

# Endless Future: A Persistent Thorn in the *Kalām* Cosmological Argument

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**Abstract:** Wes Morriston contends that William Lane Craig's argument for the impossibility of a beginningless past amounts to an equally good argument for the impossibility of an endless future (or at least a pre-determined one). Craig disagrees. I show that Craig's reply reveals a commitment to an unmotivated position concerning the relationship between actuality and the actual infinite. I then assess alternative routes to the impossibility of a beginningless past that have been offered in the literature, and show that, contrary to initial appearances, these routes similarly seem to support the impossibility of an endless future.

## 1. Introduction

William Lane Craig has vigorously defended *The Kalām Cosmological Argument (KCA)*:<sup>1</sup>

1. Whatever begins to exist has a cause for its coming into existence.
  2. The universe began to exist.
- Therefore,
3. The universe has a cause for its coming into existence.

One of Craig's central sub-arguments for the truth of (2) is *The Argument from the Impossibility of an Actual Infinite (AIAI)* (Craig and Sinclair 2009: 103–117):

4. An actual infinite cannot exist.
  5. An infinite temporal regress of events is an actual infinite.
- Therefore,
6. An infinite temporal regress of events cannot exist.

Craig's argument for (4) appeals to certain alleged absurdities that would follow if (4) were false. Since such alleged absurdities are intuitively metaphysically impossible, we should conclude that (4) is true. Now, while much of the action concerning *AIAI* has been aimed at (4), Wes Morriston (2010; 2012) has recently attempted to cast doubt on the truth of the conjunction of (4) and (5). Morriston contends that Craig's argument for (6) amounts to an equally good argument for the impossibility of an endless future, or at least a pre-determined one (Cf. Hedrick 2014). But since a pre-determined, endless future certainly seems possible, we should therefore be skeptical that Craig has shown that the universe must have a beginning, at least via *AIAI*. Call this *Morriston's Objection*.

Craig denies that *AIAI* may also support the impossibility of an endless future. My intention in this paper is to further advance *Morriston's Objection* in a number of ways. I begin by critically assessing the metaphysical assumptions behind Craig's reply to *Morriston's Objection*. More specifically, I show that Craig's reply reveals a commitment to an unmotivated position

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<sup>1</sup> For a recent, extensive defense of the *KCA*, see Craig and Sinclair (2009).

concerning the relationship between actuality and the actual infinite.<sup>2</sup> Additionally, I consider alternative arguments for the impossibility of a beginningless past offered by Pruss (2009), Loke (2014), and Koons (2014). I argue that, despite initial appearances, these arguments also seem to be subject to *Morrison's Objection*. Hence, the apparent possibility of an endless future continues to be a thorn in the side of the *KCA*.

## 2. The Craig–Morrison Exchange

As previously noted, according to *Morrison's Objection*, Craig's argument for (6) amounts to an equally good argument for the following:

7. An endless series of events is impossible.

Nowhere does Craig indicate that he wishes to bite the bullet and accept (7), and rightly so. For, it certainly seems possible for there to be an endless future. Now, in support of *Morrison's Objection*, Morrison (2010: 455) invites us to consider *The Angelic Praise Scenario*: God decrees that two angels, Uriah and Gabriel, will take turns praising God for one minute of 'celestial time' without end. *The Angelic Praise Scenario* results, *inter alia*, in two alleged absurdities. First, if God were to have decreed instead that there be a one celestial minute gap between each pair of praises, then, an actual infinite number of praises could be added within that one celestial minute gap. Second, if God were to have decreed instead that Uriah and Gabriel stop after four instances of praising God, then an actual infinite number of praises would have been prevented, and only four praises would occur. However, if God were to have decreed instead that only Gabriel praise God forever, then an actual infinite number of praises would have been prevented (*viz.* those of Uriah), and yet an actual infinite number of praises would still have occurred (*viz.* those of Gabriel).

Since these alleged absurdities are similar in kind to the alleged absurdities that follow from a beginningless past, it follows that Craig's argument against the possibility of a beginningless past results in an equally good argument against the possibility of an endless future, or at least a pre-determined one. Thus, to the extent that we are skeptical of the impossibility of a pre-determined endless future, we should similarly be skeptical of Craig's argument for the impossibility of a beginningless past.

In response, Craig (2010: 455) says that the answer to the question "What is the number of praises in the series of future praises [in *The Angelic Praise Scenario*]" is "none".<sup>3</sup> It is unclear

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<sup>2</sup> Morrison (2010: 450; 2012: 450) is clear that his main aim is *not* to establish that an endless series of pre-determined events is an actual infinite. Instead Morrison's main aim is to show that Craig's argument against the possibility of a beginningless past results in an equally good argument against the possibility of a pre-determined, endless future. I agree with Morrison that affirming that only an infinite temporal regress of past events is an actual infinite is not *sufficient* for rebutting *Morrison's Objection*. However, affirming such a position is surely a *necessary* condition for rebutting *Morrison's Objection*. And, as I intend to show, Craig has not successfully secured this necessary condition.

<sup>3</sup> In response to the question "How many praises will be said", Craig (2010: 454) says "Potentially infinitely many". It is unclear how these two questions are different to the extent that they warrant different answers. Regardless, it is the latter question that is of interest since, as Morrison (2012: 445) rightly notes, the number of future praises is not growing, and thus is not a potential infinite. Rather, it is only the number of praises that *have been* uttered that is a potential infinite. In fact, the number of future praises that will be

what “none” means. We should not, I think, understand “none” to refer to the number zero. For, to say that the number of praises that will occur is zero is to say that there are no praises that will occur (van Inwagen 2009: 482–492). But that is clearly false since God’s decree entails that some praises will occur. Perhaps Craig wishes to hold that the number of praises that will be uttered in *The Angelic Praise Scenario* is indefinite, undetermined, undefined, or something to that effect. For the sake of argument, I will assume that this reply is both coherent and not obviously false (as would be the case if “none” referred to the number zero). What I wish to focus on instead is what metaphysical assumptions Craig makes (or at any rate must make) in order to offer such a reply without *also* being committed to the claim that the number of past events in a beginningless universe is none.

### 3. Keeping Score of Craig’s Metaphysical Assumptions

To all appearances, Craig seems to think that his position that the number of future praises in *The Angelic Praise Scenario* is none is entailed by the A-theory of time. For, Craig (2010: 456) emphasizes that on the A-theory of time, and in accordance with the medievals’ position on actuality, while the past and present are part of the actual world, the future is not a part of the actual world.<sup>4</sup>

A possible world is standardly understood to be a maximal possible state of affairs which concerns not only what has occurred or what is occurring, but also what *will* occur.<sup>5</sup> Now, perhaps there is no fact of the matter concerning which possible world is actual given that the future is not fully determinate. Perhaps there is only a fact of the matter concerning which worlds are *not* actual given that their being actual is incompatible with what has occurred in the past or with what is occurring in the present. However Craig (1990) himself seems to accept that the future *is* fully determinate.<sup>6</sup> Hence, if the future is fully determinate, it is unclear to me why we should think that, unlike the past and the present, the future is not part of the actual world. Regardless, I will grant Craig this assumption for the sake of argument.

Next, even given Craig’s view of actuality, Craig is *at best* entitled to the position that if the A-theory is true and the moving spotlight view is false, then the number of future praises uttered by Uriah and Gabriel is none. For, according to the moving spotlight view, both eternalism and the A-theory are true. Thus, according to the moving spotlight view, even though only one moment of time is privileged with the status of being present, both past and future events still

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uttered is, in a sense, *decreasing* given the passage of time, despite the fact that Uriah and Gabriel will never cease to utter praises.

<sup>4</sup> Interestingly, Al-Ghazali (2000: 47–48/Discussion 2, sect. 4) himself rejects (7), and apparently for reasons not too dissimilar to those of Craig when Al-Ghazali (2000: 48) says that “the future does not enter at all into existence, either successively or concomitantly, whereas all of the past has entered into existence successively, even though not concomitantly.”

<sup>5</sup> See, e.g., Adams (1974) and Plantinga (1974).

<sup>6</sup> I understand the future to be fully determinate only if, for any future-tensed proposition  $p$ :

- $p$  is either true or false. [Law of bivalence]
- If  $p$  is false, the negation of  $p$  is true. And, if  $p$  is true, the negation of  $p$  is false. [Law of excluded middle]

There are, in fact, reasons to think that these conditions are necessary but not sufficient for the future’s being fully determinate. But delving into this matter takes us too far afield, and doesn’t affect what I wish to argue for in this paper. See Todd (Forthcoming).

exist *simpliciter*.<sup>7</sup> So, if future events exist *simpliciter*, then future events are surely part of the actual world. Otherwise, Craig would be committed to denying the plausible claim that if x exists then x is actual.<sup>8</sup>

Perhaps Craig doesn't take into account the moving spotlight view because he finds the view to be implausible. At any rate, Craig seems to be most directly concerned with the soundness of *AI* given the truth of presentism.<sup>9</sup> So, for the sake of argument, I will assume the truth of presentism in addition to assuming Craig's position on actuality.<sup>10</sup> There are, however, still more assumptions that Craig adopts in his full-fledged response to *Morrison's Objection*.

If the number of future praises in *The Angelic Praise Scenario* is none given presentism, a worry immediately arises that the number of past events in a beginningless universe is likewise none given the truth of presentism. After all, if the number of future praises in *The Angelic Praise Scenario* is none just because future praises don't exist *simpliciter* given the truth of presentism, then we should likewise think that the number of past events in an endless universe is none just because past events don't exist *simpliciter* given the truth of presentism. In response to this objection, Craig (2010: 454) emphasizes his position on actuality as described above, and adds that Morrison must "find something that is part of reality which is actually infinite in quantity in order to make an analogy with a beginningless series of past events." I think we can thus charitably interpret Craig to be committed to the following principle:

***The Actuality-Infinity Principle*** In order for x to be actually infinite in quantity, x must be actual.<sup>11</sup>

I will return to this principle later. More specifically, I will argue that, without this principle, Craig cannot successfully rebut *Morrison's Objection*.

Now, there is one final objection which sheds light on Craig's metaphysical assumptions. If the future is fully determinate, then even if what will exist is not part of the actual world, one can still consistently maintain that in *The Angelic Praise Scenario* there are true propositions concerning the angels praising God at each future moment. According to Craig's (2010: 454) reply, assuming Platonism with respect to propositions is unjustified in this dialectic. The reason is that a commitment to Platonism *already* commits one to an actual infinite number of propositions since, for any proposition *p*, there is a further proposition that it is true that *p* (Cf. Morrison 2003 and Moreland 2003).

Suppose we grant Craig for the sake of argument that Platonism about propositions is false. Still, it is important to see that even if Platonism about propositions is false, it is still the case that there *are* propositions (albeit non-fundamental ones), sentences, or at least *something* that can be past-tensed, future-tensed, and have a truth-value. In other words, if it is true in *The Angelic*

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<sup>7</sup> For further elaboration of the moving spotlight view, see Zimmerman (2005).

<sup>8</sup> While modal realists deny that if x exists then x is actual, I assume that Craig does not want his reply to *Morrison's Objection* to depend upon the truth of modal realism.

<sup>9</sup> Craig explicitly defends presentism in his (2003). Moreover, Craig emphasizes the soundness of *AI* given the truth of presentism in Craig and Sinclair (2009: 16) and Craig (2010: 456).

<sup>10</sup> Even if Craig were to endorse the growing block view, it should become apparent that Craig must still uphold and defend *The Actuality-Infinity Principle*, to be discussed shortly.

<sup>11</sup> I assume that Craig understands the predicate "is actual" to be identical to, or at least necessarily co-extensive with, the predicate "is part of reality".

*Praise Scenario* that Gabriel will praise God at time  $t$ , and that Uriah will praise God at time  $t+1$ , then there are at least two future-tensed truths, whereby these truths are propositions (albeit non-fundamental ones), sentences, or something else that can have a truth value (Morrison 2012: 448). But doesn't this mean that there are an actual infinite number of truths if the future is both endless and fully determinate? To understand Craig's answer to this question, we must turn to Craig's position on God's knowledge.

Since God's knowledge is complete, and (irrespective of the truth of Platonism about propositions) there are future-tensed truths, in order to avoid the position that the number of truths that God knows in *The Angelic Praise Scenario* is an actual infinite, Craig (2010: 454) resorts to the position that God's knowledge is non-propositional. Instead, God has a simple, non-propositional intuition of all reality (Cf. Alston 1986). So, although the future is fully determinate, and thus for any future-tensed statement (a non-fundamental proposition, sentence, etc.) one considers, that statement will be true or its negation will be true, our knowledge of a fully determinate future in an endless universe can never be complete since that would require attaining knowledge of an actual infinite number of truths. Instead, our knowledge of a fully determinate future in an endless universe can at best increase without limit. While there are a number of questions that arise regarding this position, let's grant Craig this position for the sake of argument.

So, with the exception of the *Actuality-Infinity Principle*, the following are the metaphysical assumptions upon which Craig relies and to which I do not object for the purposes of this paper:

- i. The A-theory of time is true.
- ii. Presentism is true.
- iii. Unlike the future, the past and the present are a part of the actual world.
- iv. Platonism about propositions is false.
- v. God's knowledge is non-propositional.

What I want to assess, then, is whether Craig can rebut *Morrison's Objection* without appealing to the *Actuality-Infinity Principle*. I will now argue that he cannot. In other words, assumptions (i)-(v) alone cannot establish a relevant difference between the past and the future, such that (5) is true and the following is false:

8. An infinite temporal progress of events is an actual infinite.<sup>12</sup>

In order to see this, we need to take a closer look at what (5) and (8) might mean.

#### **4. "An Infinite Temporal Regress of Events is an Actual Infinite"**

To begin, it would have been better to replace "an infinite temporal regress" in (5) with "an endless temporal regress". For, one might be tempted to take (5) to be an analytic truth. But then notice that we may similarly take (8) to be an analytic truth. If Craig were to grant that, like (5),

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<sup>12</sup> Although Morrison's appeal to an endless series of *pre-determined* events has the advantage of supplying a truthmaker within the present (and thus, the actual) for the alleged truth that the number of praises that will be uttered is an actual infinite, we need not get bogged down for our purposes with issues about truthmaking since, as previously noted, Craig (1990) himself seems to accept that the future is fully determinate.

(8) is an analytic truth, then Craig would surely also say that an endless future implies an endless temporal progress of events but not an infinite temporal progress of events. But then, in order not to beg any questions, we should take a beginningless past to imply a beginningless temporal regress of events, but not necessarily an infinite temporal regress of events. So, while I will not deviate from Craig's wording, I note that we must be first and foremost concerned with the implications of a beginningless past and an endless future. Hence, I will not take (5) or (8) to be analytic truths. Instead, I will understand "an infinite temporal regress" to concern a beginningless past, and "an infinite temporal progress" to concern an endless future. With this caveat in place, here is the first interpretation of (5) that I offer:

**(5<sub>1</sub>)** An infinite temporal regress of events implies that there are past events such that the number of them is an actual infinite.

As Morrision (2012: 448) and Landon Hedrick (2014: 35) point out, given assumption (i) that presentism is true, (5<sub>1</sub>) is false. For, to say that there *are* past events is to say that past events *exist*.<sup>13,14</sup> But according to presentism, it is false that past events exist. So it is false that there *are* past events. *A fortiori*, it's false that there *are* past events such that the number of them is an actual infinite. So we need a different interpretation of (5) in order for (5) to come out true.

The second and third interpretations of (5) and (8) we may consider employ primitive tensed operators. Following Arthur Prior's (1957; 1967; 1969) tense logic, there are the following four tensed operators:

**P** 'it has at some time been the case that'

**F** 'it will at some time be the case that'

**H** 'it has always been the case that'

**G** 'it will always be the case that'

Accordingly, (5) may be interpreted in either of the following ways:

**(5<sub>2</sub>)** An infinite temporal regress of events entails that *P*(there are past events such that the number of them is an actual infinite).

**(5<sub>3</sub>)** An infinite temporal regress of events entails that *H*(there are past events such that the number of them is an actual infinite).

If presentism is true, both (5<sub>2</sub>) and (5<sub>3</sub>) are false. There was no moment of time in the past such that it was true at that time that there *are* past events such that the number of them is an actual infinite. If presentism is true, for any past moment of time *t*, it was true at *t* that the only events that exist are those that exist at *t*. In other words, for any past moment of time *t*, it was strictly speaking false at *t* that 'there *are* past events', just as it is strictly speaking false *now* that there *are* past events (recall my remarks on (5<sub>1</sub>)). *A fortiori*, it was strictly speaking false that there are past events such that the number of them is an actual infinite. So (5<sub>2</sub>) is false. Moreover, since

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<sup>13</sup> To be clear, I am presupposing something akin to a Neo-Quinean framework about existence in comparison to, say, a Meinongian framework. This presupposition is, of course, a fairly standard one.

<sup>14</sup> It is worth noting that Hedrick raises a number of further important objections to *AIAI* which are largely independent of Morrision's *Objection*, and which I lack the space to discuss here.

this line of reasoning applies to *any* past time, we can generalize these results to *all* past times in order to arrive at the conclusion that (5<sub>3</sub>) is similarly false.<sup>15</sup>

The final two interpretations of (5) I will consider may well be one of the interpretations that Craig wishes to adopt:

(5<sub>4</sub>) An infinite temporal regress of events entails that there were past events such that the number of them is an actual infinite.<sup>16</sup>

(5<sub>5</sub>) An infinite temporal regress of events entails that there are past-tensed truths such that the number of them is an actual infinite.

Here, then, are the relevant interpretations of (8) that must also be considered:

(8<sub>4</sub>) An infinite temporal progress of events entails that there will be future events such that the number of them is an actual infinite.

(8<sub>5</sub>) An infinite temporal progress of events entails that there are future-tensed truths such that the number of them is an actual infinite.

An advantage of (5<sub>4</sub>) and (5<sub>5</sub>) is that they avoid being automatically false, as it were, given the truth of presentism. Now, before assessing (5<sub>4</sub>) and (5<sub>5</sub>), I will first assess whether (8<sub>4</sub>) and (8<sub>5</sub>) are in fact false given (i)-(v).

Perhaps Craig can succeed in demonstrating that (8<sub>4</sub>) is false given assumptions (i)-(v) in the following manner. Just because it is true that, say, I will freely sit at time  $t_{\text{future}}$ , it doesn't follow that in an endless universe there is a number of future-tensed truths, such that the number of them is an actual infinite. For, while God has knowledge of the fully determinate future, God's knowledge is non-propositional. Moreover, since Platonism about propositions is false, the number of future events that will occur that *we* can come to have knowledge of is at best a potential infinite. As a result, we should conclude that an infinite temporal progress of events entails that there will be future events such that the number of them is none.

Let's grant for the sake of argument that assumptions (i)-(v) render (8<sub>4</sub>) false in the manner just described. The difficulty for Craig is that this line of reasoning similarly undermines (5<sub>4</sub>). Just because it is true that, say, I freely sat at time  $t_{\text{past}}$ , it doesn't follow that in a beginningless

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<sup>15</sup> While many have thought that A-theorists are rationally committed to Prior's primitive tense operators since they are indispensable to formulation of the A-theory, Meghan Sullivan (2011: ch. 4) has recently suggested that A-theorists can in fact give up tense operators in exchange for predicate modifiers. A sizable amount of space would be required to flesh out Sullivan's novel proposal. However, it is, I think, safe to assume that interpreting (5) and (8) with the aid of predicate modifiers will not render the verdict that (5) is true but (8) is false given assumptions (i)-(v) alone. The reason for this is similar to the reasons given for thinking that, given assumptions (i)-(v) alone, Craig cannot consistently affirm (5<sub>1</sub>), (5<sub>2</sub>), or (5<sub>3</sub>) without also affirming (8<sub>1</sub>), (8<sub>2</sub>), or (8<sub>3</sub>).

<sup>16</sup> I do not know how we would capture the meaning of (5<sub>4</sub>) or (8<sub>4</sub>) by employing Prior's tense operators. To illustrate, we can preserve the truth value of "there were dinosaurs" by translating this sentence to " $P(\text{there are dinosaurs})$ ". However, at least given the truth of presentism, we cannot preserve the truth value of "there were past events" by translating this sentence to " $P(\text{there are past events})$ " since the former sentence is clearly true but the latter sentence is false. *Mutatis mutandis* for "there will be future events". Regardless, I will charitably assume that, even given the truth of presentism, "there were past events" is possibly true, and that "there will be future events" is possibly true.

universe there is a number of past-tensed truths, such that the number of them is an actual infinite. For, while God has knowledge of the fully determinate past, God's knowledge is non-propositional. Moreover, since Platonism about propositions is false, the number of past events that did occur that *we* can come to have knowledge of is at best a potential infinite. As a result, we should conclude that an infinite temporal regress of events entails that there were past events such that the number of them is none. So, given (i)-(v), Craig cannot establish that (5<sub>4</sub>) is true but that (8<sub>4</sub>) is false.

One final difference between the past and the future to which Craig might appeal in order to accept (5<sub>4</sub>) and deny (8<sub>4</sub>) is that the past is fixed and beyond our control whereas the future is not fixed in some sense that is consistent with the full determinacy of the future. It is, after all, intuitive to suppose that our freedom is freedom to add to the given past (Ginet 1990: 102–103). While I am willing to accept this difference between the past and the future for the sake of argument, the problem once again is that I fail to see how this difference is *relevant*. Even if the future is not fixed in some way that is independent of the future's being fully determinate, and (5<sub>4</sub>) is in fact true, then all this would show is that, unlike the past, the future may contain a number of events that are up to beings with free will, such that the number of these events is finite *or* an actual infinite.

As a final resort, Craig may attempt to argue that assumptions (i)-(v) show that (5<sub>5</sub>) is true, but that (8<sub>5</sub>) is false. But this attempt will fail for similar reasons. While God has knowledge of the fully determinate past and the fully determinate future, God's knowledge is non-propositional. Moreover, since Platonism about propositions is false, the number of past-tensed truths and the number of future-tensed truths, respectively, in a beginningless and endless universe is at best a mere potential infinite as opposed to an actual infinite.<sup>17</sup> I thus conclude that under none of the above interpretations of (5) and (8) is it the case that assumptions (i)-(v) render (5) true and (8) false. It thus appears that the *Actuality-Infinity Principle* is crucial for rebutting *Morrison's Objection*, which I will now evaluate.

## 5. The *Actuality-Infinity Principle*

Recall that according to the *Actuality-Infinity Principle*, in order for x to be actually infinite in quantity, x must be actual. What reason is there to accept this principle? One might be tempted to quickly point out the similarity between the words “actual” and “actually”. But we need to be careful here; it is not part of the *meaning* of “actual infinite” that the *Actuality-Infinity Principle* is true, *even if* this principle is true. Perhaps Craig wishes to rely upon some more general principle such as the following:

***The Actuality-Number Principle*** In order for x to have a determinate number of things, x must be actual.

Unfortunately, *The Actuality-Number Principle* is patently false. Suppose that God decrees right now that Gabriel and Uriah are to praise God only four times each, and no more. In that case, the

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<sup>17</sup> Craig would presumably want to say that on his preferred anti-Platonist view of propositions, at least one condition under which the number of truths is a potential infinite is one in which beings like us continue to gain knowledge (i.e. come to know more true non-fundamental propositions, sentences, etc.) without end.



total number of future praises by Gabriel and Uriah combined is eight. Since these eight future praises are not actual (at least not yet) given Craig's position on actuality, we have a counterexample to *The Actuality-Number Principle*.

What other reason, then, is there to accept the *Actuality-Infinity Principle*? I cannot think of one. At any rate, I don't see any remarks by Craig that give us any reason to accept this principle. Indeed, I don't think this principle is even *prima facie* plausible.<sup>18</sup> After all, Craig agrees that if a beginningless universe is metaphysically possible, then it is metaphysically possible for the number of past events to be an actual infinite (as opposed to none). Moreover, in light of the above counterexample to *The Actuality-Number Principle*, we saw that it is metaphysically possible for there to be a *finite* number of future events, despite the fact that such events are not actual (according to Craig's understanding of actuality). So, if an endless universe is metaphysically possible, why isn't it metaphysically possible for there to be an actual infinite number of future events (rather than the number of such events being none)? I see no adequate explanation for such a position. Hence, unless Craig offers us some reason for accepting *The Actuality-Infinity Principle*—a principle to which Craig seems to implicitly appeal in response to *Morrison's Objection*—I contend that Craig is not entitled to affirm this principle within the dialectic concerning (6).

Perhaps the defender of (6) can sidestep *Morrison's Objection* (and thus avoid a commitment to *The Actuality-Infinity Principle*) by offering an alternative philosophical case for (6) which in turn does not support (7). It is to such alternatives that I now turn.

## 6. An Alternative Route to (6): Implications of a Beginningless Past

Alexander Pruss (2009) and Andrew Loke (2014) have each independently offered a similar alternative route to (6) which, at a first glance, seems to bypass the criticism of Morrison and Hedrick that, given presentism, it is false that there *are* an actual infinite number of past events.<sup>19,20</sup> The crucial premise that both Pruss and Loke defend is as follows:

9. If (6) is false, then Hilbert's hotel is metaphysically possible.

In support of (9), consider Loke's (2014: 48) remarks:

[T]here exists a 'hotel room builder' who has been building hotel rooms at regular time intervals as long as time exists. Suppose there also exists a 'customer generator' which has been generating customers who checked in the hotel at regular time intervals as long as time exists. Suppose that the hotel rooms and the customers continue existing after they have been built and generated respectively. Now if the actual world is one in which the universe is past-eternal, then there would have been an actual infinite number of time intervals, and an actual infinite number of hotel rooms

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<sup>18</sup> Note that I am not making the stronger claim that the *Actuality-Infinity Principle* is implausible. Nor do I need to make this stronger claim since the burden is on Craig to show us that the *Actuality-Infinity Principle* is more plausible than its negation as a first step towards rebutting *Morrison's Objection*.

<sup>19</sup> Note that only Loke is explicitly responding to Hedrick. Additionally, it is worth noting that Pruss' current position is that there is no problem with an infinite past *per se*, but that there is a problem with infinitely many things causally influencing one thing (personal correspondence).

<sup>20</sup> Thanks to Bill Craig and Alex Pruss for pointing out to me that this kind of argument for (6) in fact traces back to Al-Ghazali, and is discussed by Aquinas in *Summa Contra Gentiles*, II. 81.9. Specifically, the argument appears in Al-Ghazali (2000: 19/Discussion 1, sections 28–30).

and customers occupying the rooms. In other words, if the actual world were one in which the universe is past-eternal, then there would be a world in which an actually infinite number of things have been actualized.

By motivating (9) in the above manner, Loke and Pruss can not only grant that there are no past events given presentism; they can also apparently sidestep *Morrison's Objection* since a universe that is endless (but not beginningless) cannot give rise to Hilbert's hotel through a successive addition of hotel rooms. In other words, the above motivation for (9) apparently does not similarly support the following:

**10.** If (7) is false, then Hilbert's hotel is metaphysically possible.

I will now argue, however, that the theist who accepts (9) should similarly accept (10). I suggest that the intuitive force behind (9) stems from something like the following principle:

**(a)** For any object *o* that comes into existence at some past time, it is possible for *o* to exist at the present time.

Now, the theist who affirms God's omnipotence is arguably committed to the following:

**(b)** For any object *o* that comes into existence at some past time or future time, God can bring about the existence of *o* at the present time.<sup>21</sup>

While (a) and (b) are certainly quite different claims, I think the theist should nevertheless assign an equal degree of credence to both propositions (at least if one affirms God's existence and omnipotence). In that case, consider a scenario just like the one Loke offers, except that when a hotel room and customer come into existence, they immediately go out of existence at the next moment of time. Does this mean that at the present moment there is not an actual infinite number of occupied hotel rooms? Not necessarily. Given the truth of (b), for every occupied room that did momentarily exist, God can bring it about that each such hotel room exists now. Perhaps God simply declares, 'let every occupied hotel room that did exist come into being now'. This implies that, if (6) is false, God can instantaneously bring about an actual infinite number of hotel rooms. I will now explain how the truth of (b) is relevant to the discussion at hand.

Consider a universe *U* that has a beginning but no end. Moreover, suppose that in one thousand years from now in *U*, a hotel room builder and customer generator will begin to bring about an occupied hotel room for every minute without end. It is certainly true that at no point in time will an actual infinite number of hotel rooms be built. However, given (b), if God exists in *U*, God can simply declare 'let every occupied hotel room that *will* be built at some time later than one thousand years from now come into being now for one year', and thus instantaneously bring about an actual infinite number of occupied hotel rooms (for one year).<sup>22</sup> So I conclude that,

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<sup>21</sup> Let's bracket off such objects as a rock that is too heavy for God to lift, or certain objects such that it is morally impermissible for God to bring about (if there are any), and any other anomaly that is irrelevant to the argument at hand.

<sup>22</sup> I specified that God brings about these hotel rooms for just one year in order to avoid intricate issues concerning the same hotel room being multiply located. Another way to avoid issues concerning being multiply located is by stipulating that God declares instead, 'for every occupied hotel room that will be

under the assumption that we assign an equal degree of credence to (a) and (b), the theist who accepts (9) given (a) should also accept (10) given (b). Hence, I contend that, just like *AIAI*, this alternative argument for (6) does not escape *Morrison's Objection*.<sup>23</sup>

## 7. An Alternative Route to (6): The Grim Reaper Paradox

Yet a further argument for the impossibility of a beginningless past is proposed by Koons (2014). Koons employs two versions of the *Grim Reaper (GR) Paradox* (Benardete 1964), whereby each version is meant to establish a different conclusion. The basic idea behind what I will call the *GR-1 Paradox* is that we are to imagine an actual infinite number of Reapers, each of which are assigned a unique time to kill Fred instantaneously if Fred is alive at that time. Fred is alive at noon. Additionally, each Reaper number  $n$ 's designated time is  $1/2n$  of one minute after noon. The *GR-1 Paradox* seems to entail that some Reaper kills Fred (because by 12:01 pm Fred's death is guaranteed), and that no Reaper kills Fred (because for each Reaper one considers, there is yet a *prior* Reaper that guarantees Fred's death). Koons (2014: 256–260) thereby concludes that it is metaphysically impossible for there to be a region of time that has infinitely many temporally extended parts, whereby that region of time is metrically bounded in the past.<sup>24</sup> I don't wish to dispute the conclusion of this argument. Rather my concern is with the implications of Koons' latter argument, to which I now turn.

The basic idea behind what I will call the *GR-2 Paradox* is that we are to imagine a beginningless past, such that for each moment of time in the past there is a unique Grim Reaper who is to issue a death warrant at that time *iff* no previous Reaper has issued a death warrant. The *GR-2 Paradox* similarly results in a contradiction. Koons (2014: 260) says that we should escape this contradiction by affirming (6).<sup>25</sup> The concern I have for this argument is that I think it similarly faces *Morrison's Objection*, at least given certain assumptions (to be discussed below).

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built at some time later than one thousand years from now, let there exist now a unique duplicate of that room'.

<sup>23</sup> Notice that if time travel is possible, then the metaphysical possibility of an endless future seems to similarly imply the metaphysical possibility of Hilbert's hotel given the following principle:

- (c) For any object  $o$  that comes into existence at some future time, it is possible for  $o$  to travel to the present time.

Craig (1990: 150–157) in fact rejects the metaphysical possibility of time travel since, given his commitment to A-theory, Craig rejects the metaphysical possibility of backward causation. Assessing Craig's position unfortunately takes us too far afield. I only wish to note, however, that there is a surprisingly strong case to be made for the compossibility of presentism (Craig's preferred view) and time travel; see Keller and Nelson (2001) and Hall (2014).

<sup>24</sup> The more specific thesis Koons (2014: 259) argues against is the following:

**Possibility of Bounded and Non-Well-Founded Time Sequence (BNWF)** There is a possible world  $W$  and a spatiotemporal region  $R$  in  $W$  such that (i) there is a time  $t$  within  $R$  and a finite temporal interval  $d$  such that no part of  $R$  begins earlier than  $d$  before  $t$ , and (ii)  $R$  has infinitely many temporally extended parts such that these parts can be put into a sequence (ordered by the natural numbers) in which each successive part in the sequence is wholly earlier in time than its predecessor.

<sup>25</sup> The more specific thesis Koons (2014: 260) argues against is the following:

Suppose universe U has a beginning but no end. Every time  $t$  in U is paired with a unique Grim Reaper whose task is to swing their scythe at  $t$  iff no Reaper swings their scythe at  $t^*$ , such that  $t^*$  is posterior to  $t$ . Call this the *Future Grim Reaper (FGR) Paradox*. I will now show that this paradox results in a contradiction.

Consider Reaper<sub>1</sub> whose task is to swing their scythe at  $t_1$  (the first moment of time in U) iff no Reaper swings their scythe at any time after  $t_1$ . Suppose Reaper<sub>1</sub> swings their scythe at  $t_1$ . In that case, no Reaper swings their scythe at any time after  $t_1$ . *A fortiori*, Reaper<sub>2</sub> does not swing their scythe at  $t_2$ . But if Reaper<sub>2</sub> does not swing their scythe at  $t_2$ , this implies that some Reaper swings their scythe at some time after  $t_2$ . *A fortiori*, some Reaper swings their scythe at some time after  $t_1$ . We have thus arrived at the contradictory conclusion that it is both true and false that some Reaper swings their scythe at some time after  $t_1$ . Now, let's suppose instead that Reaper<sub>1</sub> does not swing their scythe at  $t_1$ . In that case, there is some Reaper that swings their scythe at some time after  $t_1$ . Let's arbitrarily suppose that Reaper<sub>5</sub> swings their scythe at  $t_5$ .<sup>26</sup> In that case, no Reaper swings their scythe at any time after  $t_5$ . *A fortiori*, Reaper<sub>6</sub> does not swing their scythe at  $t_6$ . But if Reaper<sub>6</sub> does not swing their scythe at  $t_6$ , then some Reaper swings their scythe at some time after  $t_6$ . *A fortiori*, some Reaper swings their scythe at some time after  $t_5$ . We have once again arrived at a contradiction: it is both true and false that some Reaper swings their scythe at some time after  $t_5$ . So the *FGR Paradox* results in a contradiction. Hence, if the *GR-2 Paradox* shows that (6) is true, then the *FGR Paradox* shows that (7) is true.<sup>27</sup>

Koons (2014: 264–265) claims that we cannot similarly show that an endless future is metaphysically impossible by appealing to some sort of *GR Paradox*:

The only way to construct the Grim Reaper paradox in reverse would be to stipulate that each Reaper is able to check whether or not Fred will be alive at the end of his appointed period, and to kill him if he will, which doesn't make any sense. The apparent connections between time, knowledge and action all seem to rule out the possibility of such a paradox, without providing any grounds for rejecting hypotheses concerning the endlessness of time.

Notice, however, that Koons only considers a future-oriented paradox whereby what a Reaper does is defined in terms of whether or not Fred is alive at (and after) the Reaper's designated time. However, as we have seen, my *FGR Paradox*—like the *GR-2 Paradox* Koons employs in support of (6)—is such that what a Reaper does is sensitive to what other Reapers do, rather than being sensitive to whether or not Fred is alive at some time. For, regarding the *GR-2 Paradox*, Koons (2014: 260) considers a “Grim Placer [a kind of Reaper], who [in order to issue a death warrant] creates a particle and places it at a designated spot, if and only if no particle is already

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**Possible Infinite Past, with Infinitely Many Parts (PIPIP)** There is a possible world W and a region R and time t of W such [sic.] R has a temporal part wholly earlier than d units before t, for every finite interval d.

<sup>26</sup> Perhaps one could maintain that while some Reaper will swing their scythe at some time after  $t_1$ , it is indeterminate which Reaper will do so. This consideration should be taken seriously. Unfortunately, however, since Craig (1990) affirms the full determinacy of the future, this does not appear to be a position Craig can entertain. Thanks to Matt Eller for this suggestion.

<sup>27</sup> Thanks to Travis Timmerman for a lengthy discussion of the *FGR Paradox*.

located at a spot corresponding to any earlier Placer”; according to my *FGR Paradox*, a Reaper swings their scythe *iff* no Reaper swings their scythe at some later time.

Admittedly, as Koons emphasizes (personal correspondence), in the *GR-2 Paradox* each Reaper has a certain causal sensitivity to what past Reapers have done. Moreover, Koons rejects the possibility of a Reaper having causal sensitivity to future events, at least as a basic capacity. In response, I am willing to concede for the sake of argument that it is impossible for a Reaper to have a *basic* capacity to be sensitive (causally or otherwise) to future events. However, a theist such as Craig who affirms God’s omniscience and the future’s full determinacy apparently cannot rule out the possibility of God communicating to Reaper<sub>1</sub> of the *FGR Paradox* as to whether or not some Reaper will swing their scythe at some time after  $t_1$ .<sup>28</sup>

In response to this consideration, Koons maintains (personal correspondence) that it is metaphysically impossible for God to create creatures who embody God’s omniscience. My rebuttal is twofold. First, Reaper<sub>1</sub>’s knowledge of whether some future Reaper will swing their scythe (i.e. knowing the truth of *one* proposition) is consistent with the metaphysical impossibility of Reaper<sub>1</sub> being omniscient. Second, perhaps Koons’ position is motivated by the apparent metaphysical impossibility of causal loops. However, according to the *FGR Paradox*, what Reaper<sub>n+1</sub> does is in no way dependent upon what Reaper<sub>1</sub> does. Rather, what each Reaper does only depends upon what future Reapers do. Hence, God’s communicating to Reaper<sub>1</sub> as to whether some future Reaper will swing their scythe arguably does not involve a causal loop.

Can Koons modify the *GR-2 Paradox* in such a way that what each Reaper does is defined in terms of whether or not Fred is alive at that Reaper’s designated time? Apparently not. If, in a beginningless past, at the designated time of each Reaper, that Reaper issues a death warrant *iff* Fred is alive at that time, then we can consistently maintain that there is no time at which Fred is alive, and thus no Reaper issues a death warrant. Hence, no contradiction arises. If what each Reaper does is defined in terms of whether Fred is alive at that Reaper’s designated time, a contradiction arises *only* in the *GR-1 Paradox*, i.e. a case in which we suppose that there is a time at which Fred is alive, such that that time is *prior* to an actual infinite number times, each of which are designated to some unique Reaper.

To be clear, I don’t take myself to have conclusively shown that Koons’ argument for (6) succumbs to *Morrison’s Objection*. Rather, the main point I wish to make is that, given Craig’s commitment to God’s foreknowledge of a fully determinate future, it is far from obvious that Craig can employ a *GR Paradox* to argue for (6) without succumbing to *Morrison’s Objection*.

## 8. Conclusion

Craig cannot successfully rebut *Morrison’s Objection* without the *Actuality-Infinity Principle*.<sup>29</sup> However, the *Actuality-Infinity Principle* remains unmotivated, and is not even *prima facie*

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<sup>28</sup> A number of theists—such as Merricks (2009: 54–55) and Craig (1990) himself—hold that God’s exhaustive foreknowledge of a fully determinate future need not involve backward causation. Moreover, God’s communicating some truth to a Reaper doesn’t seem to require backward causation either. Hence, someone like Craig should not object to the *FGR Paradox* on the grounds that it must involve backward causation.

<sup>29</sup> To repeat my earlier remark in footnote 2, affirming that only an infinite temporal regress of past events is an actual infinite is not *sufficient* for rebutting *Morrison’s Objection*. However, affirming such a position

plausible, or so I have suggested. Morrision may take tense seriously insofar as he may grant Craig the assumption that, unlike the future, the past and the present are part of the actual world. However, Morrision should not grant Craig the *Actuality-Infinity Principle*, at least not until further notice. Additionally, we have seen that, despite initial appearances, alternative arguments for (6) by Pruss, Loke, and Koons seem to similarly succumb to *Morrision's Objection*. At any rate, I have suggested that Koons' argument for (6) succumbs to *Morrision's Objection* if, like Craig, one affirms God's foreknowledge of a fully determinate future. Perhaps, then, Craig should ultimately bite the bullet and accept (7). Alternatively, perhaps Craig is better off relying solely upon the empirical evidence for (2). Regardless, it is safe to say that the apparent metaphysical possibility of an endless future remains an obstacle for the *a priori* case for the universe's beginning.<sup>30</sup>

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is surely a *necessary* condition for rebutting *Morrision's Objection*. And, as I have tried to show, Craig has not successfully secured this necessary condition since he has not offered us any reason to accept the *Actuality-Infinity Principle*.

<sup>30</sup> For helpful feedback on a previous draft of this paper, I am grateful to Matt Eller, Mark Heller, Rob Koons, Wes Morrision, Alex Pruss, and Travis Timmerman.

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