PROBLEMS WITH THE BOOTSTRAPPING OBJECTION TO THEISTIC ACTIVISM

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Introduction

Many traditional theists are deeply committed to the doctrine of divine *aseity* — the doctrine that "God alone exists *a se*; all other things exists *ab alio*" (Craig 2014, p. 113). More specifically, the doctrine has two components: (i) God's existence is independent of all other things, and (ii) all other things depend on God — God both creates all other things and sustains them in existence.[1] On the face of it, divine aseity, so understood, is inconsistent with classical Platonism, i.e., the view that there are objectively existing, abstract objects — numbers, pure sets, general properties like *wisdom*, *redness*, etc. For according to the classical Platonist, at least some abstract entities are wholly uncreated, necessary beings and, hence, as such, they also exist *a se*; like God, they depend on nothing for their existence.[2]

The thesis of *theistic activism* purports to reconcile aseity with a robust Platonism (see Morris and Menzel 1986, Menzel 1987). Specifically, the activist holds that God creates the necessary, abstract objects of traditional Platonism no less than the contingent concrete objects of the physical universe[3] and hence that, like all created things, they exist *ab alio* after all, their necessity notwithstanding.[4] But many philosophers believe a severe roadblock for activism remains — a problem known as the *bootstrapping objection* that (so it is purported) renders activism "hopelessly incoherent" (Gould 2011, p. 259). The *locus classicus* of the objection — indeed, it appears to be the only detailed exposition of it — is a 2006 paper by Michael Bergmann and Jeffrey Brower (henceforth, B&B). Despite widespread faith in the deliverances of this argument, I will show that it is open to significant objections on several fronts.

1. The Bootstrapping Objection

William Craig (ms, p. 4) gives us the bootstrapping objection in a nutshell: "[I]n order to create properties, God must already possess properties, which involves a vicious circularity." In our 1986 paper, Morris and I (henceforth M&M) explored a simple version of this objection and found it unconvincing. More specifically, as we saw it, the bootstrapping objection depends on an unwarranted conflation of existential and causal dependence to deliver the alleged circularity — the metaphysical impossibility that God is causally dependent upon God. Say that *a* is *existentially dependent on b* if and only if *a*'s existence entails *b*'s, i.e., if and only if, necessarily, *a* exists only if *b* does,[5] and that *a* is *causally dependent* on *b* if and only if (crudely) *b* has caused it to be the case that *a* exists. Now, let *D* be God's nature, *divinity.* According to activism, since God creates all the properties and *D* is a property, God creates *D*. Hence, *D* is causally dependent upon God. At the same time, as *D* is a necessary being, it is necessarily the case that God exists only if *D* does. Hence, God is existentially dependent upon God's own nature *D*. But the conclusion that God is causally dependent on God follows only if one adopts a "bridge" principle asserting that transitivity holds across these two very different types of dependency — that is, a principle asserting that, from the fact that *a* is causally dependent on *b* and *b* is logically dependent on *c*, we can infer that *a* is causally dependent on *c*. But there is simply no reason whatever to think that such a principle is true. Thus, M&M conclude (ibid., p. 360):

> It just seems to us that there is nothing logically or metaphysically objectionable about God's creating his own nature in precisely the way indicated.

In fact, B&B find nothing awry in the reasoning that leads M&M to this conclusion; the conclusion itself however, B&B claim (2006, p. 364), is a *non sequitur*:

> [w]e suggest that the reason *it just seems to [Morris and Menzel]* that there is no objectionable circularity is that [they aren't] clear enough about precisely what the objectionable circularity is.

That is, B&B argue that M&M missed the fact that there is a further fundamental dependency relation beyond existential and causal dependency that they call *logical posteriority*. The real bootstrapping objection involves this variety of dependence (and its converse *logical priority*). They sketch the argument thus (ibid., p. 366):

> If...theistic activism is true, then every property...will be a product of God's creative activity. But this implies the general principle that, for any property F, God's creating F is a prerequisite for, and hence logically prior to, F. Notice, however, that in order to create F, God must have the property of being able to create a property. Here is where the trouble begins. For on the one hand, it would seem that this property (i.e., being able to create a property) must be logically prior to God's creating it, since God's having it is a prerequisite for the creation of any property. On the other hand, however, it would also seem that this property must be logically posterior to God's creating it, since insofar as it is a property..., it must...be a product of God's creative activity. Evidently, therefore, in order for it to be true that God is the creator of all properties, there must be a property—namely, being able to create a property—that is both logically prior and logically posterior to God's creating properties. Assuming that logical priority is an asymmetrical relation, however, this conclusion is obviously absurd.

B&B's bootstrapping objection — henceforth, *BBBO* — is subtle and interesting but, as noted, is vulnerable to a number of important objections. My criticism is two-pronged. First, BBBO is very informal, and this hinders comprehension. I will provide a logical framework that I think makes the logic of the argument much clearer. This in turn will uncover a problem that, while perhaps not insurmountable, at least reveals that BBBO rests upon shaky and incomplete foundations. I will then turn to two more philosophically substantive objections. Specifically, I will argue (a) that there are no cogent grounds for taking the relation of logical priority that is so

central to BBBO to be a genuine, fundamental relation and (b) even if we admit such a relation exists, there are strong reasons for thinking it is not asymmetrical.

2. A Logical Framework for BBBO

Logical priority rather than its converse logical posteriority takes center stage in B&B's detailed version of BBBO. I will represent it with the less-than predicate $<$ — a natural enough symbol for one thing coming "before" another in order of logical priority. Now, two significant questions are: what sorts of syntactic entities are the fundamental arguments to this predicate and, relatedly, what are the relata of the corresponding relation? In B&B , one finds both sentential gerunds (S-gerunds) like "God's creating *F*" and verb phrase gerunds (VP-gerunds) like "being able to do *A*" flanking "is logically prior to". But one also finds ordinary singular terms like 'God', 'the thinker', the variable '*F*', and even plurals like 'its parts'. However, I think it is reasonably clear that S-gerunds are the fundamental arguments of "is logically prior to" and that we can reduce all the other cases to those. Specifically, when t is anything other than an S-gerund, we can take "t is logically prior to X" and "X is logically prior to t" to mean "t's existing is logically prior to X" and "X is logically prior to t's existing". The answer to our second question, then, depends on what we take S-gerunds to denote. I will follow B&B here and take them to denote *states of affairs*. B&B do not address the metaphysics of states of affairs and, on the face of it, their exact nature is not central to the argument. For the sake of clarity, I will make use of square brackets around English gerunds in my natural language rendering of, and discussion of, BBBO. This is especially useful when a VP-gerund is embedded within an S-gerund, as in "God's exemplifying being able to create", which I will write as "[God's exemplifying [being able to create]]".

To represent BBBO formally, I will use a flexible second-order language (call it $\mathcal{L}^*$) in which predicates also count as singular terms that can occur as arguments in atomic formulas, as the argument seems to require and certain predicates play both syntactic roles.[6] For purposes here, the only second-order variables that seem to be required by the argument are 1-place variables '*F*', '*G*', '*H*', …; intuitively, of course,

these range over properties. It is also convenient to introduce special variables 'p', 'q', 'r', ... ranging over states of affairs (as opposed to a dedicated predicate expressing the property of being a state of affairs); the exact syntactic classification of these variables is an issue that will arise below. To represent S-gerunds formally, I will use square brackets as term-forming operators so that, when a formula φ represents a sentence of natural language, "$[\varphi]$" represents the corresponding S-gerund. Thus, "x's being [or exemplifying] F" will be represented as "$[Fx]$"; and "t's existing" will be represented as "$[E!\, t]$". To express complex properties, I will use familiar λ-notation. Thus, in particular, "being able to do A", where A indicates some action property, will be represented as "$[\lambda x \Diamond Ax]$" — read literally: "being an x such that x is able to do A". (It is important to note that nothing deep is built into the use of the standard possibility operator $\Diamond$ to capture the modal element of being *able* to perform some action. I am in particular not meaning to imply that the power of x to do A is to be *analyzed* simply as the possibility of x doing A. For purposes of the argument, all that is needed is that the contribution of "is able to" in "x is able to do A", however construed exactly, is represented so that "being able to do A" and "doing A" can be taken to indicate distinct properties.) This plays out in my representation of BBBO as follows. Note first that, although BBBO as B&B present it involves a binary "depends on the creative activity of" predicate as well as "creates", it seems to me they only introduce the former for expository reasons and that "creates" is all one needs. I will represent it with the binary predicate "C".[7] In the case of the property [being able to create a property], i.e., [being able to create some property or other], then, I will let "C", when used as a 1-place predicate, stand for the complex property [creating a property], i.e., $C =_{df} [\lambda x \exists F\, CxF]$.[8] Accordingly, I will represent [being able to create a property] as "$[\lambda x \Diamond Cx]$". (Henceforth I plan to be more careless about quotes and will usually leave it to context to establish whether formal expressions are being used or mentioned.)

3. The Argument

We begin our formalization of BBBO with five general principles that B&B invoke as justification for several premises and inferences in the argument. In fact, I don't think all of these assumptions are needed; in a couple of cases, I think the general principles are more dubious than the instances of those principles that are used in the argument. Nonetheless, I present all five in order to remain as faithful as possible to the form of BBBO as presented in B&B .

A1 For any property F, if God creates F, then [God's creating a property] is logically prior to F (i.e., to [F's existing]).

$\forall F(CgF \rightarrow [Cg] < F)$

A2 For any x and any (action) property F, [x's being able to do F] is logically prior to [x's doing F].

$\forall x \forall F([\Diamond Fx] < [Fx])$

A3 For any property F and any x and p, if [x's exemplifying F] is logically prior to p, then F is logically prior to p.

$\forall F \forall x \forall p([Fx] < p \rightarrow F < p)$

A4 For any x and any (action) property F, [x's being able to do F] = [x's exemplifying [being able to do F]].

$\forall x \forall F([\Diamond Fx] = [[\lambda y \Diamond Fy]x])$

A5 Logical priority is asymmetrical.

$\forall pq(p < q \rightarrow q \not< p)$

Now for the argument.[9]

1. God creates all the properties.

   $\forall F\ CgF$ (Assumption for *reductio*)

2. For any property F, [God's creating a property] is logically prior to F.

   $\forall F\ [Cg] < F$ (From 1 and **A1**)

3. [God's creating a property] is logically prior to the property [being able to create a property].

   $[Cg] < [\lambda x \Diamond Cx]$ (From 2)

4. [God's being able to create a property] is logically prior to [God's creating a property].
   $[\Diamond Cg] < [Cg]$ (From **A2**[10])
5. [God's exemplifying [being able to create a property]] is logically prior to [God's creating a property].
   $[[\lambda x \Diamond Cx]g] < [Cg]$ (From 4 and **A4**[11])
6. [Being able to create a property] is logically prior to [God's creating a property].
   $[\lambda x \Diamond Cx] < [Cg]$ (From 5 and **A3**)
7. Contradiction.
   $[Cg] < [\lambda x \Diamond Cx] \wedge [Cg] \not< [\lambda x \Diamond Cx]$ (From 3, 6, and **A5**)
8. God does not create all the properties.
   $\neg \forall F\ CgF$ (1-7, by *reductio*}

4. Problems with the Argument

The above argument is valid and, I believe, it is faithful to BBBO. However, the argument suffers from three problems that call its soundness into question. I discuss these in detail in the following three subsections.

4.1. Problems for Principle A4

Fundamental to B&B's justification for BBBO and, in particular, for principle **A4**, is the claim that theistic activism's commitment to Platonism is motivated by the desire for a "unified account of predication in terms of exemplifiables," as expressed in the following principle (362):

P The truth of *all* true predications, or at least of all true predications of the form "a is P", is to be explained in terms of a subject and an exemplifiable (however exemplifiables are themselves to be conceived).[12]

As I understand it, **P** is a sort of *comprehension principle*. Comprehension principles, recall, in their property theoretic guises, essentially tell us which of the conditions formulable in a given language express properties — thus the connection to

Platonism. Such principles typically take the following form, for some class $\mathcal{F}_{\mathcal{L}}$ of formulas φ of a given (second-order) language $\mathcal{L}$:

CP$_{\mathcal{F}_{\mathcal{L}}}$ $\exists F \forall x (Fx \leftrightarrow \varphi)$, for any formula $\varphi \in \mathcal{F}_{\mathcal{L}}$ in which 'F' does not occur free.

Now, in fact, we have in effect built the most liberal comprehension principle possible into our logical framework (or, at least, we have not ruled it out) insofar as we've put no explicit restrictions on the creation of λ-predicates. For all we have said, given any arbitrary formula φ of our language $\mathcal{L}^*$, there is a λ-predicate $[\lambda x\, \varphi]$. Given the standard λ-conversion principle governing the logic of complex predicates, i.e.,

LC $[\lambda x\, \varphi] y \leftrightarrow \varphi^x_y$,[13]

the full second-order comprehension principle for $\mathcal{L}^*$ is immediate:

CP$_{\mathcal{L}^*}$ $\exists F \forall x (Fx \leftrightarrow \varphi)$, for any formula φ of $\mathcal{L}^*$ in which 'F' does not occur free.

However, as B&B realize,[14] and as the history of logic in the 20th century has taught us, the injudicious introduction of comprehension principles can quickly lead to paradox. And that is indeed the case here: the flexible language $\mathcal{L}^*$ that seems to be required for BBBO contains the formula $\exists G(x = G \wedge \neg Gx)$ and hence, the λ-predicate $[\lambda x \exists G(x = G \wedge \neg Gx)]$ denoting, intuitively, the property of non-self-exemplification. Given **LC**, a property-theoretic version of Russell's Paradox follows straightaway.[15]

Clearly, then, if the activist is committed to **P** and hence, formally, to some sort of comprehension principle, the formation of λ-predicates must be restricted to a proper subset $\mathcal{F}_{\mathcal{L}^*}$ of the formulas of $\mathcal{L}^*$. Assuming that a predication "a is P" is represented as "Pa", then the simplest rendering of principle **P** takes $\mathcal{F}_{\mathcal{L}^*}$ simply to be the class of *primitive* monadic atomic formulas of $\mathcal{L}^*$, i.e., those atomic formulas formed from $\mathcal{L}^*$'s primitive monadic predicates. This, then, yields all λ-predicates of the form $[\lambda \nu\, \pi \nu]$, for variables ν and primitive monadic predicates π.[16]

Of course, though, this won't begin to get us what we need for **A4**. In particular, the instance of **A4** used in step 5, viz.,

(1) $[\Diamond Cg] = [[\lambda x \Diamond Cx]g]$,

involves two properties, C and $[\lambda x \Diamond Cx]$, whose logical forms are non-atomic and hence whose existence, if it is to be justified by a comprehension principle, requires $\mathcal{F}_{\mathcal{L}^*}$ to encompass a much broader class of formulas of $\mathcal{L}^*$ than the primitive atomics. And, indeed, there are many sentences of the form "a is P" where the 'P' is itself logically complex, e.g., "John is *wealthy but unhappy*" and "God is *able to create a property*". I've argued above that the logical form of the latter sentence is in fact that of a predication qualified by an intensional operator $\Diamond Cg$, "God *could* create a property". However, by means of the (somewhat stilted and artificial) "such that" construction, most any singular assertion "...a..." can (with proper care re consistency) be transformed into an equivalent predication "a is such that ...he/she/it...": from "God created a property" we have "God is *such that he created a property*" and from "God could create a property" we have "God is *such that he could create a property*", which, given **P**, entail the existence of the properties C (= $[\lambda x \exists F\ CxF]$) and $[\lambda x \Diamond Cx]$ that appear in (1).

But note that the preceding observation is reversible: any predication involving a logically complex predicate "a is such that ...he/she/it..." can be transformed into an equivalent, logically complex sentence "...a..." in which the complex predicate "...he/she/it..." is eliminated. (These two observations together, of course, correspond to the two directions of (the ordinary language reflection of) the λ-conversion principle **LC**.) Given this, the door seems open for the activist to argue that complex predicates — *is wealthy but unhappy*, *is such that he created a property*, and the like — are mere syntactic artifacts entailing no genuine ontological commitment to any corresponding complex properties. If so, she is arguably committed only to God's having created some set of *fundamental* properties and (more generally) relations, whatever they may be. Good candidates might be fundamental physical properties, universals like *wisdom*, *loving*, and the *creating* relation, mathematical properties like *being a set*, perhaps also mental properties and relations like *thinking*, *being conscious*, etc. — logically simple (let us suppose) properties and relations of a sort that we can assume are expressed by the primitive

predicates of our language $\mathcal{L}^*$. With respect to the argument proper, then, the activist holds that God created the fundamental properties and, hence, that God created some property or other, i.e., that $\exists F\, CgF$. By the reasoning above, it does not obviously follow from this at all that there must *also* be a corresponding complex property — [creating a property], $[\lambda x \exists F\, CxF]$ (a.k.a., C) — and thence a modal property — [being able to create a property], $[\lambda x \Diamond Cx]$ — that God *exemplifies*. So no general comprehension principle that entails the existence of logically complex properties — in particular, the properties C and $[\lambda x \Diamond Cx]$ involved in the relevant instance (1) of principle **A4** — seems to follow from the basic activist picture of the creation of the fundamental Platonic properties and relations that the activist is committed to.

Contrary to B&B, then, Principle **P**, understood so as to entail commitment to logically complex properties, does not seem to be a part of the basic activist picture. Granted, it *could* be that an activist might be motivated by the desire for a unified semantics of predication. But there are several other motivations than **P** for wanting abstract entities in one's ontology. For instance, one's motivation might simply be the classic Platonic explanation of the one over the many in terms of shared universals. If that is one's motivation, there is no obvious need to reify the unique and essentially non-shareable properties of the Godhead like $[\lambda x \Diamond Cx]$.[17] Indeed, when it comes to such alleged properties, there seems no reason why an activist with this motivation might not opt for B&B's (2006, Part II) own truthmaker account of the semantics of divine predication. Commitment to principle **P**, therefore, appears to be entirely avoidable.[18] For activists that reject it, the move from step 4 to step 5 in the argument is undercut, as the existence of the requisite properties needed for the instance (1) of **A4** can be denied.

That noted, a number of robust varieties of Platonism embrace logically complex properties (e.g., Bealer 1982, Zalta 1983 and 1988, Menzel 1993). Hence, some activists might consider the preceding response a Pyrrhic victory if the cost is that logically complex properties are in principle unavailable to them. So suppose an activist has identified a paradox-free class $\mathcal{F}_{\mathcal{L}^*}$ of formulas that permits the λ-predicates expressing the properties C and $[\lambda x \Diamond Cx]$ in (1).[19] Even granting the

existence of those properties, nothing follows by way of justification for **A4** generally or for (1) in particular. For B&B specify no criteria of identity for states of affairs and hence provide no warrant for the claim that modal states of affairs of the form $[\Diamond Ax]$ are *identical to* predicative states of affairs of the form $[[\lambda y \Diamond Ay]x]$.[20] They are of course logically equivalent[21] — indeed, B&B (ibid., p. 369) themselves refer to **A4** as an equivalence, its actual form notwithstanding — but this will not do: if **A4** is weakened to logical equivalence, step 5 will no longer follow directly from step 4 simply by the logic of identity; and the obvious logical principle that would warrant step 5 under **A4** so weakened — viz., the principle that states of affairs are identical if logically equivalent — is one the activist would almost surely reject as too "coarse-grained". (It would follow, for example, that [God's either existing or not existing] is identical to [Something's being wise if Socrates is].) But even if the identity in question is somehow justifiable, the larger point here is that such justification is absent from BBBO's logical foundations. Hence, **A4** as it stands is *ad hoc* and, pending justification, is reasonably rejected by the activist. However, even if ample justification for **A4** is available, serious objections to BBBO remain. To those I now turn.

4.2. There is no Fundamental Relation of Logical Priority

Essential to BBBO is the claim that logical priority is a fundamental relation distinct from existential and causal dependence. In this section I will argue that there simply is no such relation — at least, no metaphysically fundamental relation of the sort that B&B need.

"The best way to clarify the notion [of logical priority]," B&B tell us, "is by way of example." They give us three (ibid., pp. 367, 370):

- The priority of the parts of a whole to the whole.
- The priority of a thinker to her thoughts.
- The priority of the "constituents" of a state of affairs to the state of affairs.

Presumably, then, we are to intuit in these examples a *single fundamental* relation of logical priority $<$. Critically, as B&B note (p. 368), because $<$ is asymmetrical, it

cannot be identified with the relation [being a necessary condition of] or with existential priority (as defined above) as these both have counterexamples to asymmetry (notably, when their relata are both necessary beings[22]). Moreover, it cannot be the relation of temporal priority, as an eternal whole would be co-eternal with its parts but its parts would still be logically prior to it. As for positive characteristics, B&B (p. 369) tell us that "perhaps the most illuminating" is that, when $a < b$, "b depends on a in such a way that a [i.e., I take it, a's existing] at least *partially* explains b [i.e., b's existing] whereas b is not even a partial explanation of a."

I certainly see the priority of parts to wholes, thinkers to thoughts, and constituents to states of affairs. And I see, in each case, that the priority in question seems to have the characteristics of logical priority that B&B suggest. Intuitively, it is in the nature of parts and wholes that, if a is a (proper) part of b, b's existence depends on and, hence, is partially explained by, a's existence in a way that a's existence is not explained by b's. And it seems that a similar tale can be told about states of affairs and their constituents, as states of affairs likewise seem to consist of their constituent parts plus *structure*. And thinkers clearly explain the existence of their thoughts in a way that thoughts do not explain the existence of their thinkers — for thinkers *create* or *generate* their thoughts and not vice versa.

I do *not*, however, perceive the distinct, common, fundamental relation of logical priority that B&B allege. At the very least, there is no compelling reason for introducing one. Rather, by my lights, the examples simply illustrate three distinct, asymmetrical priority relations: $<_p$, $<_s$, and $<_t$. There is of course a common, *non-fundamental* priority relation here as well, viz., the disjunctive relation $[\lambda xy\ x <_p y \vee x <_s y \vee x <_t y]$. But that, of course, will not do for the purposes of BBBO, as all three differ considerably from the notion of logical priority found in B&B's argument, specifically in principles **A1**-**A3**. As I see it, then, B&B's examples are at best evocative. They provide us with three different priority relations that only bear a certain family resemblance to one another but which are not species of a more fundamental relation.

It seems to me, then, that the best B&B have to offer is a *hypothesis*, viz., that there is *further* priority relation, $<$, whose relata can be (states of affairs involving) agents (notably, God), actions (notably, creation), and properties, and, moreover, that this relation bears the same family resemblance to the relations noted, in particular, in being asymmetrical. Finally, according to the hypothesis, we grasp this relation with sufficient clarity as to be able, at least, to find the truth of principles **A1**-**A3** reasonably compelling. So it seems to me that we simply need to evaluate these principles on their own merits. That is, primed by the family of relations discussed in the examples, we need to evaluate the hypothesis in question and see whether those principles are plausible for some appropriate notion of priority.

And here is where the trouble begins. For my part, I would agree that there are notions of priority under which all three principles **A1**, **A2**, and **A3** are true. However, it seems quite clear that, like the ones identified in B&B's examples, they are *different* and, moreover, *already well-understood* notions of priority. **A1** is the priority of, specifically, an *act* of creation to the thing created; the act certainly seems to explain the thing created in a way that the thing created does not explain the act. But this seems like nothing other than the asymmetry of causation — the act is the *cause* of the thing, but not vice versa. **A2**, by contrast, involves a sort of priority relating abilities and actions: an agent's *ability* to perform some action at least partially explains the existence of the action — the action exists because some agent with the ability to perform it exists. But the agent's ability is not explained by the action, especially if the action is free. So again we do seem to have a reasonable notion of asymmetrical priority here, but it is in no obvious way at all the same sort of priority as the causal priority of acts of creation to things created in **A1**. And neither notion of priority warrants principle **A3**. For there is nothing about the priority of creative acts to their products or the priority of abilities to actions that seems in any clear way to bear on the truth of the claim that, for arbitrary properties F and states of affairs p, the property constituent F of a predication $[Fx]$ is prior to a state of affairs p if the predication itself is prior to p. If anything, this is a further notion of priority related to constituency.

No two of the principles **A1**-**A3**, then, appear to involve the same notion of priority and, as in the examples B&B provide, there is nothing whatever to suggest there is any more fundamental priority relation they all exhibit. If so, then BBBO is rife with ambiguity and the only way to preserve its validity would be to invoke a series of *ad hoc* principles relating the three very different notions of priority in the argument. This would leave the argument explicitly open to the charge M&M initially leveled against the bootstrapping objection, viz., that it runs together different notions of priority/dependence that can only be connected by means of implausible "bridge" principles.

4.3. Counterexamples to the Asymmetry of Logical Priority

But let us suppose that the problem of ambiguity can be met and that B&B give us strong reasons to think that there is a fundamental priority relation underlying the examples they provide and that that relation is plausibly the one at work in BBBO. In this final section I point out that there are examples of the very sort that B&B draw upon to pump our intuitions about dependency where the dependency in question is in fact *mutual* and, hence, that the (incorrectly and tendentiously named) logical priority relation is not, in general, asymmetrical. I will provide three counter-examples.

Non-well-founded Sets. I doubt that B&B would balk at the idea that set membership provides a good example of logical priority. Pure sets constitute a particularly cogent case for distinguishing the dependence associated with logical priority from mere existential dependence. For, as classic necessary beings, every pure set is trivially existentially dependent on every other pure set and, in particular, the members of a pure set *S* are as existentially dependent on *S* as *S* is on them. But the axiom of Extensionality for sets appears to provide a clear sense in which a set *S* is asymmetrically dependent on its members (and hence its members asymmetrically prior to *S*): by Extensionality, *S*'s identity is completely *determined* (collectively) by its members, but the identity of its members is not determined by *S*. Hence, each of *S*'s members at least *partially* explains *S* — it is one of the objects

that determines its identity — but not vice versa. Hence, sets appear to provide a fine example of asymmetrical priority.

But this is too quick, for the preceding argument for asymmetry depends on the assumption that set membership is *well-founded*, and it is a well-known fact that the axiom of Foundation in, say, ZFC set theory can, without any loss of consistency, be replaced by an "anti-Foundation" axiom — notably, the axiom *AFA* of Aczel 1983 — that asserts the existence of non-well-founded sets.[23] In the resulting set theory, in addition to all of the well-founded sets of ZFC, there is a vast variety of non-well-founded sets. In particular, there are sets A, B such that $A \in B$ and $B \in A$, e.g., let $A = \{\emptyset, B\}$ and $B = \{\{\emptyset\}, A\}$.[24]

As Extensionality holds in both well-founded and non-well-founded set theory, non-well-founded sets are still determined by their members and, hence, are at least partially explained by them. However, consider the sets A and B above. As $A = \{\emptyset, B\}$, A depends on, and is partially explained by B. But, as $B = \{\{\emptyset\}, A\}$, B depends on, and is partially explained by A. Hence, notwithstanding the intuitions that arise when we restrict our gaze to well-founded sets, by broadening our perspective beyond the well-founded universe, the "priority" of the members of a set to the set itself is not, in general, asymmetrical.[25]

Constituency, Common Knowledge, and Self-awareness. As noted above, B&B suggest that states of affairs/propositions have constituents. I like this idea, too. And, as with sets, if we focus on common examples, constituency might appear to indicate a type of asymmetrical dependence. However, some states of affairs seem to require themselves as constituents. Among these are states of affairs involving common knowledge where two or more agents are aware of a set of facts, among which is each agent's awareness of those very facts. Consider for example a game of 5-card stud involving two players a and b in which each player can see four of the other player's cards. Let h be a's visible hand and g be b's and let H be the *having* relation between players and hands. Within the overall game situation, then, there is a state of affairs s involving not only the facts $[Hah]$ and $[Hbg]$ but also, critically, the facts of each player's awareness of all of those facts, i.e., of each player's

awareness of s, and, hence, each player's awareness of the other's awareness of s. This "reflexivity" is most naturally captured by taking s to include itself among its constituents; specifically, where A is the awareness relation:

(2) $s = [Hah \wedge Hbg \wedge Aas \wedge Abs]$.

This simple, intuitive representation of the common knowledge in the game situation yields the sort of inferences we expect. For example, on the assumption that awareness of a conjunctive state of affairs entails awareness of each conjunct, it follows from a's awareness of s, Aas, that, e.g., a is aware that b is aware that (i) a's hand is h and that (ii) a is aware that b is aware that a's hand is h, $Aa[Ab[Hah \wedge Aa[Ab[Hah]]]]$.

Cartesian self-awareness seems to fit the same pattern in an even simpler and more direct way. Descartes' breakthrough involves his awareness of the fact of his own thinking. But that he is simply thinking *something*, $[\exists p\, Tdp]$, won't capture the reflexive self-awareness underlying the *cogito*. Rather, Descartes's breakthrough comes in his awareness that *that very fact*, i.e., *that he is thinking*, is the object of his thinking. And, as in the preceding example, the most natural way of characterizing this propositional object of his thought is for it to have itself as a constituent. Specifically, where T is the thinking relation, d is Descartes, and p is the object of Descartes's thinking, we have:

(3) $p = [Tdp]$

Similar to extensionality for sets, then, it is intuitive that states of affairs, *qua* structured wholes, depend on their constituents and, hence, that the constituents of a state of affairs partially explain it. Hence, since p is among its own constituents, it depends upon itself. As with non-wellfounded sets, consideration of a broader class of states of affairs reveals that the "priority" of constituents to states of affairs is not, in general, asymmetrical.[26]

Numbers and the Natural Number Structure. Finally, consider the system of natural numbers, that is, the collection of natural numbers in their natural ordering 0, 1, 2, …; call it $\mathbb{N}_<$. On the one hand, like other complex systems, $\mathbb{N}_<$ is dependent

on its "parts", i.e., the individual natural numbers — intuitively, $\mathbb{N}_<$ is a complex whole constituted entirely by its parts + structure. Hence, like sets and states of affairs, it is at least partially explained by its parts — $\mathbb{N}_<$ is nothing more than the natural numbers structured in a certain way.

However, on what is arguably the most compelling realist account of the natural numbers, viz., the *ante rem* structuralism of, notably, Shapiro 2006, the natural numbers of the system $\mathbb{N}_<$ are themselves nothing but the "places" or "positions" in $\mathbb{N}_<$. Thus, as we might put it, the "sum" *parts* + *structure* in the case of the system of natural number is redundant — the parts, the individual natural numbers, being positions in the overarching structure, are nothing over and above the structure. The number 2, for example, just *is* the third position in the natural number structure (counting from 0). It has no nature independent of that structure; the structure is what makes it what it is. As Shapiro (p. 120) puts it: "the essential properties of a natural number consist of its relations to the other natural numbers". Hence, the "parts" of the system $\mathbb{N}_<$ depend just as much upon the system as the system depends upon them. Once again, an example in the same ballpark as those B&B draw upon to illustrate logical "priority" indicate that, insofar as there is any such relation at all, it is not in general asymmetrical.

Upshot and Reflection. Of course, the existence of these counterexamples to the asymmetry of any purported logical "priority" relation does not entail that there isn't a species of priority that is asymmetrical. However, I believe they *do* undermine B&B's inference from their examples of their alleged logical priority relation to their claim that *that* relation is asymmetrical, as the counterexamples here are very much in the same conceptual neighborhood. For them to assert, in light of these counterexamples, that the species of logical priority in BBBO — the existence of which we've already found solid independent reasons to reject — is asymmetrical appears to question-begging. I conclude that **A5** in BBBO has been undermined.

I close with a quick reflection. Well-foundedness has a strong intuitive pull, so much so that there seems to be a natural philosophical resistance to most any threat of circularity. I think a useful heuristic function of the above examples is to

undermine the intuition that circularity is inevitably vicious. We're *inclined* to think that wholes (of any sort) are dependent upon their parts but not vice versa. More generally, we are inclined to think that if *a* is in any way dependent upon *b*, then *b* cannot be in any way dependent upon *a*. And so it often is — but not always. At the ontological margins we find counterexamples. Overgeneralizing from familiar well-founded examples can make us blind to them, at the risk of missing important theoretical insights. There is no time here to explore the possibility that new theological insights lurk in the circularity of dependencies between God and the properties that activism seems to embrace. But it seems to me that the latter-day theoretical embrace of non-well-founded phenomena raises the prospect of hitherto unrecognized avenues for the activist to explore.

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Notes

This paper developed out of comments I delivered in response to a talk by William
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Lane Craig at the Philosophy of Religion group meeting on 27 February 2014 at the
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APA Central Division meetings in Chicago. My sincere thanks to an anonymous referee for cogent, detailed comments on the original version of this paper. The current version is much improved because of them.

1. Some philosophers reserve "aseity" for the first component here only. Thus, Bergmann and Brower (2006, p. 358) refer to (i) and (ii) together as the *aseity-dependence* thesis.

2. The qualification "at least some" is due to the fact that there might be "impure" abstract entities like, say, the singleton set {Socrates}. If Socrates hadn't existed, neither would {Socrates} have existed (as it would have been the empty set and, hence, by the axiom of Extensionality, distinct from {Socrates}). Hence, {Socrates} is both contingent and, insofar as it depends for its existence on the existence of something that exists *ab alio*, it also exists *ab alio*.

3. Craig (ms) helpfully distinguishes between what he calls conceptualist and non-conceptualist forms of the thesis. On the conceptualist version, abstract entities exist in the divine mind — they are literally the products of divine intellective activity; as Morris and I (1986, p. 355) put it, properties are God's concepts, propositions are God's thoughts. On the non-conceptualist variety, abstract entities are merely products of God's creative activity but do not exist in the divine mind, at least, not as divine concepts and thoughts. The advantage of the conceptualist variant lies in its specificity — in identifying abstract entities with ideas in the divine intellect, it broaches the question of the nature of their nature that the non-conceptualist variety leaves wide open. The advantage of non-conceptualist activism is that it is not subject to a variety of objections that arise for the conceptualist variant. Morris and I come down pretty solidly on the side of the conceptualist variant but, for purposes here, I don't believe the distinction is important, as it appears to me that the bootstrapping objection applies with equal force to both forms.

4. The idea of necessary existence *ab alio* has historical precedence in traditional theism. Both Ibn Sina and al-Farabi, for example, distinguished between things that are necessary *per se* — God being the only such thing — and those that are necessary *ab alio* — those things that are eternal and immaterial but which necessarily "require a cause outside of themselves in order to exist" (Fackenheim 1947, p. 40). Granted, these and other early defenders of necessary *ab alio* existence probably did not have platonic universals in mind but, rather, the denizens of the superlunary realm. But on the face of it, at least, there is no obvious conceptual problem with extending the idea to abstract entities. Even granting that, however, traditional theists might argue that there remain theological problems, notably, that the existence of beings that are necessary *ab alio* impinges on God's freedom — a necessary being cannot have failed to exist and, hence, a created necessary being would be one that God could not have failed to create and so would not have been free *not* to create. Morris and Menzel (1986, p. 357) did not find this argument compelling. For, the necessity of abstract objects notwithstanding, their creation

does not obviously impinge on divine freedom in any theologically objectionable way, insofar as doing so is "conscious, intentional, and neither constrained nor compelled by anything independent of God and [God's] causally efficacious power." For more detailed discussions of divine freedom that bear on this matter, see Flint 1983 and Morris 1984.

5. Existential dependence is called "logical dependence" in both B&B 2006 and M&M 1986. I've opted to abandon this terminology as, informally, "logical dependence" sounds like the converse of "logical priority", whereas it is not at all the case that existential dependence as defined above is the converse of B&B's notion of logical priority, which will be the focus of our discussion here.

6. Higher-order syntactic features notwithstanding, the natural semantics for languages of this kind is first-order. See Menzel 1993 for rather more complex examples.

7. Perhaps this is because they want to allow for cases of dependence on God's creative activity in which God is not the sole creator. But there is no reason why "creates" itself cannot be understood in such a way. If one needs the stronger sense one can simply define "solely creates" in the obvious way.

8. As far as the argument goes, nothing hangs on this particular logical form for [creating a property]. The idea is simply to have a property representing God's *act* of property creation and, concomitantly, a property representing his power so to act. See B&B 2006, p. 369: "The act of creating seems to be logically prior to the creature (and not vice versa); and, the having of an ability seems to explain (at least partially), and hence to be logically prior to, the exercise of that ability (and not vice versa)."

9. My rendition of BBBO is somewhat less general than B&B's. B&B version applies generally to any view realist view of properties (and relations) that analyzes predication generally in terms of exemplification. By contrast, my rendition is

directed at the specific thesis of theistic activism, in particular, the thesis that God creates all the properties. Nothing hangs on this for purposes here.

10. And, of course, the premise that [creating a property] is an action property.

11. Instantiating God (g) and [creating a property] (C) for 'x' and 'A', respectively, in **A4**. And, of course, given this identity, the substitutivity of identicals is what actually gives us step 5 from step 4.

12. I have swapped out the schematic variable 'P' instead of B&B's 'F' because I'm using 'F' as a second-order variable.

13. **LC** tells us that an individual y has the property expressed by φ just in case it satisfies the condition φ. Thus, for example, Annie has the property *being a political scientist born in Seattle* just in case Annie is, in fact, a political scientist who was born in Seattle.

14. See 2006, fns 2 and 10. I am indebted to a reviewer for pointing out that I'd overlooked B&B's sensitivity to the threat of paradox seen in these footnotes and for comments that led me to characterize **P** as a comprehension principle.

15. Let $R = [\lambda x\, \exists G(x = G \wedge \neg Gx)]$. Either RR or $\neg RR$. If the former, then by **LC**, $\exists G(R = G \wedge \neg GR)$. Let P be such a G. Then $R = P$ and $\neg PR$. Hence, by basic properties of identity, $\neg RR$. Suppose then the latter, i.e., that $\neg RR$. Then, by **LC** again, $\neg\exists G(R = G \wedge \neg GR)$, i.e., $\forall G(R = G \rightarrow GR)$. Hence, by universal instantiation, $R = R \rightarrow RR$. So RR. Contradiction.

16. Assuming the property theoretic version of the principle known as (monadic) η-conversion in the λ-calculus — $\pi = [\lambda\nu\, \pi\nu]$, for predicates π and individual variables ν — and a classical quantification theory in the underlying logic for $\mathcal{L}^*$, the addition of this class of λ-predicates is logically trivial and all instances of the corresponding comprehension principle $\exists F\forall x(Fx \leftrightarrow \varphi)$, for primitive monadic atomic formulas φ, are easily derived logical truths. For example, $\exists F\forall x(Fx \leftrightarrow [\lambda x\, Px]x)$ follows directly from $\forall x(Px \leftrightarrow Px)$, η-conversion (to derive $\forall x(Px \leftrightarrow [\lambda x\, Px]x)$, and existential generalization in any standard classical second-order

deductive system. We could of course consider moving to a free quantification theory (for second-order quantifiers, anyway), which would render existential generalization invalid and, hence, the comprehension principle non-trivial but, for purposes here, this would be a needless exercise.

17. I owe this insightful point to my friend and colleague Robert Garcia.

18. I have recently discovered that arguments against **P** bearing similarities to mine in this section are also given by Boyce in section II of his 2012 ms.

19. For example, one might disallow formulas containing quantifiers that bind predicate position occurrences of predicate variables from serving in λ-predicates. See Menzel 1993 for a language containing such a restriction and section 3.1 of the same paper for a metaphysical justification of it.

20. Boyce (ibid., p. 10) also recognizes that there is nothing compelling the activist to acknowledge that the states of affairs in question are identical.

21. Where, presumably, states of affairs $[\varphi]$ and $[\psi]$ are logically equivalent if and only if φ and ψ are. Note this is *not* to say that $[\Diamond Ax]$ and $[[\lambda y \Diamond Ay]x]$ are *necessarily* equivalent. Notably, a serious actualist, who holds that exemplification necessarily entails existence, might be willing to say, with regard to a Socrates-free world w, that it is possible that Socrates be a philosopher, $\Diamond Ps$, at w but not that Socrates exemplifies *possibly being a philosopher*, $[\lambda x \Diamond Px]s$, at w. See Menzel 1994, pp. 130-136.

22. That is, more exactly, when their relata are both of the form $[E!\, a]$, where a is a necessary being.

23. For a somewhat more accessible overview of non-well-founded set theory than Aczel's book that includes numerous applications to issues in philosophy, linguistics, and computer science, see Barwise and Moss 1996.

24. I've defined $B = \{\{\emptyset\}, A\}$ instead of $B = \{\emptyset, A\}$ as, under *AFA*, it would have followed from the latter that $A = B$.

25. A response here might be that non-well-founded sets are just a sort of mathematical curiosity and don't reflect any intuitive conception of set. Barwise (1988) argues cogently for a conception of sets as attenuated situations that encompasses both well-founded and non-well-founded sets alike.

26. Both of the examples here are found in Barwise 1988, although he does not spell out the Cartesian case. A similar solution to the problem of common knowledge is foreshadowed in Lewis 1969.

References

Aczel, P. 1983. *Non-Well-Founded Sets* (Stanford, CA: CSLI Publications).

Barwise, J. 1988. "Situations, Sets, and the Axiom of Foundation," in *The Situation in Logic* (Stanford, CA: CSLI Publications), pp. 177–200.

Barwise, J. and L. Moss. 1996. *Vicious Circles: On the Mathematics of Non-Wellfounded Phenomena* (Stanford, CA: CSLI Publications).

Bealer, G. 1982. *Quality and Concept* (New York: Oxford University Press).

Bergman, M. and J. Brower. 2006. "A Theistic Argument against Platonism (and in Support of Truthmakers and Divine Simplicity)," in *Oxford Studies in Metaphysics, Volume 2*, ed. D. Zimmerman (New York: Oxford University Press), pp. 357-386.

Boyce, K. ms. "In Defense of Theistic Activism: A Response to Bergmann and Brower" (version dated 11 April 2012), http://kennethboyce.files.wordpress.com/2012/04/in-defense-of-theistic-activism.doc.

Craig, W. L. ms. "God and Abstract Objects: A Survey of the Landscape."

------ 2014. "Anti-Platonism," in *Beyond the Control of God? Six Views on the Problem of God and Abstract Objects*, ed. P. M. Gould (New York: Bloomsbury Publishing Group), pp. 113–126.

Flint, T. 1983. "The Problem of Divine Freedom, *American Philosophical Quarterly*, vol. 20, pp. 255–264.

Gould, P. M. 2011. “The Problem of God and Abstract Objects,” *Philosophia Christi*, vol. 13, no. 2, pp. 255-274.

Lewis, D. 1969. *Convention: A Philosophical Study* (Cambridge, MA: Harvard University Press).

Menzel, C. 1987. “Theism, Platonism, and the Metaphysics of Mathematics,” *Faith and Philosophy*, vol. 4, no. 4, pp. 365–382.

------ 1993. “The Proper Treatment of Predication in Fine-grained Intensional Logic,” in *Philosophical Perspectives Volume 7: Language and Logic*, ed. J. E. Tomberlin (Atascadero, CA: Ridgeview Publishing Co.), pp. 61– 87.

------ 1994. “Singular Propositions and Modal Logic,” *Philosophical Topics*, vol. 21, no. 2, pp. 113-148.

Morris, T. V. 1984. “Duty and Divine Goodness,” *American Philosophical Quarterly*, vol. 21, pp. 261–268.

Morris, T. V. and C. Menzel. 1986. “Absolute Creation,” *American Philosophical Quarterly*, vol. 23, no. 4, pp. 353–362.

Shapiro, S. 2006. “Structure and Identity,” in *Identity and Modality*, ed. F. MacBride (Oxford: Clarendon Press), pp. 109–145.

Zalta, E. 1983. *Abstract Objects: An Introduction to Axiomatic Metaphysics* (Dordrecht: D. Reidel).

------ 1988. *Intensional Logic and Metaphysics of Intentionality* (Cambridge, MA: MIT Press).