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Metaphysical nihilism defended: reply to Lowe and Paseau

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1. I believe in metaphysical nihilism, the thesis that there could have been no concrete objects, because I believe in a version of the subtraction argument that proves it. But both Jonathan Lowe (2002) and Alexander Paseau (2002) express doubts about the version of the subtraction argument I defend. In particular Paseau thinks the argument is invalid, and Lowe thinks invoking concrete* objects is unnecessary. Furthermore Lowe attempts to rebut my objections (Rodriguez-Pereyra 2000) to his anti-nihilist argument (Lowe 1998). In what follows I shall defend the subtraction argument from Paseau's and Lowe's criticisms as well as show that the premisses of Lowe's anti-nihilist argument are still lacking support.

2. In his note on the subtraction argument Alexander Paseau argues that my version of the subtraction argument, in Rodriguez-Pereyra 1997, is not valid. He distinguishes two readings of the third premiss and shows that on either reading the argument does not come out valid. But neither of those is the intended reading. On the intended reading premiss (A3*) says that the non-existence of each of those concreta* does not necessitate the existence of any other concreta*, not merely of the concreta* of which the first two premisses speak.[1] This reading makes the argument valid. We can give a more perspicuous formulation of the subtraction argument* in the language of possible worlds as follows:

(A1*) There is a possible world w_1 with a finite domain of concrete* objects, $x_1,\ldots,x_n$.

[1] I think that something corresponding to this was the reading Thomas Baldwin (1996) intended for his corresponding premise (A3).

(A2*) For each of the concrete* objects x_i in w_1, there is a possible world w^* where x_i does not exist.

(A3*) The non-existence of any of the x_i that exist in w_1 does not necessitate the existence of any other concrete* object, whether or not these exist in w_1. That is: for all worlds w and for all the concreta* x_i in w_1, if x_i exists in w then if there is a world w^* where x_i does not exist, then there is a world w^{**} where the only existing concreta* are those of w except x_i (i.e. w^{**} is such that for every concrete* object y, y exists in w^{**} if and only if $y \neq x_i$ and y exists in w).

These premisses (plus the transitivity of accessibility) entail that it is possible that there are no concreta*. This means that there could have been no concrete objects. The reasoning from premisses to conclusion is as before. And the argument is valid. For (A3*), given (A2*), ensures that given a world w with at least one of the x_i that exist in the world w_1 of which premiss (A1*) speaks, we can always pass to a world w^{**} containing all objects of w except one of those x_i that exist in w. So, starting with w_1, by successively subtracting the x_i that exist in it, we eventually reach a world w_{min} with only one of the original x_i. But then, by premiss (A3*), since by premiss (A2*) there is some world w^* where this last x_i does not exist, there is also a world w^{**} where the only existing things are those of w_{min} except the x_i that exists in it. Clearly, w^{**} is w_{nil}, where no concreta*, and therefore no concrete objects, exist.

3. A concrete* object is an object that is concrete, memberless, and a maximal occupant of a connected region. The subtraction argument* uses concrete* rather than concrete objects because every object that occupies a space-time region has infinitely many concrete parts, each of them occupying some of the infinitely many regions included in the region the object occupies (Rodriguez-Pereyra 1997: 163). Thus the possibility of a world with a finite domain of concrete objects would depend on the possibility of a world with a finite number of concrete mereological atoms. This depends on the possibility of concrete mereological atoms.

Both possibilities are more controversial than the possibility of a world with a finite domain of concrete* objects.

Lowe thinks invoking concrete* rather than concrete objects is unnecessary, because he thinks that there is nothing incoherent in the notion of a concrete mereological atom. And he thinks that good candidates for this title are the fundamental particles of physics, like electrons and quarks. But these particles, Lowe emphasises, are spatiotemporally extended.

There are two thoughts here. The first is that there could be concrete mereological atoms. On this I suspend judgement. The second is that they could be extended in space. With this I disagree. Unless the electron is not an electron but a universal, that can be in more than one place at once, then what occupies the different parts of the region occupied by the electron are the electron's parts. Note, by the way, that this does not mean that electrons are composed of more elementary particles, as neutrons and protons are: all it means is that the electron is not wholly located at more than one place at the same time; it extends over a region of space by having parts located at each of those regions. So, if there are mereological atoms, these occupy a point, not a bigger region.

But even if there could be mereological atoms, it does not follow that there could be a world with a finite number of concrete mereological atoms. And even if there could be a world with a finite number of concrete mereological atoms, it does not follow that there could be a world with a finite number of concrete objects. Suppose such a world is impossible, and that every world containing a mereological atom contains some concrete object having some parts none of *whose* parts are atoms. Then there is no world with a finite domain of concrete objects. But there are still worlds with a finite domain of concrete* objects. This is a reason to formulate the subtraction argument in terms of concrete* objects.

But if mereological atoms occupy only a point, doesn't this mean that they are not concrete* objects? If so, it might be fatal for the subtraction argument*. For suppose every world containing any concrete object contains also an isolated mereological atom. Then the subtraction argument* will fail to get rid of isolated atoms and so, although it will prove the possibility of a world with no concreta*, it will fail to prove the possibility of a world with no concrete objects.

But isolated mereological atoms are concrete* objects. For a concrete* object is, among other things, one that is a maximal occupant of a connected spatiotemporal region. A region A is connected if and only if every two points in A can be joined by a path of points in A and disconnected if and only if it is not connected. No doubt a single point counts as a connected region, for it satisfies the right hand side of the biconditional, even if it contains no two points. And for a maximal occupant of a connected region I understood an object *x* that occupies a connected region and is such that for all *y*, if *x* is a part of *y* then *y* is scattered, where a scattered object is one occupying a disconnected region. So an isolated mereological atom counts as a maximal occupant of a connected region, and since it is also concrete and memberless, it counts as concrete*.

Thus, whether or not there are concrete mereological atoms, formulating the argument in terms of concrete* objects is better than formulating it in terms of concrete objects.

4. In Rodriguez-Pereyra 2000 I argued that Lowe had not adequately supported the second premiss of his anti-nihilist argument. The premiss in question is:

(2) Abstract objects depend for their existence upon there being concrete entities.

Lowe tried to support this premiss by arguing that the world with only abstract objects, which I shall hereafter call w_a, would be impossible because in that world, consisting only of universals and sets given certain theses of Lowe's metaphysics, 'the sets depend for their existence upon the universals and the universals depend for their existence upon the sets, creating a vicious circle which deprives both universals and sets of the possibility of existence' (Lowe 1998: 254). Lowe distinguishes three types of ontological dependence:

Weak existential dependence (D1): x depends for its existence upon $y =_{df}$ Necessarily, x exists only if y exists.

Generic dependence (D1g): x depends for its existence upon objects of type $T =_{df}$ Necessarily, x exists only if something y exists such that y is of type T.

Strong existential dependence, or identity dependence (D1**): x depends for its existence upon $y =_{df}$ Necessarily, the identity of x depends on the identity of y.

As Lowe says, that the identity of x depends on the identity of y means that which thing of its kind y is fixes which thing of its kind x is (Lowe 1998: 147).

In my previous article I pointed out that the universals and sets that exist in w_a are *mutually* dependent in the first two senses, while there is no mutual dependence between them in the third sense because, although the sets that exist in w_a strongly depend upon the universals in w_a, the universals in w_a do not strongly depend on those sets. I also pointed out that the mutual dependence of universals and sets in the first two senses should not mean that w_a is impossible, for there are other possible worlds where universals and sets exist that mutually depend in the first two senses (Rodriguez-Pereyra 2000: 337–8).

Lowe, in his reply, admits that while the sets in w_a would strongly depend upon the universals in that world, the universals in w_a would not strongly depend on those sets. But he thinks the trouble is still there. For, he thinks, it will still be the case that non-circular existence and identity conditions for universals will not be available.

Let me grant, for the time being, that we cannot specify non-circularly the existence and identity conditions for universals in w_a. Why should that prevent the possibility of a world where all there is are universals weakly dependent upon sets that strongly depend on those universals? More generally, why should Lowe require of a criterion of identity for Fs that it be non-circular, i.e. that a grasp of F-identity must not be needed to understand what is involved in the satisfaction of the condition stated by the criterion (Lowe 1998: 45)?

I can see no reason why. After all, Lowe's metaphysics is a realist one, where (some of) the things that exist, like universals and sets, are independent of our thought. The circularity Lowe has in mind, as well as other kinds of 'metaphysical impredicativity', would be a problem only for an antirealist, constructivist metaphysics. In a realist metaphysics there is no general reason why there could be no worlds where all there is are certain entities *C* that weakly and generically depend on entities *T* that strongly depend on entities *C* – nor is there even any general reason why there could be no entities of types *C* and *T* that are mutually strongly dependent.

5. According to Lowe, since in w_a the universals would be generically dependent upon sets and the sets would be strongly dependent upon universals, sets and universals would constitute a vicious circle that would prevent the existence of such a world. My point in this section is that that 'vicious circle' cannot make w_a impossible because the 'vicious circle' does not make other worlds, with concrete objects, impossible.

Consider w_a. The universal number 1 exists in w_a. The identity of 1 depends on certain features (but not the identity) of its instances, one of which is the set {1}. But {1} strongly depends on 1, that is the identity of {1} depends on the identity of 1. Whether vicious or not, this is a circle. Can this circle prevent the existence of a world where 1 has no other instances than sets? Only if it prevents the existence of other worlds where this circle would exist. But this circle occurs in all worlds with concrete objects. For in any possible world *w* with concrete objects there are one-membered sets, which are instances of 1. So 1 exists in *w*. And if 1 exists in *w*, so does {1}.

As I said, in my previous paper I pointed out that the mutual weak existential and generic dependence of universals and sets should not mean that w_a is impossible, for there are other possible worlds where universals and sets exist that mutually depend in those ways. Now we see that this also applies to the asymmetric kind of dependence exemplified by the sets and universals in w_a.

But Lowe thinks that the problem arises precisely from the fact that, by hypothesis, w_a fails to contain any kind of entity other than abstract objects. Lowe uses an analogy: '[o]ne might as well argue that because there are, unproblematically, worlds in which every brother or sister (sibling) necessarily has a brother or sister, it is unproblematic to suppose that there is a world in which *only* brothers or sisters exist'.

But the analogy does not work. For what would make a world with only siblings problematic or impossible is not that every sibling would have a sibling in that world, but that that world would fail to contain certain things that are required for there to be any siblings. Similarly, if w_a is impossible, what makes it so cannot be that the universals and sets in w_a exemplify a sort of dependence exemplified in other possible worlds, but that w_a fails to contain certain objects required by abstract objects, namely concrete objects. But if abstract objects require for their existence concrete objects, this is supposedly because some kind of circularity in their existence and identity conditions would prevent a world like w_a. But, as we have seen, the circularity in question also obtains in possible worlds where there are concrete objects. So the circularity in question cannot make w_a impossible, and the analogy does not hold.

But isn't there an important difference between w_a and worlds with concrete objects, namely that while in w_a all instances of universals strongly depend on the universals they instantiate, this is not the case in other worlds? But there is no such difference. For even in w_a there are universals that have instances that do not strongly depend on those universals. One example is the universal number 2, which has as an instance the set {5,6}. {5,6} does not strongly depend on 2 because 2 is not a member of {5,6}.

What is true is that in w_a *all* instances of universals will strongly depend on *some* universals. Every universal U_i in w_a is such that it has an instance S_i in w_a that strongly depends on some universal U_j in w_a which may or may not be identical to U_i. But those instances so depend on those universals in every world in which they exist, and they exist in every world in which those universals exist.

6. But what would the existence and identity conditions for universals be like in a world like w_a? In personal correspondence Lowe has said to me that he did not intend his argument in (2002) to depend on any specific proposal concerning existence and identity conditions of universals. But to assess whether those conditions would be circular in w_a we need some specific conditions. Let us assess whether the following two conditions would be circular in w_a, since they are independently plausible existence and identity conditions for universals:

(E) A universal U_1 exists just in case there are some entities, $I_1, \ldots, I_n$, which are its instances.

(I) A universal U_1 is identical with a universal U_2 just in case U_1 and U_2 are instantiated by the same instances in every possible world.[2]

But are conditions (E) and (I) circular in a world with only universals and sets? If so, why? They are circular, presumably, because (a) since the instances of a universal U_1 are sets, a necessary condition of the existence of a given set S_1 is that the universal U_1 of which it is an instance should exist and (b) what determines whether the same sets are instances of both U_1 and U_2 is the identity or non-identity of U_1 with U_2.

But whether or not (E) and (I) are circular, to say that in a putative world we would be unable to specify, non-circularly, the existence and identity conditions for universals is not right. Existence and identity conditions for universals (and for any other sort of entity) do not vary from world to world. So if they are circular in a world they are circular in all. For when are existence and identity conditions circular? An identity condition for Fs is circular when a grasp of F-identity is needed to understand what is involved in the

[2] Note that (I) is not exactly analogous to the condition Lowe gives for the identity of holons. The exactly analogous condition would be clearly unacceptable. Lowe would be inclined to accept (E) and (I) (Personal correspondence).

satisfaction of the condition in question (Lowe 1998: 45). Similarly, we might suppose, an existence condition for Fs is circular when a grasp of F-existence is needed to understand what is involved in the satisfaction of the condition in question.

Are (E) and (I) circular? To answer this question, we must know what the possible kinds of instances of universals are, namely sets, material objects etc. If we can understand what the existence and identity conditions for sets, material objects, etc. are without having to understand what the existence and identity of universals consist in, then (E) and (I) are not circular. And it seems we can. For, to take the case of sets as an example, it is surely possible to understand what it is for a set to exist and what it is for sets S_1 and S_2 to be identical without understanding what a universal is and, a fortiori, without understanding what the existence and identity conditions for universals are (this might be the case of some philosophers who claim to understand what sets are but not to understand what universals are). But then it does not matter whether in a certain world the only instances of universals are sets having those universals as members: it is still the case that we can understand (E) and (I) without previously understanding what the existence and identity conditions for universals are and so (E) and (I) are not circular in that world. Indeed they are not circular in any world.

7. Lowe also argues that in w_a universals would have the status of substances, which goes against Lowe's Aristotelian conception of them. Lowe says that universals must have, in any possible world in which they exist, instances that are not dependent for their identity upon those universals. And so, Lowe claims, it is the fact that universals do not have ontological priority over the particulars exemplifying them that explains why we must reject as impossible the world in which only universals and sets exist. For in that world the principle of ontological priority would be violated and universals would have the status of substances, a status accorded to them by a Platonic but not by Lowe's Aristotelian conception.

But a substance for Lowe is a *particular* that does not strongly depend upon anything other than itself (Lowe 1998: 151, 158). So there is no risk that the universals in w_a

would be substances, since those universals would still be universals, not particulars. But Lowe's claim that a substance is a particular is not an *ad hoc* or arbitrary stipulation. He gives reasons why a universal would not qualify as a substance, namely that while substances are generically dependent upon entities that are not wholly distinct from themselves (like their parts and their particular properties), universals are generically dependent upon their instances, which are wholly distinct from themselves (Lowe 1998: 159). But surely particular substances are generically dependent upon universals, for particular substances could not exist without instantiating universals. But universals are wholly distinct from particular substances. So it looks as if by this criterion particular substances and universals should already be on a par as far as substantiality is concerned.

But, anyway, it is worth noting that although particular substances are like universals in that they are generally dependent upon entities wholly distinct from them, the universals in w_a are not substances. For recall what Lowe says about the identity of numbers, namely that 'each number depends for its identity on the identity of the others, because its identity is determined by its position in the number series' (Lowe 1998: 160). This means that numbers are not substances, since each of them strongly depends upon something other than itself. But the universals in w_a are numbers; so the universals in w_a are not substances.

But is this not a problem? For if the universals in w_a are not substances then nothing is a substance in w_a. Does this not show that w_a is impossible? After all the idea of a substance is the idea of that which grounds the rest of existence. A world where there are no substances would be a world where either there is an infinite chain of 'groundings' or there is a circle of 'groundings'. In such a world existence would not be well founded, thus violating a sort of ontological axiom of foundation (Lowe 1998: 158, 171). But in §4 above I pointed out that there is no reason why certain ontological circles should be prohibited by a realist metaphysics. And, in general, I think, there is no a priori reason why a realist metaphysics should postulate an ontological axiom of foundation. So in w_a the sets are grounded in the universals and the universals, being numbers, are grounded in each other. That there are no substances in w_a should not make it impossible.

8. In Rodriguez-Pereyra 2000 I also attacked Lowe's way of supporting the first premiss of his argument:

(1) Some abstract objects, like natural numbers, exist necessarily.

Lowe supports (1) partially on his thesis that mathematical truths are necessary. But, I argued, using this thesis to support premiss (1) begs the question. For, I argued, for Lowe the truthbearers of those truths are propositions, which are abstract objects. So Lowe tries to support premiss (1), which says that some abstract objects exist necessarily, by assuming that some other abstract objects exist necessarily (Rodriguez-Pereyra 2000: 339).

To this Lowe replies by making a distinction between the existence of a truthbearer and the obtaining of a truth. For Lowe a truth can obtain in a world where there is no truthbearer. So all he needs to assume is the necessary obtaining of mathematical truths, which does not require the necessary existence of any abstract objects except the mathematical objects that are truthmakers of mathematical truths.

This might be a way of avoiding the charge of begging the question, but more would have to be said about what it is for a truth to obtain in a world. For example, Lowe says that 'a mathematical truth *is* a truthbearer – something which is true, not something which *has* a truthbearer'. But then how can a truth obtain without a truthbearer obtaining? And what is it for a truthbearer to obtain if not to exist? What is it that has the property of being true when a truth obtains but no truthbearer does? These questions need to be answered to adequately and fully support premiss (1).

9. I have defended the subtraction argument* from Lowe's and Paseau's objections. The argument is valid and the appeal to concrete* objects justified. Furthermore, the premisses of

Lowe's anti-nihilist argument are still lacking support. Metaphysical nihilism remains well supported by the subtraction argument*.[3]

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