

# Truthmakers for Negatives

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ABSTRACT: In this paper I will first present and defend Molnar's way of setting out the problem of finding truthmakers for negative propositions. Secondly, I will reply to two objections to what in my view is the most promising general approach to the problem of negatives. Finally, I will present and defend Cheyne and Pidgen's specific proposal that falls under that general promising approach.

Keywords: metaphysics, truth, truthmakers, negative propositions, negative ontology.

## 1. Introduction

Truthmaker theorists hold that at least for some true propositions there is something in the world that makes them true and call this thesis "the truthmaker principle". Entities playing this role are described as the truthmakers of the propositions that they make true. Any truth, then, depends on their truthmakers, is grounded in them, and is true in virtue of them. Something worldly, different from the proposition, grounds and explains its truth. Most common accounts of the notion of truthmaker include as a necessary condition for being a truthmaker of a proposition that truthmakers should be metaphysically sufficient for the truth of the proposition:

(N) If  $x$  makes  $\langle p \rangle$  true, then  $x$  exists and necessarily, if  $x$  exists then  $\langle p \rangle$  is true.<sup>1</sup>

Under these assumptions, the task of finding good *prima facie* candidates of truthmakers for some truths does not look especially troublesome. A singular existential proposition as  $\langle \text{Aristotle exists} \rangle$  is made true by Aristotle, a general existential proposition like  $\langle \text{There are human beings} \rangle$  is made true by each human being, a singular predicative proposition like  $\langle \text{This wall is yellow} \rangle$  is made true by the fact that this wall is yellow, or perhaps by this particular yellowness of the wall. All these statements are far from being absolutely uncontroversial, but they are relatively undisputed given the former assumptions which are held by many truthmaker theorists.

Truthmaker *maximalist* theorists assert that *all* truths are made true by some entity or some entities in the world. Maximalism has some trouble with logically true propositions since their truth does not seem to depend on the world; those propositions seem to be grounded in their own nature. A natural reaction is to weaken maximalism by exempting logically true propositions from the truthmaker requirement. However,

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<sup>1</sup> Following common usages and assumptions: I will assume that truthbearers are propositions, ' $\langle p \rangle$ ' will stand for 'the proposition that  $p$ ', and I will call the thesis (N) that truthmakers are metaphysically sufficient for their truths "truthmaker necessitarianism".

there are other kinds of propositions whose truth clearly seems to depend on the world that put truthmaker theorists in trouble when they try to provide truthmakers for them. Among them, negative (contingently) true propositions of the following forms:<sup>2</sup>

- (1) Negative predicative propositions: <*a* is not *F*>
- (2) Negative general existential propositions: <There are no *F*s>
- (3) Negative partially general existential propositions: <There are no *F*s in *r*>

Consider a proposition of type (2): <There are no white ravens>. What could be a plausible truthmaker for this proposition? Things seem to be more difficult now than they were with the former paradigmatic cases. Is the sum of all actual (black) ravens the truthmaker for <There are no white ravens>? It does not seem so. It does not satisfy truthmaker necessitarianism, since it seems that the sum can coexist with a white raven. Is it the whole world? It does not seem so, either. The whole world could have included an extra white raven. Is it then the absence of white ravens that is the truthmaker of <There are no white ravens>? Well, what could such a thing be?

It should also be noted that finding truthmakers for propositions of type (4) and (5) will not be an easy task, given the logical relations holding between propositions of type (2) and (4), and type (3) and (5):

- (4) Universal propositions: <All *F*s are *G*s>
- (5) Partially universal propositions: <All *F*s in *r* are *G*>.

## 2. Molnar's tetrad

In this section I will present Molnar's way of stating the problem of negative propositions and will show that two recent objections to it are not convincing. Molnar explains the problem of truthmakers for negatives by pointing out that the following statements do not look compatible:

- (i) The world is everything that exists.
  - (ii) Everything that exists is positive.
  - (iii) Some negative claims about the world are true.
  - (iv) Every true claim about the world is made true by something that exists
- (Molnar 2000, 72)

Molnar holds that (i)-(iv) jointly imply that:

- (v) Negative truths are made true by positive existing entities.<sup>3</sup>

The entailed statement is not, according to Molnar, strictly a contradiction. Still, there is a tension, since "the quartet may not be co-tenable" (Molnar 2000, p. 72). As (i)-(iv) are individually plausible, the challenge for the truthmaker theorist will be either to explain how *negative* propositions can be made true by *positive* entities, or to reject one

<sup>2</sup> Other controversial truths are true disjunctions and conjunctions. I won't discuss them here, but see: Rodriguez-Pereyra (2006), Read (2000) and Lopez de Sa (ms.)

<sup>3</sup> I think that (i) is redundant. It seems clear that (ii)-(iv) suffice to entail (v). It *would* play a role if (iv) were replaced by (iv') Every true claim about the world is made true by something in the world.

of (i)-(iv) and to provide a justification of how such a *prima facie* plausible statement can be rejected.

Cameron and Parsons dismiss Molnar's strategy based on the tetrad (i)-(iv) as a good approach to the problem of negatives on similar grounds (Cameron, ms.; Parsons, 2006.) They both agree that (ii) is too far from being clear, since we have no good understanding of what a *positive* entity is.

Parsons argues that whatever 'positive' means in (ii), it cannot have the same kind of meaning as 'negative' has in (iii), since in the latter case the term is applied in virtue of the representational properties of the proposition, but there are no such representational properties in the former case. Thus, he says: "there is, *prima facie*, an equivocation in any attempt to make (i) through (iv) into an inconsistent tetrad." (Parsons 2006, p. 592) Alternatively, it can be said that the entailed statement (v) is not inconsistent since the occurrences of 'negative' and 'positive' in it are equivocal.

This is true, but misses the point. I don't think that Molnar is trying to show that there is a real inconsistency in the tetrad. The point is rather that, apparently, (iii) and (iv) jointly lead us to posit negative entities as truthmakers, and this seems to conflict with the apparently sensible metaphysical thesis (ii). Let us assume that (iii) is true. What, then, can make true <There are no unicorns> or <This rose is not red>? "The absence of unicorns and the lack of redness in this rose" is a natural but dubious answer since, by (iv), absences and lacks should be then existing entities. But these are paradigmatic negative entities, against (ii). Molnar does not offer a full account of the notion of positive entity, but it is surely intended to exclude absences and lacks from its domain. There is strictly no contradiction here, since we are not led to conclude that (ii) is false through an argument that relies on an analysis of the concept of positive entity. However, it is shown that there is still a tension, since the entities which are apparently required by (iii)-(iv) are paradigmatic instances of non-positive entities.

Arguing for a similar conclusion against Molnar's strategy, Cameron argues that clear applications of 'positive' can only be found in the domain of representations, by appealing to the way they represent. 'Positive' can be applied also to non-representational entities but only in a derivative sense (Cameron, manuscript: 3.) <There is a donkey> is positive because it represents something to be the case. <There is not a talking donkey> is negative because it represents something *not* to be the case. A representation is positive if it represents something to be the case, or negative if it represents something not to be the case. A non-representational entity is negative if it corresponds to a negative proposition, or positive otherwise. Given these assumptions, Cameron objects that (ii) would amount to saying that nothing corresponds to a negative proposition, but this would entail that negative propositions have no truthmakers. Thus, (ii) would be useless in Molnar's argument based on (i)-(iv), which is intended to show the dubious commitments of the thesis that negatives have truthmakers.

Although, on my view, positing negative entities is to fall into the representational fallacy of ascribing to the world features of our representations of it, I think that there is no need to appeal to representational features to make the concept of negative entity intelligible. We have indeed concepts that putatively refer to negative entities, like

*absence, lack, omission, or void.* I will now advance a non-representational characterization of negative entities which I think is plausible. My aim is to suggest a defensible *criterion* for negativeness which can be employed to vindicate the argument that shows that there is a tension in (ii)-(iv).

Negative entities, if located, have a common negative causal feature. They don't satisfy the disjunctive causal condition for positiveness in (C):

(C) A concrete entity is positive if and only if (a) is causally operative or (b) is a mereological aggregate of causally operative entities.

Paradigmatically concrete entities are positive typically because they are both causally operative and a mereological aggregate of causally operative entities. However, an entity can be positive but not causally operative just because it is too big to interact with another, totally different entity. Take the whole world, the mereological aggregate of all (positive) events or states of affairs. There is no entity outside the world that can be caused by the world. Still, I think it is plausible to hold that an aggregate of positive entities is a positive entity.<sup>4</sup> Thus, the world, being an aggregate of positive entities, is also a positive entity according to (C).

I hold that absences, lacks, voids and omissions are negative because there are good reasons to think that they do not satisfy neither (a) nor (b) in (C). First, note that if omissions are not causally operative, then their mereological parts are not causally operative. The reason is that mereological parts of omissions are also omissions. The same holds for lacks, voids and absences. Thus, if typical negative entities do not satisfy (a), then they do not satisfy (b) either. Second, although there may be a *prima facie* motivation to posit negative entities to account for the truth of omission and prevention causal statements, there is no need to posit negative entities in the metaphysics of causation to account for those truths.<sup>5</sup> Besides, the severe difficulties that plague the wide variety of theories of causation when they attempt to follow the *prima facie* motivation constitute an additional reason to avoid it.<sup>6</sup>

### 3. *Paving the way for exclusion accounts*

How should we react to Molnar's argument? I think we should bite the bullet, accept (v), and then try to show how positive entities can make negative propositions true. What Molnar calls "exclusion accounts" take this line and I will argue that they are a satisfactory approach to the problem of negatives. I will develop this argument in two

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<sup>4</sup> Besides, aggregates of negative entities are negative as well. Aggregates of lacks are lacks, aggregates of omissions are omissions, aggregates of absences are absences, and aggregates of voids are voids.

<sup>5</sup> See, for instance, Dowe (2000, pp. 129-145) and Beebe (2004).

<sup>6</sup> The latter point is especially clear in physical accounts of causation. In transference theories of causation, flow of energy or momentum from one object to another is required for causation. However, there is simply no such transference involved in preventions and omissions. In Dowe's Conserved Quantity Theory, causes and effects must be linked by a set of causal processes and interactions. But there isn't such a set of causal processes that links omissions to their purported effects or prevented effects to their preventive causes. For more on this point and also on how negative entities are problematic for very different accounts of causation, see Dowe (2000, pp. 123-129).

steps. First, I will answer in the rest of this section two standing general objections in the literature against exclusion accounts. In the last section, I will show how some particular exclusion account deals fairly well with the problem of negatives.

Exclusion accounts bite the bullet of Molnar's argument and accept (v). Positive truthmakers for negatives can be provided; no appeal to negative facts is needed to ground negatives. In this section I will discuss Molnar's objections to this approach.

Molnar describes the exclusion strategy as follows:

The simplest theory of truthmakers for negative statements would say that for any negative statement stating that  $a$  does not have the property  $F$  (or that there are no  $F_s$ ), there is a positive state of affairs which excludes  $a$ 's being  $F$  (or excludes the existence of  $F_s$ ) (Molnar 2000, p. 73).

In terms of propositions, this can be stated as follows:

(I)

(i) If  $\langle a$  is not  $F \rangle$  is true then there is a (positive)  $x$  such that  $x$  excludes  $a$ 's being  $F$

(ii) If  $\langle$ There are no  $F_s \rangle$  is true then there is a (positive)  $x$  such that  $x$  excludes the existence of  $F_s$ .

What notion of *exclusion* is at stake here? Molnar says: "I use 'excludes' here in the sense that one particular,  $A$ , excludes another,  $B$ , if  $A$  and  $B$  cannot co-exist of strict necessity." (Molnar 2000, p. 73). Following Molnar's analysis of the exclusion relation, let's consider (E):

(E)  $x$  excludes  $y$  iff necessarily, if  $x$  exists then  $y$  does not exist.

From (I) and (E), it follows:

(IE)

(i) If  $\langle a$  is not  $F \rangle$  is true then there is a (positive)  $x$  such that necessarily, if  $x$  exists then  $a$  is not  $F$ .

(ii) If  $\langle$ There are no  $F_s \rangle$  is true then there is a (positive)  $x$  such that necessarily, if  $x$  exists then there are no  $F_s$ .

Now, I will present and reject two general objections against (IE) raised by Molnar.

### *Objection 1*

Molnar's first objection is an adaptation of Russell and Grossmann's criticism of the attempts to explain negative truths by reference to their incompatibility with positive truths:

We can only explain the truth of  $\neg q$  by reference to the truth of  $p$  if  $p$  is incompatible with  $\neg q$ . For the explanation to work, ' $p$  is incompatible with  $q$ ' must be true. But this is a negative statement. Ex-

planations of negative truths by incompatibility cannot succeed as reductive explanations because such explanations themselves rely on a negative statement. Grossmann's argument can be readily translated into the language of this paper, because Exclusion is what sentential incompatibility becomes when we make a semantic descent. (I'll not make the translation here.) (Molnar 2000, p. 74)<sup>7</sup>

Let us consider:

(I\*)  $\langle \neg q \rangle$  is true iff there is a (positive) proposition  $\langle p \rangle$  such that  $\langle p \rangle$  is true and  $\langle p \rangle$  is incompatible with  $\langle q \rangle$

As I understand Grossmann's objection, it runs as follows. (I\*) does not work as a reductive explanation of the truth of negative propositions, since a negative proposition ( $\langle p \rangle$  is incompatible with  $\langle q \rangle$ ) is involved in the *explanans*. Understanding the truth-conditions of any negative proposition  $\langle \neg q \rangle$  would presuppose understanding the truth-conditions of the corresponding negative proposition stating incompatibility ( $\langle p \rangle$  is incompatible with  $\langle q \rangle$ ) used in the *explanans*. This is fine.

If we make the translation omitted by Molnar to obtain an argument against (I), we have that explanations like (I), that appeal to exclusion, cannot succeed as reductive explanations of the truth of a negative proposition because they rely on a negative proposition ( $\langle x \rangle$  excludes  $\langle y \rangle$ ), which, according to (E), is equivalent to  $\langle \text{necessarily, if } x \text{ exists then } y \text{ does not exist} \rangle$ . This is also fine.

However, this argument that results from translation into the language of truthmakers doesn't work as an objection against the truthmaker exclusion account of negative propositions given in (I). For, (I) need (and should) not be understood as a *reductive* explanation of the truth of negative propositions, but as a thesis stating necessary conditions for a negative proposition to be true that reveals the ontological (positive) ground of the truth of the proposition. (I) holds that negative facts are not needed as an ontological ground of negative truths. Truthmakers are the ontological ground of negative truths and they are positive entities. Thus, negative truths are grounded on positive entities only.<sup>8</sup>

Still, it could be objected that (I) does not avoid negative facts altogether. Exclusion is a negative fact; strictly speaking, exclusion is a modal fact that involves a negative fact. It is true that (I) does not posit negative entities as truthmakers. Nothing establishes that  $x$  must be negative. However, the condition for being a truthmaker involves a negative proposition (the proposition whose truth is at issue, precisely) and this seems bad enough. Negative propositions are still required to specify what it is to be a (positive) truthmaker for a negative proposition.

But this won't do either. Given that (IE) can be considered as a kind of instance of (I), an argument analogous to Objection (1) could be raised against truthmaking

<sup>7</sup> See also Armstrong 2004, pp. 60-61.

<sup>8</sup> It should be remarked also that even a biconditional version of (I), stating necessary and sufficient conditions, need not be understood as a reductive analysis of the truth for negatives. Note that if we leave aside reference to the positive, (IE) displays instances of the usual truthmaking necessitarian account of truth: (I) If  $\langle p \rangle$  is true then there is an  $x$  such that necessarily, if  $x$  exists then  $p$ . For the usual purposes of truthmaking theory, (I\*) would be no worse than (I): (I\*) If  $\langle p \rangle$  is true then there is an  $x$  such that necessarily, if  $x$  exists then  $\langle p \rangle$  is true. In effect, (I\*) cannot be intended as an attempt to reductively explain the truth of the proposition. See Lowe (2006).

theory in general to conclude that it cannot dispense with trivial truthmakers. Most truthmaker theorists that embrace (T) also hold that the truthmaker for a proposition does not need to mirror the structure of the proposition. To take a classical example: <Cyril has hepatitis> is not made true by a compound made of Cyril and a property, having hepatitis. The fact that Cyril has hepatitis is a complex fact involving small parts of Cyril's organism having micro-properties and being in several different relations to each other. Now, consider the following argument for the conclusion that (T) entails mirroring. The argument is analogous to Objection 1. Note that necessitation is a modal fact that involves the fact that mirrors the proposition whose truth is at issue. Facts mirroring the proposition are still required to specify what it is to be a truthmaker for a proposition, even if the truthmaker does not mirror the proposition.

I think that this argument does not work. (T) does not entail mirroring and does not trivialize truthmaking. (T) leaves open whether the truthmaker mirrors or not the proposition it makes true. In some cases (propositions concerning basic objects instantiating fundamental properties), the truthmaker  $x$  will be identical to the fact that  $p$ . In other cases, the truthmaker will be the part of the reductive basis of the fact that  $p$ .

Quite similarly, (IE) does not commit us to negative facts. Truthmakers for negative propositions are positive entities, which constitute the basis for reducing negative facts, since (IE) states that negative facts are determined by positive entities. It is true that in stating how negative facts are determined, these negative facts have to be mentioned in (IE), but this does not entail that the account is flawed by circularity.

### *Objection 2*

According to Molnar, (IE) fails to account for purely accidental negatives, negative states of affairs which are not necessitated by anything positive (Molnar 2000, p. 75, Armstrong 2004: 62-63).

Let's consider his example: "Marie is a particular atom in a pile of radium atoms. At time  $t$ , Marie is not in a decay state. There seems to be no *positive* state of affairs existing at  $t$  that either logically or nomically excludes Marie's being in a decay state at  $t$ " (Molnar 2000, p. 75).

As I understand Molnar's example, this is so because the indeterministic laws involved in decay processes warrant that there are possible worlds  $w$  and  $w^*$  such that Marie's positive states of affairs at  $t$  are identical in both worlds, except for the fact that Marie is in a decay state in  $w$  (at time  $t$ ) and Marie is not in a decay state in  $w^*$  (at time  $t$ ). Marie's positive states of affairs at  $t$  do not determine the truth of the proposition.

Be this as it may, I find this example unconvincing. What does it mean for a pile of radium atoms to be in a decay state in an instant  $t$ ? Decay is a process constituted by a series of temporally continuous states. Hence, it can be said that Marie is in decay state at time  $t$  if that state is part of a process of certain type (decay type). But then, being in a decay state at time  $t$  is not an intrinsic property of that state. No surprise, then, that the truth of <Marie is not in a decay state at  $t$ > is not determined by Marie's positive

states of affairs at  $t$ , since it depends on former and latter states of Marie. But, a reason should be given to justify that these other states cannot be positive.

Molnar also says that if it is assumed that laws are contingent and necessitation is conceived in a narrow sense<sup>9</sup> there are lots of cases like this. Think of laws like <If  $p$  is in state A then  $p$  is not F>. Assume that the only nomic determiner of  $p$ 's not being F is precisely its being in state A. As this determiner is contingent, there are possible worlds where  $p$  is in state A but is F.

But again, this kind of argument is unconvincing. What it shows is that there can be no nomic determiners of the truth of a negative predicative proposition. But it does not show that the putative negative fact that corresponds to the proposition is not necessitated in the narrow sense by positive facts concerning the entities that the proposition is about. And the latter, but not the former, is indeed what is required for the exclusion account to work. The fact that this wall is fully red necessitates in the narrow sense the truth of the negative proposition <This wall is not fully green>. It is irrelevant that nomic determiners of the negative state of not being fully green fail to necessitate in the narrow sense the truth of the negative proposition <This wall is not fully green>.

Another supposed example of purely accidental negatives mentioned by Molnar is <This liquid is odourless>.<sup>10</sup> Armstrong and Dodd generalize on this example: any proposition stating that an object has no determinate in the whole series of a determinable will raise the same problem (Armstrong 2004, pp. 62-63 and Dodd 2007, p. 387.) No positive property of the liquid seems to be involved in what makes true <This liquid is odourless>. It's rather the lack or absence of a positive property that seems to make the proposition true. Indeed, this is what is suggested by the logical form of the proposition stating that something has a negative property and by its contrast with <This wall is not fully green>. It is not difficult to find a positive excluder for the wall being fully green, due to the exclusion relation that holds between different determinates of the same determinable. <This liquid is odourless>, however, states that something has none of the determinates of a determinable, so we should not expect to find a simple positive excluder as we did in the former case. But no argument is given to show that an excluder cannot be found. Cases like this should be understood as "hard cases", advanced to challenge the exclusion theorist. A full account of the odourless liquid would depend on particular views on secondary qualities and surely also on specific empirical details of perceptual processes. I won't go into these details, but it seems plausible to say that there are positive states of affairs concerning this liquid such that they grant that the impact that it has on the olfactory sensitive receptors of certain organisms falls under certain threshold, or leaves them intact.

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<sup>9</sup> A 'logical' sense, Molnar says, but we can call it 'metaphysical'.

<sup>10</sup> The example is borrowed from Mulligan, Simons & Smith (1984).



#### 4. *What are the deliveries of exclusion accounts?*

In this section I will present and discuss Cheyne and Pidgen's (2006) exclusion account of negative propositions. I will also argue that their account of general existential propositions can be secured against Parsons' (2006) objections. First, take a negative predicative true proposition of type (1), like <Theaetetus is not flying> and suppose that Theaetetus is sitting on the ground. According to Cheyne and Pidgen the truthmaker of this proposition is the sum of all positive facts involving Theaetetus, which they gloss as *Theaetetus as he actually is* (Cheyne and Pidgen 2006, p. 259). Note that Theaetetus' sitting on the ground excludes that Theaetetus is flying, since it is not possible that Theaetetus is sitting on the ground and flying at the same time. Thus, as Theaetetus' sitting on the ground is a part of *Theaetetus as he actually is*, *Theaetetus as he actually is* necessitates the truth of <Theaetetus is not flying>. This is clearly an exclusion account, since the truth of a negative predicative proposition <*a* is not F> is grounded on something that excludes *a* being F.

Let us consider a negative partially general existential proposition: <There is no hippopotamus in Room S223>. Assume that each positive fact concerning a part of the room excludes that there are hippopotamuses in that part of the room and call what is essentially the sum of all such positive facts 'Room'. Thus, 'Room' names the room as it actually is. An instance of these kind of positive facts would be the fact that Peter is sitting in this chair in the room. Given how Peter and the chair are actually arranged, it is excluded that there is a hippo seated in this chair in the room.<sup>11</sup> Similarly, any positive fact concerning a part of the room excludes a hippo being in that part of the room. Thus, Room, which is essentially the aggregate of all such positive facts, excludes that there is a hippo in the room, so Room necessitates the truth of <There is no hippopotamus in Room S223>.<sup>12</sup> Room seems then well suited as a ground for the truth of the proposition. Truths of kind (5) have a similar treatment.

Cheyne and Pidgen conclude that there is no need to bring in a negative fact to ground the truth of negative partially general existential propositions and try to block an argument for an opposite conclusion. First, take a set of propositions P that states

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<sup>11</sup> What does ground that the exclusion relation holds between Peter's sitting in the chair and a hippo being seated in the chair? It could be thought that it is not sufficiently grounded if it depends on laws of nature which are contingent — as it could be argued. Although this objection could be answered by arguing for the necessity of laws, I think that this is not needed. In my view, what grounds this exclusion relationship is the following: (i) the fact that humans and hippos are essentially material objects and (ii) the metaphysical principle that holds that two different material objects cannot occupy the same spatio-temporal region. (It must be noted that this principle should be amended as to allow the well known cases of objects related by the constitution relation. A statue and the piece of clay that constitutes it can share their spatio-temporal location, but they are not strictly identical since they have different modal properties. The principle can be amended either by replacing 'different' by a more strict term that excludes different but constitution-related objects or by allowing co-occupancy just to objects sharing all their natural properties.)

<sup>12</sup> It is true that if Room 223 were bigger than it actually is it might include a hippo. So, Room 223 does not necessitate that there is no hippo in the room. However, Room itself (as opposed to Room 223) could not be bigger than it actually is as it has its intrinsic properties essentially. Hence, Room necessitates the hippo proposition.

Room. They note that P does not entail <There is no hippopotamus in Room S223>, since, for P to entail <There is no hippopotamus in Room S223>, P should include a proposition stating that there are no more first order facts concerning the room —call it < $p^*$ >. Thus, Room does not necessitate <There is no hippopotamus in Room S223> and, by necessitarianism, it is not a suitable truthmaker for this proposition.<sup>15</sup>

Cheyne and Pidgen's reply to this argument is mistaken, as Parsons shows (Parsons 2006: 598-600) But there is a good answer to it. The relation of necessitation involved in truthmaker necessitarianism is a *de re* modal relation. Let us assume that the fact that water is wet makes true <Liquid H2O is wet>. As water is in fact liquid H2O, the fact that water is wet is the fact that liquid H2O is wet. Hence, the fact that water is wet necessitates the truth of <Liquid H2O is wet>. This *de re* necessitation relation is not a logical, purely conceptual relation. In the example, it holds in virtue of the nature of water, although such nature cannot be attained by purely conceptual means. However, we should note that <Water is wet> does not *logically* entail <Liquid H2O is wet>; that is, there is no a priori, purely conceptual connection between the two propositions. An additional premise (<Water is liquid H2O>) is needed to obtain the conclusion by a priori means. We can conclude that a fact necessitating the truth of a proposition does not require that any proposition that states that fact must logically entail that proposition.

Now, observe that the argument for negative facts must make use of the notion of logical entailment to get off the ground. It is true that for P to *logically* entail <There is no hippopotamus in Room S223>, P should include a proposition stating that there are no more first order facts concerning the room. However, this does not grant the success of the argument, since it still does not show that Room does not necessitate the truth of <There is no hippopotamus in Room S223>. This is how I think Cheyne and Pidgen should answer the argument for negative facts based on the truth of negative partially general existential propositions.

Now, let us consider the true negative general existential proposition <There are no unicorns>. Cheyne and Pidgen's exclusion account of the truth of this proposition is the following: "*the (first-order) way the universe actually is (a very large and complex fact, but a positive fact nonetheless) makes it true that there are no unicorns*" (Cheyne and Pidgen 2006: 257). Let us call 'Worldy' to this big fact. Note that the set of propositions W that states Worldy does not logically entail <There are no unicorns>, since a totality proposition should be added to the set that states closure on the collection of first-order facts. However, as we observed formerly, this does not suffice to show that Worldy does not necessitate the truth of <There are no unicorns>. This modal *de re* relation between Worldy and the truth of the proposition can still hold, provided that Worldy's existence excludes that there are unicorns.

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<sup>15</sup> Moreover, this line of reasoning can be taken as a first step in a more complex argument for the need of totality facts. It has been concluded that only a set of propositions including at least those of P and < $p^*$ > entails <There is no hippopotamus in Room S223>. Then it is plausible to hold that <There is no hippopotamus in Room S223> is jointly made true by Room plus whatever makes true < $p^*$ >. But, what makes true < $p^*$ > is a totality fact: the fact that there are no more first order facts than those in Room.

According to Cheyne and Pidgen, exclusion holds also in this case:

([O]n the assumption that there are no unicorns) the universe would have to be a different way for unicorns to exist. Thus, the *way the universe actually is* would *not* exist and some other way the universe might have been *would* exist (namely a way which involved existing unicorns). In other words, for it to be *false* that that there are no unicorns, it is necessary for the actual configuration of the universe not to exist. Conversely, the existence of the actual configuration of the universe necessitates or *makes true* the proposition that there are no unicorns (Cheyne and Pidgen 2006, p. 257).

If correct, this argument would allow us to reject any claim for the existence of a totality fact based on the insufficiency of W to necessitate the truth of <There are no unicorns>. For, if Worldy necessitates the truth of the proposition, so does the set of propositions W that state Worldy.

It is important in this concern to note that Parsons advances a sensible general requirement that should be met by any attempt intended to solve the problem of negatives by appealing to the fact that the world *as it actually is* necessitates the truth of the unicorn proposition. Note that there is the worry that the world *as it actually is* should be conceived as a negative entity in order to grant the required necessitation. For this reason, an explication of the notion of positive entity must be provided such that: the world *as it actually is* counts as a positive entity on that account, and it is shown that the world *as it actually is* necessitates the truth of the unicorn proposition in a way that the problem is not solved by fiat. I will argue now how Cheyne and Pidgen's account can be shown to meet Parsons's requirement.

A crucial point is then whether, as Cheyne and Pidgen claim, Worldy, *the way the universe actually is*, would not exist were a unicorn present. Parsons rejects this point, arguing as follows. It is true that the fact that Worldy is configured as it actually is necessitates that *it* does not *contain* a unicorn, as it was true that Room necessitates the hippo proposition. However, Parsons claims that it is not true that the fact that Worldy is configured as it actually is necessitates that there is no unicorn at all. For, there is possibly a world that contains two universes, one of which is Worldy and the other contains unicorns (Parsons 2006, p. 595).

Parsons discusses and rejects a possible reply to his counterexample, which I think is the right one. The possible world entertained is wrongly described: it does not contain Worldy, but a mere intrinsic duplicate of it. Extrinsic, not only intrinsic, proper-

ties are essential to Worldy.<sup>14</sup> Worldy cannot show up in a possible world in an environment different from the actual one.<sup>15</sup>

Although Cheyne and Pidgen give no clue as to why we should think that Worldy is a positive entity, we are now in good position to argue for this. Worldy, the universe having its actual intrinsic and extrinsic properties essentially, is a mereological aggregate of causally operative entities. As it was argued in section 2, there are reasons to hold that no negative entity has this feature. Thus, on this interpretation, Cheyne and Pidgen account satisfies Parsons' requirement stated before.

Actually, Parsons raises an objection to the present proposal: "an essentialist of this kind has to say something more principled about their essentialism. It's not just obvious that anything worldly is essentially so. If this is Cheyne and Pidgen's view, then they should say more about what, other than convenience for present theoretical purpose, this view has going for it" (Parsons 2006: 600-601).

I have no argument to show that anything worldly is essentially so. Maybe there is another worldly thing besides Worldy that differs from Worldy in being a world only contingently. However, this point should not be overestimated. Granted, having independent reasons for positing Worldy would confer an important additional force to the account I am defending. But the lack of them just amounts to a relative weakness of the account, which should be assessed by comparing the account to other alternatives. After all, I have given theoretical reasons for the existence Worldy. Our world, being essentially a world, is needed to account for the ontological ground of the truth of negatives. This is what I think we should buy into unless we are willing to embrace negative entities in our ontology.

I conclude that Worldy, the universe having essentially its actual intrinsic and extrinsic properties, is a positive entity that necessitates the truth of the unicorn proposition, so it stands as a good candidate for making it true.

### 5. Conclusions

My main aim has been to show that there is a satisfactory way out to the problem of finding truthmakers for negatives suggested by Molnar's tetrad. First, I have argued

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<sup>14</sup> It is not completely clear whether Cheyne and Pidgen intend to include extrinsic properties in the essence of Worldy in their paper. On the one hand, as Parsons stresses, the analogy they draw between the hippo proposition and the unicorn proposition, and the fact that the hippo proposition only requires that Room's essence includes just intrinsic features, suggests that only intrinsic features are essential to Worldy. On the other hand, Cheyne and Pidgen's explicitly embrace the thesis that *a thing as it actually is* must include extrinsic features (when answering to another objection also raised by Parsons!). See Cheyne and Pidgen (2006, pp. 261-262). I consider that this second evidence trumps the first one. Other philosophers also adopt a solution of this kind. See Cameron (ms.), Lewis & Rosen (2003) and Schaffer (ms.).

<sup>15</sup> It should be noted that this does not commit us to negative extrinsic properties. As Worldy is not related to any external entity, it has no positive relational property. But, then, since there are no negative properties, Worldy has no extrinsic properties. When I say that Worldy has its extrinsic properties essentially what I mean is that any entity which differs from Worldy by having extrinsic properties must be different from Worldy.

that the two general objections that Molnar raises against exclusion accounts are not compelling. Second, I have argued that Cheyne and Pidgen's specific exclusion account succeeds in providing truthmakers for negatives and also in avoiding a negative ontology.<sup>16</sup>

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