $\langle P \rangle$ is worth considering. For if $\langle P \& P \rangle$ is $\langle P \rangle$, then a simpler proof of ($\star$) (Jago's principle that all the truthmakers for $\langle ((P \& Q) \vee P) \vee Q \rangle$ are truthmakers for $\langle P \vee Q \rangle$), one in which (T3) is not needed, can be given. This is a proof with fifteen lines, otherwise like Jago's proof except that lines 12 and 16 in Jago's proof do not feature and

the consequent of line 11 is $\langle P \vee Q \rangle$. Jago's proof does not assume that $\langle P\&P \rangle$ is $\langle P \rangle$ (but it does not assume that $\langle P\&P \rangle$ and $\langle P \rangle$ are different propositions).[8] But the fact that the simpler proof can be given shows that whether (T3) can be rejected is not decisive when the issue is the truth of ($\star$). Whether $\langle P\&P \rangle$ is $\langle P \rangle$ should also be addressed.

But that $\langle P\&P \rangle$ and $\langle P \rangle$ are one and the same proposition should be argued for on the basis of other, principled considerations. Otherwise the claim that they are one and the same proposition is likely to be *ad hoc*. The most plausible way to justify the claim that $\langle P\&P \rangle$ and $\langle P \rangle$ are the same proposition is, it seems to me, to appeal to the idea that logically equivalent propositions are identical. There are several reasons to doubt this idea. Here I want to consider some truthmaking-related reasons to reject it.

If logically equivalent propositions are identical, then ($\star$) is the trivial principle that all the truthmakers for $\langle P \vee Q \rangle$ are truthmakers for $\langle P \vee Q \rangle$, since $\langle ((P\&Q) \vee P) \vee Q \rangle$ and $\langle P \vee Q \rangle$ are logically equivalent. In this case all we need to derive the claim that the truthmakers for $\langle P\&Q \rangle$ are truthmakers for $\langle P \vee Q \rangle$ is Jago's (D_I), which says that if e is a truthmaker for $\langle P \rangle$, then e is a truthmaker for $\langle P \vee Q \rangle$ and a truthmaker for $\langle Q \vee P \rangle$. I find (D_I) eminently plausible.[9]

Furthermore, when the view that logically equivalent propositions are identical is assumed, the thesis (DT)—that if e is a truthmaker for $\langle P \vee Q \rangle$, then either e is a truthmaker for $\langle P \rangle$ or e is a truthmaker for $\langle Q \rangle$ —is not needed to derive the thesis (CT)—that if e is a truthmaker for $\langle P\&Q \rangle$, then e is a truthmaker for $\langle P \rangle$ and e is a truthmaker for $\langle Q \rangle$. When that view on the identity of propositions is assumed, all that is needed to derive (CT) is (D_I). For given (D_I), all truthmakers for $\langle P\&Q \rangle$ are also truthmakers for $\langle (P\&Q) \vee P \rangle$ and $\langle (P\&Q) \vee Q \rangle$. But $\langle (P\&Q) \vee P \rangle$ and $\langle P \rangle$ are logically equivalent, and therefore they are identical on the view of propositions we are considering. Ditto for $\langle (P\&Q) \vee Q \rangle$ and $\langle Q \rangle$. Thus if something is a truthmaker for $\langle P\&Q \rangle$, it is also a truthmaker for $\langle P \rangle$ and for $\langle Q \rangle$, which is what (CT) states. But (CT) is absurd and so, given the plausibility of (D_I), the right thing to do is to reject the view that logically equivalent propositions are identical.

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[8] But Jago says things that indicate that *he* was assuming that $\langle P\&P \rangle$ and $\langle P \rangle$ are different propositions. For instance, he says (or what he says obviously implies) that they are *two* propositions that intuitively say the same thing (2009, p. 414).

[9] But (D_I) is not, *pace* Jago, perfectly uncontroversial, since it is rejected by those who believe that disjunctions do not have truthmakers, although some disjuncts do. D. H. Mellor (2008) holds this view.

Thus I think that there are reasons to reject (T3) if one thinks that the truthmakers for conjunctions are conjunctive facts.[10] What if conjunctions are collectively made true by the non-conjunctive facts that are the truthmakers for their conjuncts? Here we need to make a distinction that I did not make in my 2006. The distinction is that between the truthmakers for a proposition and what makes that proposition true. There are propositions that have the same truthmakers although what makes one of them true is not what makes the other true. How can this be so?

Truthmakers are entities in virtue of which propositions are true. What makes propositions true has to do with how the truthmakers are grouped to enter the truthmaking relation. An example will clarify the distinction. Suppose that both ⟨P&Q⟩ and ⟨P∨Q⟩ are true and assume that truthmakers are facts. The truthmakers for ⟨P∨Q⟩ are the facts *that P* and *that Q*. The truthmakers for ⟨P&Q⟩ are the facts *that P* and *that Q*. Thus ⟨P&Q⟩ and ⟨P∨Q⟩ have the same truthmakers. And yet what makes them true is not the same. For ⟨P&Q⟩ is *collectively* made true by the facts *that P* and *that Q* (in other words, it is *jointly* made true by the facts *that P* and *that Q*, or it is made true by the facts *that P* and *that Q taken together*), while ⟨P∨Q⟩ is *separately* made true by the facts *that P* and *that Q*. The truthmakers for ⟨P&Q⟩ and ⟨P∨Q⟩ are the same but they enter the truthmaking relation differently in each case: in one case collectively, in the other case separately. That is, while ⟨P∨Q⟩ bears the *true in virtue of* relation to the fact *that P* and it also bears it to the fact *that Q*, ⟨P&Q⟩ does not bear the *true in virtue of* relation to either fact separately, but bears it to both of them collectively. In the same way that when many things surround a building, none of them individually surrounds the building, but all of them do it collectively, there is no single entity that makes the conjunction ⟨P&Q⟩ true, although there are some entities that make it *collectively* true. These entities (the facts *that P* and *that Q*) are the same entities that *separately* make the disjunction ⟨P∨Q⟩ true.[11]

[10] Of course one might maintain that conjunctions have conjunctive facts as truthmakers, except when they are of the form ⟨P&P⟩, in which case their truthmakers are the truthmakers for their conjuncts. And such a theory need not be ad hoc. My argument for (DT) might be part of the motivation for such a theory. But my intention in this section is not to argue that there could not be well-motivated theories that have (T3) as a consequence. My intention is to argue that there are non ad hoc theories that make (T3) false. Thus one can, on principled reasons, reject Jago's proof of (★).

[11] For more on the distinction between the truthmakers for a proposition and what makes that proposition true see my 'Resemblance Nominalism, Conjunctions, and Truthmakers' (MS in progress). As I argue there, strictly speaking not all conjunctions are collectively made true by the truthmakers for their conjuncts; some are *collectively groupaly* made true by the truthmakers for their conjuncts (where that a proposition is collectively groupaly made true by some entities does not entail that it is collectively made true by them). But this complication is not necessary to reply

Thus, on the assumption that conjunctions are collectively made true by the non-conjunctive facts that are the truthmakers for their conjuncts, I accept Jago's crucial result that all the truthmakers for ⟨P & Q⟩ are truthmakers for ⟨P ∨ Q⟩: the facts *that P* and *that Q* are the truthmakers for the former and also the truthmakers for the latter. But it does not follow from this that what makes ⟨P & Q⟩ true is the same as what makes ⟨P ∨ Q⟩ true: the former is collectively made true by the facts *that P* and *that Q*, while the latter is separately made true by the facts *that P* and *that Q*. But as a claim about truthmakers—as opposed to what makes a proposition true—the claim that all truthmakers for ⟨P & Q⟩ are truthmakers for ⟨P ∨ Q⟩ is innocuous. All that follows from it via (DT) is that the fact *that P* is either a truthmaker for ⟨P⟩ or a truthmaker for ⟨Q⟩, and the fact *that Q* is either a truthmaker for ⟨P⟩ or a truthmaker for ⟨Q⟩. This is a perfectly acceptable result and perfectly compatible with rejection of (CT). For nothing here entails that ⟨Peter is a man⟩ is true in virtue of the facts *that Peter is a man* and *that Saturn is a planet* collectively or jointly. Nor does anything here entail that ⟨Saturn is a planet⟩ is true in virtue of the facts *that Peter is a man* and *that Saturn is a planet* collectively or jointly.

What is incompatible with my rejection of (CT) and my acceptance of (DT) is the claim that what makes ⟨P & Q⟩ true makes ⟨P ∨ Q⟩ true. For then we would have to say that since what makes ⟨P & Q⟩ true are the facts *that P* and *that Q* collectively, they collectively make ⟨P ∨ Q⟩ true. And then, by (DT), interpreted as a claim about what makes disjunctions and their disjuncts true as opposed to a claim about their truthmakers, we would obtain the result that the facts *that P* and *that Q* collectively make ⟨P⟩ true or they collectively make ⟨Q⟩ true. That is, we would be forced to conclude that either ⟨Peter is a man⟩ is true in virtue of the facts *that Peter is a man* and *that Saturn is a planet* collectively, or ⟨Saturn is a planet⟩ is true in virtue of the facts *that Peter is a man* and *that Saturn is a planet* collectively.

Thus what Jago must have intended to derive is, in the terminology I have just introduced, the claim that what makes ⟨P & Q⟩ true makes ⟨P ∨ Q⟩ true. But this is false. For ⟨P & Q⟩ is *collectively* made true by the facts *that P* and *that Q*, while ⟨P ∨ Q⟩ is *separately* made true by the facts *that P* and *that Q*. Similarly Jago's (★) is false. For, when properly inter-

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to Jago. I shall assume, in this reply, that conjunctions are, in general, collectively made true by the truthmakers for their conjuncts (and that the truthmakers for their conjuncts are non-conjunctive facts).

preted, it asserts that what makes $\langle((P\&Q)\vee P)\vee Q\rangle$ true makes $\langle P\vee Q\rangle$ true. But $\langle((P\&Q)\vee P)\vee Q\rangle$ is separately made true by the fact *that P*, separately made true by the fact *that Q*, and is also separately made true by the facts *that P* and *that Q* collectively. And $\langle P\vee Q\rangle$ is not made true by the facts *that P* and *that Q* collectively. So not everything that makes $\langle((P\&Q)\vee P)\vee Q\rangle$ true makes $\langle P\vee Q\rangle$ true.

But Jago derives his ($\star$) from several basic principles, including (T3). For (T3) to be used in deriving the claim that what makes $\langle P\&Q\rangle$ true makes $\langle P\vee Q\rangle$ true, (T3) must be taken to mean that what makes $\langle P\&P\rangle$ true makes $\langle P\rangle$ true. On the assumption that conjunctions are collectively made true by the non-conjunctive facts that are the truthmakers for their conjuncts, this principle can be rejected.

Consider the instance of (T3) that Jago uses in his derivation of ($\star$). This instance is the claim that what makes $\langle(P\vee Q)\&(P\vee Q)\rangle$ true makes $\langle P\vee Q\rangle$ true. $\langle P\vee Q\rangle$ is separately made true by the fact *that P* and the fact *that Q*. $\langle(P\vee Q)\&(P\vee Q)\rangle$, being a conjunction, is collectively made true by the truthmakers for its conjunct. Thus $\langle(P\vee Q)\&(P\vee Q)\rangle$ is collectively made true by the facts *that P* and *that Q*. So it is not true that what makes $\langle(P\vee Q)\&(P\vee Q)\rangle$ true makes $\langle P\vee Q\rangle$ true. Thus the instance of (T3) that Jago uses in his derivation of ($\star$) is false.

Instances of (T3) featuring disjunctions are not the only ones that are false.[12] Take the propositions $\langle$There is at least one muse and there is at least one muse$\rangle$ and $\langle$There is at least one muse$\rangle$. The latter proposition is made true by Thalia and is also made true by Clio. It is made true by them separately, not collectively. But since the former proposition is a conjunction, it is collectively made true by the truthmakers for its conjunct. Thus the conjunction $\langle$There is at least one muse and there is at least one muse$\rangle$ is collectively made true by Thalia and Clio. Thus it is not true that what makes $\langle$There is at least one muse and there is at least one muse$\rangle$ true is what makes $\langle$There is at least one muse$\rangle$ true. Thus (T3) fails again.

Note also that (T3) might even fail when the conjunct of the conjunction is an atomic proposition. Some atomic propositions have, arguably, more than one separate truthmaker. Following Mulligan, Simons and Smith one might think of $\langle$Cyril has viral hepatitis$\rangle$ as an example of an atomic proposition that has more than one truthmaker when Cyril has both A-hepatitis and B-hepatitis: this proposition is separately made true by the facts *that Cyril has A-hepatitis* and *that*

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[12] I owe this point to Ezequiel Zerbudis.

Cyril has B-hepatitis (Mulligan, Simons, and Smith 1984, p. 298).[13] But the proposition ⟨Cyril has viral hepatitis and Cyril has viral hepatitis⟩, being a conjunction, is collectively made true by the truthmakers for its conjuncts. Thus the conjunction is collectively made true by the facts *that Cyril has A-hepatitis* and *that Cyril has B-hepatitis* if Cyril has both kinds of hepatitis. Thus it is not true that what makes ⟨Cyril has viral hepatitis and Cyril has viral hepatitis⟩ true makes ⟨Cyril has viral hepatitis⟩ true.[14]

We have seen that the case for the intuitive character of (T3) has yet to be made. We have seen that there are reasons to reject (T3) if one assumes that the truthmakers for conjunctions are conjunctive facts. We have seen that if one assumes that conjunctions are collectively made true by the non-conjunctive facts that are the truthmakers for their conjuncts, (T3), formulated as a claim about truthmakers is innocuous and does not prevent combining acceptance of the Disjunction Thesis with rejection of the Conjunction Thesis, but formulated as a claim about what makes ⟨P&P⟩ and ⟨P⟩ true should be rejected. Since these are two plausible conceptions of what conjunctions are true in virtue of, there are reasons to reject the claim that all truthmakers for ⟨P&P⟩ are truthmakers for ⟨P⟩ or that what makes ⟨P&P⟩ true makes ⟨P⟩ true. Thus it has not yet been shown that acceptance of the Disjunction Thesis is impossible or even hard to combine with rejection of the Conjunction Thesis.[15]

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[13] Mulligan, Simons, and Smith take sentences as truth-bearers and they think of moments as truthmakers. What I borrow from them is just the idea that the truthbearer need not be logically complex for it to have more than one truthmaker.

[14] I am not certain that ⟨Cyril has viral hepatitis⟩ is atomic. But I do not know of any argument that atomic propositions cannot have more than one separate truthmaker and so I think that there might (epistemic 'might') be atomic propositions with more than one separate truthmaker. I use ⟨Cyril has viral hepatitis⟩ as an example because I think it is plausible that it is an atomic proposition and, if so, it is an example of an atomic proposition with more than one separate truthmaker. In any case, whether or not the atomicity of ⟨P⟩ is sufficient for it to be the case that what makes ⟨P&P⟩ true makes ⟨P⟩ true, what seems to be sufficient for it is that ⟨P⟩ has only one truthmaker.

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