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(even solitary midnight feasts) and feasters, and football matches and footballers of distinct ontological categories? Well, football may be a game of two halves, but the first half of a football match is not itself a football match, whereas (ignoring the distinction between phase and substance sortals for the moment) as endurantists (all those who accept that continuants endure in the original sense defined in the text) would agree, every temporal part of a footballer is a footballer. Not ignoring the distinction between phase and substance sortals, we can say that if a substance sortal '*F*' is a term for a type of continuant, every temporal part of an *F* is an *F*. That is the distinction between continuant terms and event-or-process terms and therewith between continuants and events-or-processes themselves.

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## ***Bringing about and conjunction: a reply to Bigelow on omnificence***

GHISLAIN GUIGON

1. Bigelow (2005) has argued, adapting an argument from Humberstone, that from

- (B2) There is a finite class of actual beings such that,  
       for any contingent proposition *p*,  
       if *p* then some being in this class *did* bring it about that *p*.

we can derive,

- (B3) There is an actual being *G* such that,  
       for any contingent proposition *p*,  
       if *p* then *G* brought it about that *p*.

Thus, that there is an *omnificent* being.

Humberstone's (1985) original argument is that, on the assumption that the knowledge operator is monotonic, from

- (K2) For any true proposition  $p$ ,  
       there is someone who knows that  $p$ .

we can derive

- (K3) There is someone who knows every truth.

Thus, that there is an omniscient being.

Atheists should agree with Bigelow that the derivation from (B2) to (B3) constitutes a challenge. For, in contrast to (K2), (B2) is plausible, and (B3) is remarkably close to the thesis that there is a God. In this article, I shall indicate three ways to block Bigelow's challenge to atheism. One way makes Bigelow's reasoning, if sound, worthless to the atheist; the other two make it unsound.

2. Bigelow's derivation from (B2) to (B3) runs as follows. Suppose for *reductio* that (B2) is true and (B3) is false. By (B2), for any contingent truth  $p$  something brought it about that  $p$ . But by the negation of (B3) for each actual being  $x$ , there is some true contingent proposition  $q(x)$  that  $x$  did not bring it about that it is so. Now form  $X$ , the conjunction of all the true contingent propositions of the form  $(q(x)$  and  $x$  did not bring it about that  $q(x))$ . A conjunction of contingent truths is contingent and true. Hence by (B2) something,  $y$ , brought it about that  $X$ . Then  $y$  brought it about that  $X$ ; and yet, by the negation of (B3),  $y$  did not bring it about  $q(y)$ , which is one of the conjuncts of  $X$ . Yet this is absurd. Therefore, if (B2) is true, so is (B3). (Bigelow 2005: 191–92).<sup>1</sup>

The *reductio* is complete in the presence of the following ancillary assumption:

1 Because this is a reply to his paper, I stick here to Bigelow's presentation of the *reductio*. But it should be noted that, in his original *reductio* about knowledge, Humberstone (1985: 401) appeals to no such conjunction of all the propositions of the form  $(q(x)$  and  $x$  does not know that  $q(x))$ . What Humberstone appeals to is an arbitrary conjunction such that to each knower there corresponds some conjunct of the latter that this knower does not know. That such an arbitrary conjunction can be formed, provided (K2) is true and (K3) is false, is uncontroversial. However, we can question whether  $X$  can be formed. For we can wonder whether or not  $X$  is a proposition such that something did not bring it about that  $X$ . That everything did bring it about that  $X$  yields, on the assumption that (B3) is false, the implausible result that nothing is such that it did bring about every conjunct of  $X$  even though everything brought it about that  $X$ . On the other hand, if there is some  $z$  such that  $z$  did not bring it about that  $X$ , then there is a true proposition of the form  $(X(z)$  and  $z$  did not bring it about that  $X(z))$ , which has  $X$  as a conjunct. But since  $X$  is the conjunction of *all* the true propositions of the form  $(q(x)$  and  $x$  did not bring it about that  $q(x))$ ,  $(X(z)$  and  $z$  did not bring it about that  $X(z))$  is a conjunct of  $X$ . If so  $X$  is a conjunct of a proposition that is a conjunct of  $X$ , and so  $X$  fails to be well-founded.

(CB) for any contingent  $p$  and  $q$  and for any  $x$ , if  $x$  brings it about that  $p \& q$ , then  $x$  brings it about that  $p$  and  $x$  brings it about that  $q$ .

(CB) is a corollary of the assumption that the bringing about operator is monotonic. Bigelow offers no motivation in favour of (CB). The question is: what brings about conjunctions of contingent truths? I shall consider three plausible candidates:

- (i) What brings it about that  $p \& q$  is what changes a state of the world in which  $p \& q$  is false into a state of the world in which  $p \& q$  is true.
- (ii) What brings it about that  $p \& q$  is the mereological fusion of what brings it about that  $p$  and what brings it about that  $q$ .
- (iii) What brings it about that  $p$  and what brings it about that  $q$  *jointly* bring it about that  $p \& q$ .

I shall first argue that if (i) is the case, then (CB) fails. Then I shall argue that if (ii) is the case, and (B2) and (CB) are both true, commitment to an omnificent being is compatible with atheism. Finally, I shall argue that if (iii) is the case, then (B2) plausibly fails.

3. Humberstone (1977) has argued that, on the assumption that (i) is true, (CB) fails by means of a simple counter-example. Suppose there is a cup and nothing else on the table, and I have a saucer in my hand. Then by placing the saucer on the table I bring it about that there is a cup and a saucer on the table, because I change a state of the world in which it is false that there is a cup and a saucer on the table into one in which it is true that there is a cup and a saucer on the table. Yet, I do not bring it about that there is a cup on the table since the latter was true before I acted. Therefore, if (i) is true, then (CB) fails and Bigelow's derivation is unsound.

4. However, one may argue that if I do not bring it about that there is a cup on the table, then I do not bring it about that there is a cup and a saucer on the table on the grounds that what brought it about that there is a cup on the table should be part of what brings it about that there is a cup and a saucer on the table.

Consider another example. Suppose that the Big Bang brought it about that there is matter and that the Georgian government's assault against South Ossetia brought it about that Russia invaded Georgia. It seems misleading to affirm that the Georgian government's assault against South Ossetia brought it about that there is matter and Russia invaded Georgia even if it is true that the Georgian government's assault against South Ossetia changed a state of the world in which it is false that there is matter and Russia invaded Georgia into a state of the world in which that conjunction is true. Because the Big Bang is what brought it about that there is matter, the Big Bang should be part of what brought it about that there is matter and Russia invaded Georgia as well.

One may thus uphold (ii) instead of (i) and maintain the following as a principle of action theory:

(FB) for any contingent  $p$ ,  $q$  and any  $x$  and  $y$ , if  $x$  brings it about that  $p$  and  $y$  brings it about that  $q$ , then the mereological fusion of  $x$  and  $y$  brings it about that  $p \& q$ .

Suppose that (B2) is true so that, for every contingent  $p$ , there is something that brought it about that  $p$ . Now form  $Y$ , the conjunction of every contingent truth. By (FB) what brought it about that  $Y$  is the mereological fusion of all the entities that brought about some contingent truth. If so and if (CB) is true, the mereological fusion of all the entities is our omnificent being: it brought about every contingent truth. Obviously, commitment to the existence of the mereological fusion of all the entities that brought about some contingent truth is compatible with atheism. Therefore, adding (FB) to (B2) and (CB) makes the conclusion of Bigelow's derivation compatible with atheism.

However, that (CB) and (FB) are both true seems unlikely. Suppose they are and suppose again that the Big Bang brought it about that there is matter and that the Georgian government's assault against South Ossetia brought it about that Russia invaded Georgia. By (FB) the mereological fusion of the Big Bang and the Georgian government's assault against South Ossetia brought it about that there is matter and Russia invaded Georgia. And by (CB) the mereological fusion of the Big Bang and the Georgian government's assault against South Ossetia brought it about that there is matter. But the latter is counterintuitive. How could the Georgian government's assault against South Ossetia be part of what brought it about that there is matter?<sup>2</sup>

5. It is somewhat counterintuitive to assume that there is a single entity, the Big Bang and myself somehow mereologically fused, that brought it about that there is matter and the saucer is on the table. We may thus reject (ii) and instead uphold (iii): what brings it about that  $p$  and what brings it about that  $q$  *jointly* bring it about that  $p \& q$ . What does it mean to jointly bring it about that some truth is so?

The bringing about operator is an operator of *causal grounding*: if I bring it about that the light is on by switching the light on, then I causally ground that the light is on; the light is on *because of* me.

Consider the following operator of partial grounding (Correia 2005: 60):

(PG) for any  $x$ ,  $x$  partially grounds  $A$  iff there are some  $y, \dots$  such that  $x, y, \dots$  ground  $A$  (where each member of the list ' $x, y, \dots$ ' is assumed

2 This reasoning is analogous to Rodriguez-Pereyra's (2006: 970–71) objection against (CB)'s counterpart in *Truthmaker Theory*: the left-to-right direction of the popular *Conjunction Thesis*.

to non-trivially contribute to the grounding of A; i.e. to play a role in the grounding of A).

Then, let an operator of *partial bringing about* be defined as follows:

(PB) for any contingent  $p$  and any  $x$ ,  $x$  partially brings it about that  $p$  iff there are some  $y, \dots$  such that  $x, y, \dots$  ground that  $p$  is the case (where grounding is *causal*).

So a partial cause for a given truth is something which *helps bring it about* that that truth is so. In contrast, let us say that

(B) for any contingent  $p$  and any  $x$ ,  $x$  brings it about that  $p$  iff  $x$  grounds that  $p$  is the case (where grounding is *causal*).

Suppose now that  $a$  brings it about that  $p$  and  $b$  brings it about that  $q$ . Then to say that what brings it about that  $p$  and what brings it about that  $q$  *jointly* bring it about that  $p \& q$  means that

(JB) each of  $a$  and  $b$  partially brings it about that  $p \& q$  but none of them brings it about that  $p \& q$ .

Suppose that (iii) is true. Then, unless we beg the question in favour of an actual omniscient being, there can be conjunctions of contingent truths such that no actual being did bring it about that they are so, but such that several actual beings jointly brought it about that they are so. Plausibly, that Julius Caesar and John F. Kennedy have been assassinated is one such conjunction. If so, (iii) being assumed, (B2) plausibly fails and should be replaced by the following:

(B2\*) There is a finite class of actual beings such that,  
for any contingent  $p$ ,  
if  $p$  then some being in this class partially brought it about that  $p$ .<sup>3</sup>

However, nothing like the claim that there is an omniscient being follows from (B2\*) and (CB).

If we maintain the following counterpart of (CB), then we can at best derive that there is a *partial omniscient being*; something such that, for every contingent truth, it did help bring it about that that truth is so:

(CB\*) For any contingent  $p, q$  and for any  $x$ , if  $x$  partially brings it about that  $p \& q$ , then  $x$  partially brings it about that  $p$  and  $x$  partially brings it about that  $q$ .<sup>4</sup>

3 Instead of (B2\*), we might have proposed the following substitute to (B2): there is a finite class of actual beings such that, for any contingent  $p$ , if  $p$  then either some being in this class brought it about that  $p$  or some beings in this class jointly brought it about that  $p$ . However, the latter entails (B2\*) by definition. Notice also that the theoretical role of (B2) is to assert that every contingent truth is causally grounded and that (B2\*) plays this role equally well.

But (CB\*) is highly implausible on the assumption that (iii) is true. For assume that the Big Bang and the Georgian government's assault against South Ossetia jointly brought it about that there is matter and Russia invaded Georgia. Then (CB\*) tells us that the Georgian government's assault against South Ossetia partially brought it about that there is matter. This is so because, (iii) being assumed, the Georgian government's assault against South Ossetia partially brought it about that there is matter and Russia invaded Georgia. Yet there is no way the Georgian government's assault against South Ossetia can have helped causing that there is matter.

6. I offered three plausible accounts of what brings about conjunctions of contingent truths. I have shown that each of these accounts allows us to undermine Bigelow's derivation of an omnificent being: the first falsifies (CB) and makes Bigelow's derivation unsound; the second makes commitment to an omnificent being compatible with atheism and Bigelow's derivation harmless if sound; according to the third, it is plausible that (B2) fails.

Is there a further candidate for what brings about conjunctions of contingent truths that would make Bigelow's derivation sound and its conclusion inconsistent with atheism? Yes, an omnificent supernatural agent. But if one needs to beg the question in favour of a supernatural agent to make it sound and its conclusion incompatible with atheism, Bigelow's derivation of an omnificent being must be regarded as a further failed attempt of a proof that there is a God.<sup>5</sup>

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4 That there is a partial omnificent being can be derived from (B2\*) and (CB\*) by *reductio*. Suppose that (B2\*) is true and that there is no partial omnificent being. Then every contingent truth is such that something partially brought it about that it is so; and yet, for every entity  $x$ , there is a true contingent proposition  $q(x)$  such that  $x$  did not partially bring it about that  $q(x)$ . Form  $X^*$ , the conjunction of all the true propositions of the form ( $q(x)$  and  $x$  did not partially bring it about that  $q(x)$ ). By (B2\*), there is a  $y$  such that  $y$  partially brought it about that  $X^*$ ; and yet, since there is no partial omnificent being,  $y$  did not partially bring it about that  $q(y)$ , which is a conjunct of  $X^*$ . By (CB\*) however, since  $y$  partially brought it about that  $X^*$ ,  $y$  partial brought about each conjunct of  $X^*$ , including  $q(y)$ . Contradiction.

5 I would like to thank John Bigelow, Fabrice Correia, Jack Darach, Lloyd Humberstone, Gonzalo Rodriguez-Pereyra, Kate Salter and the participants to the 9th *eidos* meeting for their helpful comments.

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## *The Simulation Argument: some explanations*

NICK BOSTROM

Anthony Brueckner, in a recent article, proffers ‘a new way of thinking about Bostrom’s *Simulation Argument*’ (2008). His comments, however, misconstrue the argument; and some words of explanation are in order.

The Simulation Argument purports to show, given some plausible assumptions, that at least one of three propositions is true (Bostrom 2003; see also Bostrom 2005). Roughly stated, these propositions are: (1) almost all civilizations at our current level of development go extinct before reaching technological maturity; (2) there is a strong convergence among technologically mature civilizations such that almost all of them lose interest in creating ancestor-simulations; (3) almost all people with our sorts of experiences live in computer simulations. I also argue (#) that *conditional on* (3) you should assign a very high credence to the proposition that you live in a computer simulation. However, *pace* Brueckner, I do not argue that we should believe that we are in simulation.<sup>1</sup> In fact, I believe that we are probably not simulated. The Simulation Argument purports to show only that, as well as (#), at least one of (1)–(3) is true; but it does not tell us which one.

Brueckner also writes:

It is worth noting that one reason why Bostrom thinks that the number of Sims [computer-generated minds with experiences similar to those typical of normal, embodied humans living in a Sim-free early 21<sup>st</sup>

1 Brueckner writes (224): ‘Nick Bostrom has argued that given some plausible assumptions, we should believe that we are not humans but rather conscious computer simulations of humans (Bostrom 2003).’