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# BEGINNINGLESS PAST, ENDLESS FUTURE, AND THE ACTUAL INFINITE

Wes Morriston

One of the principal lines of argument deployed by the friends of the kalām cosmological argument against the possibility of a beginningless series of events is a quite general argument against the possibility of an actual infinite. The principal thesis of the present paper is that if this argument worked as advertised, parallel considerations would force us to conclude, not merely that a series of discrete, successive events must have a *first* member, but also that such a series must have a *final* member. Anyone who thinks that an endless series of events is possible must therefore reject this popular line of argument against the possibility of an actual infinite.

Advocates of the kalām cosmological argument claim that a series of events in time must have a beginning. Putting the matter a bit more precisely, they claim that a series of discrete, successive events must—as a matter of metaphysical necessity—have a first member. On the other hand, they have no problem at all with the suggestion that a series of events in time might have no final member—that it might never come to an end. Why the difference? The received explanation is that a beginningless series of discrete and successive events would be an *actual* infinite, whereas an endless one would be a merely *potential* infinite. The actual infinite is said to have absurd implications that do not afflict a merely potential infinite.

In the present paper, I reject this explanation. I claim that if the main line of argument deployed by the friends of the kalām cosmological argument against the possibility of an actual infinite worked as advertised, it could be employed with equal effect to show that an endless series of events is also metaphysically impossible. Since (as almost all would agree) an *endless* series of discrete events is *not* metaphysically impossible, it follows that something must be wrong with this entire line of argument.

I shall begin by briefly reminding the reader of how the general argument against the possibility of an actual infinite goes. I will then exhibit the implications of this argument for the possibility of an endless series of discrete and successive events. The heart of the paper will be concerned with William Lane Craig's claims (i) that an endless series of events is a merely potential infinite, and (ii) that this establishes a relevant distinction between the beginningless past (which is supposedly impossible) and an



endless future (which is clearly possible). I will argue that no relevant distinction has been established, and that Craig's approach to this issue must be abandoned.

*What's Wrong with the Actual Infinite?*

To show that an actual infinite is impossible in the real world, Craig appeals to intuitions that he expects most people to share. One of his favorite examples is that of Hilbert's Hotel. The (in)famous hotel has infinitely many rooms, each of which accommodates exactly one guest. Each is occupied, and the hotel is "full." Nevertheless, by moving the occupants around in just the right way, new guests can be accommodated—indeed, infinitely many new guests can check into the hotel without making any of the original guests leave the hotel.<sup>1</sup>

Craig also stresses the point that inverse arithmetical operations yield inconsistent results for cardinal infinities. This too can be illustrated by a thought experiment involving Hilbert's Hotel. Suppose that infinitely many guests check out. Depending on *which ones* leave, the hotel may be left with either a finite number, or with an infinite number, of guests. Mathematicians deal with this problem by leaving subtraction for cardinal infinities undefined. "In the real world," however, Craig insists that guests could leave a hotel, no matter what its size. So if Hilbert's Hotel actually existed, we would be stuck with these inconsistent results.

Craig blames all these allegedly absurd implications entirely on the fact that Hilbert's Hotel is infinite. From this he thinks it follows that an actually infinite collection is metaphysically impossible. But consider the following objection. Even if one grants that a Hilbert's Hotel is metaphysically impossible, it does not immediately follow that an infinite number of things cannot exist. The allegedly absurd implications of a Hilbert's Hotel—for example, that infinitely many additional guests could be accommodated by creatively moving its guests around—follow only because infinity is combined with another salient feature of the hotel—viz., the fact that its guests can be *moved*. But when we return to the case we are primarily interested in here—that of a beginningless series of events—there is a relevant disanalogy. Past events cannot be "moved out of" their respective temporal locations. How, then, are we supposed to derive absurd implications from an infinite (because beginningless) series of past events parallel to those that can be exhibited in an infinite hotel accommodating infinitely many *movable* guests?

Here is Craig's answer:

Your objection to the Hilbert's Hotel illustration is that the alleged absurdity arises only from the fact that the guests can be moved about, whereas events

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<sup>1</sup>Just in case anyone needs reminding, one might make room for one new guest by moving each of the current guests to the room with her old number plus one; and one might make room for infinitely many new guests by having each guest move to the room with double her old room number.

in time cannot. Isn't it enough that we can mentally move the guests about? Suppose their rooms had no doors.<sup>2</sup>

Craig's point appears to be that even if the guests couldn't "really" be moved about, we could still do the thought experiments required to show that an actual infinite is absurd. We could still conceive of all the present guests occupying the even-numbered rooms (instead of their present ones), and of infinitely many additional guests occupying all the odd-numbered rooms. We could also conceive of alternative scenarios that would reproduce the worry about inverse arithmetical operations. Even with no doors, the absurdity of a Hilbert's Hotel would still be quite apparent.

Initially, it may not be easy to see how this constitutes much of a response to the objection. Doors can be created. So the guests can still be moved, and not only "mentally." It is metaphysically possible for the guests to be moved. It is *not* metaphysically possible for events to change their temporal locations. So the disanalogy between a Hilbert's Hotel and a beginningless series of events remains in full force.

However, I think that this quick and easy reply may underestimate Craig's response. His real point must surely be that the actual movability of the guests is not essential to the absurdity of a Hilbert's Hotel. Even if (per impossibile) we could conjure up a scenario in which it is metaphysically impossible for the guests to be moved, the absurdity of a Hilbert's Hotel would still be obvious. Why so? Because infinitely many additional guests *could have been accommodated* (one guest per room) in a hotel with exactly the same rooms. It might seem that this lesson *could* be generalized to a beginningless past. Let me explain how.

Even though it's *now* impossible for past events to be moved out of their temporal locations, we can conceive of alternative arrangements. Some of the events *could have been* left out, and they *could have been* differently distributed in time.<sup>3</sup> And this, Craig may think, has implications that are every bit as absurd as those of Hilbert's Hotel.

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<sup>2</sup>Quoted (with permission) from correspondence. This point is further elaborated in a podcast on Craig's "Reasonable Faith" website, in which he answers questions about a public discussion of the kalām cosmological argument that took place at Westminster College in Fulton, Missouri on March 16, 2009. In that discussion, I had made the point that past events are fixed in their temporal positions. After briefly summarizing my position, Craig says that he replied as follows.

This is just a thought experiment. Let's suppose Hilbert's Hotel is a hotel where . . . all the rooms are locked, so that people can't move out of them, or maybe there are no doors to the rooms so that you have an infinite number of rooms, one person in each room, but there [are] no doors. . . . You can still imagine what it would be like for a person in room one to be in room two, the person in room two . . . can be in room four, and you can generate the same absurdities. You don't have to go to the trouble of moving the persons physically.

Since I was there, I can attest that this is the exact line Craig took in our discussion! His podcast can be accessed at: [http://www.rfmedia.org/RF\\_audio\\_video/RF\\_podcast/Debate-on-the-Kalam-Argument.mp3](http://www.rfmedia.org/RF_audio_video/RF_podcast/Debate-on-the-Kalam-Argument.mp3).

<sup>3</sup>One reviewer for *Faith and Philosophy* raised the reasonable question whether this is metaphysically possible. I take no stand on this issue here, but (as the same referee helpfully

To get this idea clearly before our minds, let's conceive of a beginningless series of discrete, successive events of equal duration, terminating in a present event. We can represent such a series this way.

$$(\dots e_{n'} \dots e_{5'} e_{4'} e_{3'} e_{2'} e_{1'} e_0]$$

With this simple picture in mind, Craig's worry about the beginningless series of past events may be understood as follows. We can conceive of an alternative possible world in which the same events (or at least events just like them) occurred in the same temporal order, but in which *between* each pair of events in the series as we originally envisaged it another distinct event has occurred. We can represent the alternative series in the following way.

$$(\dots e_{n'} E_{n'} \dots e_{5'} E_{5'} e_{4'} E_{4'} e_{3'} E_{3'} e_{2'} E_{2'} e_{1'} E_{1'} e_0]$$

In this scenario, infinitely many "additional" non-overlapping events (all the E's) would have taken place within the same (infinite) amount of time. This can't happen *now*, of course. But things *could have been* that way, and this—I believe Craig would say—is just as absurd as actually making room for new guests in a Hilbert's Hotel without kicking anyone out.

We can reproduce the "subtraction" worry in the following way. All events prior to  $e_3$  *could have been* "left out" in such a way that  $e_3$  is the very first event in the series. Thus:

$$[e_{3'} e_{2'} e_{1'} e_0]$$

In this case, infinitely many events would have been "left out" and only four would have occurred. Alternatively, every other event could have been "left out." We can represent this possibility as follows.

$$(\dots e_{n'} \dots e_{4'} e_{2'} e_0]$$

In this case, infinitely many events would have been "left out," but infinitely many would still have occurred.

Thought experiments such as these might seem to do the same work for Craig that his observations about a Hilbert's Hotel do for an actually infinite set of coexistent items. If we allow for the possibility of a beginningless series of events, then it appears that *infinitely many more* events could have occurred in *the same amount of time*. It also appears that infinitely many could have been left out with a *finite* remainder, but that infinitely many could also have been left out with an *infinite* remainder. These implications are said to be patently absurd, and we are invited to conclude that a beginningless past is just as impossible as a Hilbert's Hotel.

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pointed out) it makes no difference to the main argument of this paper. If the alternative series of events envisaged here is metaphysically impossible, then Craig is left without a response to my objection that a Hilbert's Hotel is not suitably analogous to a beginningless series of past events.

It is controversial, of course, whether there is genuine absurdity in either case.<sup>4</sup> But what if these implications of a beginningless series of past events were genuinely absurd — what if they really did show it to be metaphysically impossible? Then, I claim, *parallel reflections on an endless series of future events should yield precisely the same conclusion*. They should convince us that it too is metaphysically impossible. But they don't; so something must have gone badly wrong.

*What about an Endless Series of Future Events?*

Let's begin by doing a simple thought experiment that will make the parallel between a beginningless series of past events and an endless series of future ones stand out clearly. Imagine two scenarios. In the first, we'll suppose that two angels — Gabriel and Uriel — have been taking turns praising God for one celestial minute each throughout a beginningless past. In the second, Gabriel and Uriel will soon *begin* taking turns praising God for one celestial minute each, and *will* do so forever. According to the friends of the kalām argument, the former scenario is metaphysically impossible because it involves an actual infinite, whereas the latter involves only a potential infinite and is not metaphysically impossible.

This won't do. We can easily tweak the example in such a way as to make the endless series of future praises similar in all *relevant* respects to a beginningless series of praises. Suppose that God has just decreed that Gabriel and Uriel *will* take turns praising Him for one minute of celestial time, and that they *will* do so *forever*. Gabriel will do the odd-numbered praises and Uriel the even-numbered ones. Let's go a step further. So as not to leave any opportunity for Gabriel or Uriel to mess things up, let's suppose that this is no mere instruction or recommendation, but that God has exercised His supreme power in such a way as to *make* it the case that *each* praise in the endless series of praises we have envisaged *will* occur. Each of them is discrete, wholly determinate, and certain to occur because God has determined that it *will* occur.

It's true, of course, that Gabriel and Uriel will never *complete* the series of praises. They will never arrive at a time at which they have said all of them. Indeed, they will never arrive at a time at which they have said infinitely many praises. At every stage in the future series of events as I am imagining it, they will have said only finitely many. *But that makes not a particle of difference to the point I am about to make*. If you ask, "How many distinct praises *will* be said?" the only sensible answer is, *infinitely many*.

It is worth underscoring this point, since Craig sometimes accuses his opponents of confusedly talking about a time at which infinitely many events will have occurred, and then (quite rightly) points out that no such time will ever arrive. So let me be perfectly clear. When I ask, *How many*

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<sup>4</sup>I myself am inclined to side with those who say that the properties of the infinite are simply different from those of the finite, and that it is a mistake to assume that what's true of a finite collection must be true of any collection.

*praises will be said?*, I am *not* asking, *How many will have occurred when all the praises have been said?* The answer to the two questions must be the same if, as would be the case for any finite series of praises, the series will be completed. But in the case of an endless (never-to-be-completed) series, the answers must be different. Each of infinitely many distinct praises *will* be said, precisely because there will be no future time at which *all* have been said.

Now, then, imagine someone, under the spell of Craig's reflections on Hilbert's Hotel, who offers the following objections to my imaginary scenario.

- If your scenario were possible, God could instead have determined that Gabriel and Uriel will wait a celestial minute after each pair of praises, thus making "room" for *infinitely many more* praises by a third angel—Raphael, say. Infinitely many praises by Raphael are "added," and the praises of all three angelic beings will be said in the same (infinite) amount of time. That's absurd.
- If your scenario were possible, God could instead have determined that Gabriel and Uriel will stop after praise number four. *Infinitely many* praises would be prevented, and the number of their future praises would be *only four*. Alternatively, God could have determined that *Gabriel* be silent during all the celestial minutes between Uriel's future praises. In this case too, *infinitely many* praises would be prevented, but the number of future praises would instead be *infinite*. That shows that your infinite future praise scenario has inconsistent implications.

Must we conclude from reflections such as these that an endless series of future events is metaphysically *impossible*? That even God could not bring it about that infinitely many distinct praises will be said, one after the other? Surely not! But then neither (say I) should we say that a beginningless series of past events is metaphysically impossible. (At least not on *these* grounds.) As far as the alleged "absurdities" of infinite collections are concerned, the two cases are on exactly the same footing. The only difference is that at any time in an endless future each of infinitely many events *will* occur, whereas at any time in a beginningless past, each of infinitely many *have* occurred. The former is obviously possible. Why not the latter? What difference could a mere change of tense make?

#### *A Merely Potential Infinite?*

As noted above, Craig and other advocates of the kalām cosmological argument invariably reply: "But you are envisaging a merely *potential* infinite here! We have claimed only that an *actual* infinite is impossible."

Let's think a bit about this response. How, exactly, are we supposed to distinguish between a true actual infinite and a mere potential one? Here is how Craig explains the difference:

An actual infinite is a collection of definite and discrete members whose number is greater than any natural number. By contrast, a potential infinite is a collection that is increasing toward infinity as a limit but never gets there.<sup>5</sup>

Given this pair of definitions, is it clear that the endless series of future praises envisaged above is a potential, rather than an actual, infinite? I don't think so, but in order to get completely clear about the issue we're going to have to think a bit about the nature of time.

Note first how matters would stand on an "eternalist" view of time. According to the eternalist, time is analogous to a series of spatial locations, with each event "tenselessly" occurring at its position in a temporally ordered series. Future events are those that occur later than whichever time we take as our reference point (for example, the time at which I am typing these words), and past events are those that occur earlier than this reference point. On this view, there is no relevant difference between past and future. The praises occurring later than our point of reference on the time line are just as "definite and discrete" as those that occur earlier, and there is no more reason to think that there must be a first praise than to think that there must be a final one. In either case, we would have a clear example of an actual infinite. So given eternalism, there is no relevant difference between the Gabriel/Uriel scenario with no beginning, and the one with no end.

As far as I know, no advocate of the kalām argument is an eternalist. Certainly Craig is not. He holds that there is an ever-changing fact of the matter about what is happening, what has happened, and what will happen. Does this make a difference here? Given the reality of temporal becoming, should we say that the endless series of events that I have envisaged is a merely potential infinite?

Applying Craig's definition of the potential infinite, let's ask first whether the series is "growing toward a limit." The answer must be no. As I have envisaged it, the series of *future* praises is not "growing" at all. As each praise becomes present, it is *removed* from the "collection" of those that are yet to come. The collection of future praises is, so to speak, *losing* members.<sup>6</sup>

So what, if anything, is *increasing* here? The answer must go something like this. Suppose Gabriel and Uriel have just begun their praises. As new praises become present and then past, they are continually added to the collection of those that *have* been said. *This* collection—the collection of praises that have been said, and not the collection of praises yet to be

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<sup>5</sup>William Lane Craig, *Reasonable Faith: Christian Truth and Apologetics*, 3rd edition (Wheaton, IL: Crossway Books, 2008), p. 116.

<sup>6</sup>By speaking in this way, I do not mean to imply anything about the ontological status of future events. In particular, I do not mean to suggest that they are somehow "there" in the future, waiting for their turn to become present. I could have said much the same thing in a more cumbersome way. For example, I could have said that the collection of future tensed truths about the praises of Gabriel and Uriel is losing members. I'll have a bit more to say about this in the next section.



said—is the one that is continually growing, and it will continue to grow forever. Is it, to use Craig’s expression, “increasing toward a limit?” I’m not sure how the word “limit” is being used here. Certainly, the number of praises that have been said is not getting closer and closer to infinity! But perhaps all Craig really means to say is that the series of events that have occurred grows *without limit*.

If that’s all there is to a “potential infinite,” then perhaps we should say that at any of its stages the series is potentially infinite. Unfortunately, it’s not clear that the series of praises yet to be said by Gabriel and Uriel should not be characterized as an *actual* infinite.

Let’s begin by recalling Craig’s definition of the actual infinite.

An actual infinite is a collection of definite and discrete members whose number is greater than any natural number.

As I have imagined the scenario, each of the praises is definite and discrete. What is their number? Since there is a first praise, the number of praises that *have* been said will always be finite. But that’s not what I’m asking about. What I am asking is this: How many “definite and discrete” praises *will* be said *after* a given moment of time? (It’s very important to keep our tenses straight here!) I do not see how the friends of the kalām argument can avoid the conclusion that the number of praises, each of which *will* be said, is (and always will be!) be greater than any natural number. No matter which praise you pick, it’s already a settled fact that Gabriel and Uriel *will* say one more each.

The opening words of the final verse of the much loved hymn, “Amazing Grace,” pretty well captures the situation I am imagining. “When we’ve been there ten thousand years, bright shining as the sun, we’ve no less days to sing God’s praise than when we first begun.” So how many days of praise is that? The only possible answer would seem to be, *infinitely many*. Craig, however, denies that this is so, insisting that the number of future praises is merely “indefinite.”<sup>7</sup>

I do not see how “indefinitely many” could be the correct answer to the question I am asking. In the scenario as I have described it, *nothing has been left indefinite*. God has *determined* that *each* member of the endless series of praises will occur. For any  $n$ , praise number  $n$  will be said. There is a completely determinate fact of the matter about when it will be said, by whom, with what words, and in what precise manner. Nothing has been left “indefinite” or “indeterminate.” The correct answer to the question, *How many praises will be said?*, can only be, *infinitely many*. Given Craig’s own definition of the actual infinite, the series of future praises is an actual infinite.

If you are inclined to doubt that I am right about this, consider the following question. Why should we think that *if* there *had* been a beginningless

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<sup>7</sup>William Lane Craig and Quentin Smith, *Theism and Big Bang Cosmology* (Oxford: Oxford University Press, 1993), p. 25. This was also the line Craig took in the public discussion of the kalām cosmological argument at Westminster College referenced in note 2.

series of events then there would have been infinitely many of them? The answer is obvious. Before any event in the imagined series had occurred, another *had already* occurred. Change the tenses, and a parallel argument applies to the endless series of future events in my thought experiment. No matter how many have been said, one more *will* be said. As noted above, it does not follow that there will be a time at which infinitely many *have been* said. But it *does* follow that right now infinitely many *will be* said.

I can think of only one way to make sense of the idea that the number of discrete events that will occur is “indefinite.” That would be to insist there is no fact of the matter about whether each of those events will be followed by another. If that were so, it might be completely up for grabs whether the series will come to an end. (There might be probabilities, of course, but no truth of the matter.) As I have envisaged the future series of praises by Gabriel and Uriel, however, it is *not* up for grabs whether the series will come to an end. God has already exercised His power in such a way as to *guarantee* that each of those events *will* occur, and *will* be followed by another. They are discrete and definite and completely determinate. If God is omniscient, He must know each of them in exhaustive detail. Their number can only be infinite.<sup>8</sup>

#### “Presentism” to the Rescue?

Craig also sometimes invokes his “presentist” view of time to try to avoid this conclusion.<sup>9</sup> Presentism, as Craig defines it, is the view that “the only temporal items that exist are those that exist presently.”<sup>10</sup> As a presentist, therefore, Craig holds that future objects and events don’t exist. Could this provide a suitable reason for thinking that the endless series of praises envisaged above could not be a true actual infinite?

If you are inclined to think that the non-existence of future events required by presentism makes any real difference here, then I invite you to do the following thought experiment. Suppose that God determines that Gabriel and Uriel will do just *five* pairs of praises. On this supposition, each of ten praises will be said. Are you barred from giving this obviously correct answer by the fact that those praises don’t (yet) exist? Must you say that the number of future praises is “indefinite?” No? Then why should this answer be any more acceptable when we return to our original supposition that God has determined that Gabriel and Uriel will take turns doing celestial minutes of praise without ceasing?

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<sup>8</sup>Sometimes Craig insists that God’s knowledge is not propositional, and that we mustn’t suppose that there are infinitely many thoughts in God’s mind. But the reference to God’s knowledge of the future is not essential to my argument. My point concerns the number of objects that are in principle knowable—not the way in which an omniscient God would know them.

<sup>9</sup>He introduced this idea in the Westminster College discussion referenced above, and he discusses it further in the podcast cited in note 2.

<sup>10</sup>William Lane Craig, “In Defense of Presentism,” *Time, Tense, and Reference* (Cambridge, MA: MIT Press, 2003), p. 391. I think Craig’s reason for limiting the claim to “temporal items” is that he wants to leave room for the possibility of an atemporal Creator who enters time when He creates the universe.

Note also that presentism is a double-edged sword, since it implies that *past* objects and events don't exist. If the non-existence of future events made any real difference to the question we are concerned with, you'd think the non-existence of past events would make the same difference. If the non-existence of future events entailed that an endless series is not an actual infinite, the non-existence of past events should have precisely the same unwelcome implication.

So how does Craig distinguish the two? I know of only one place where Craig answers this obvious question. There he says that because "past events, as determinate parts of reality, are definite and distinct and can be numbered, they can be conceptually collected into a totality." Consequently, "all the absurdities attending the real existence of an actual infinite apply to it." The set of events after any event that has happened is, by contrast, "an *indefinite* collection of events, always finite and always increasing."<sup>11</sup>

In the same passage, Craig criticizes Aristotle and Aquinas for having argued that the past is a merely potential infinite on the ground that "the series of past events does not exist in actuality." They were mistaken, Craig says, because past events have a feature "not shared with future events, namely their actuality."

This is puzzling, to say the least. For one thing, the claim that past events are "determinate parts of reality" appears to be incompatible with the presentist claim that past events do not exist.<sup>12</sup> But even if the alleged asymmetry between past and future were allowed to stand (as it would on a "growing block" view of temporal becoming), it is hard to see why there *must* be anything "indefinite" about the number of events that occur after a given event. In the Gabriel/Uriel scenario, all indefiniteness is removed by an exercise of divine power. It would be very surprising indeed to learn that Craig or any other advocate of the kalām argument thinks it metaphysically impossible for God to exercise His power in the required way.

Presentists like Craig may, if they like, say that only present objects and events exist. But they still have to acknowledge that there are *truths* about both past and future objects and events. What, if anything, makes them true? What is there, on the presentist view, for past- and future-tensed propositions to correspond to? Here is Craig's answer:

What such an account of the truth of past- and future-tense propositions requires is that there are tensed facts corresponding to tensed propositions, and the A-theorist is only too eager to affirm this conclusion. Thus, the proposition that Plato wrote *The Republic* is true, on a view of truth as correspondence, because this event did occur; that is, a man named Plato did exist and wrote the work entitled *The Republic*. These are tensed facts that (depending on what one takes a fact to be) exist or obtain or are true

<sup>11</sup> Craig and Smith, *Theism and Big Bang Cosmology*, p. 25. My italics.

<sup>12</sup>I am not sure whether Craig would have described himself a presentist when he gave this explanation.

now, but were not so in, say 5000 B.C. So a view of truth as correspondence requires the objective reality of tensed facts, facts about what was or will be the case.<sup>13</sup>

Applying this idea to my Gabriel/Uriel scenarios, we can infer that the truth-makers for the propositions figuring in my stories will amount to no more than past- and future-tensed “praise facts” about Gabriel and Uriel that “exist or obtain or are true now.” We can then ask *how many* such future-tensed praise facts there are. Once again, the only reasonable answer is, *infinitely many*.

Occasionally, Craig seems to entertain the possibility that there need be no truth-makers at all.<sup>14</sup> Would this help his case? I can’t see how. Even if there are no truth-makers, there must still be infinitely many *truths* about the future: for example, the truth that Gabriel will say praise number one, the truth that Uriel will say praise number two, and so on. In each case, that’s how it *will be*.

Working out the details of a presentist account of time and truth is not for the faint-hearted, and presentists like Craig have a lot of work to do. But as far as the argument of this paper is concerned, it doesn’t matter how they fill in the details. If there are truths about the future, then presentists cannot dodge questions about the number of events that *will* occur in scenarios like the ones I have proposed. If there is—now—a complete body of truth about an endless series of discrete and successive events, each of which *will* occur, presentists cannot avoid answering the question, *How many will occur?*<sup>15</sup>

I think it is fair to conclude that the appeal to presentism merely complicates matters without blunting the main thrust of my argument. The non-existence of *past* events does not prevent us from asking how many *have occurred*. Nor should the non-existence of *future* events prevent us from asking how many *will occur*. In neither case will “indefinitely many” do as an answer.

Returning one last time to my fanciful illustration, each future praise by (or future-tensed praise fact about) Gabriel and Uriel is discrete and definite. Since their number is greater than any natural number, it follows—by the letter of Craig’s own definition—that such an endless series of praises (or praise facts) is an *actual* infinite.

I suppose Craig might add some clause to his definition of an “actual infinite” to avoid this implication—requiring, perhaps, that the members of the collection be concrete rather than abstract. But in the present context

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<sup>13</sup>Craig, “In Defense of Presentism,” p. 397.

<sup>14</sup>William Lane Craig, “Middle Knowledge, Truth-Makers, and the Grounding Objection,” *Faith and Philosophy* 18 (2001), pp. 337–352.

<sup>15</sup>In this paper, I have argued for the *possibility* of an actually infinite series of future events. God *could* make the future both endless and wholly determinate. But given Craig’s long-standing commitment to the view that there is a complete and fully determinate body of truth about the future (all of it known to God), together with his belief in the life everlasting, this must be more than a possibility for Craig. It must be the literal truth.

this is a matter of no consequence. Whether we do or don't call the series of future praises an "actual infinite" is not what matters. What does matter is that we can derive the same sorts of *allegedly* absurd implications that Craig and other friends of the kalām argument claim to be able to derive from a beginningless series of events.<sup>16</sup> In this respect, an endless series and a beginningless series are in exactly the same boat. In my humble opinion, the proper conclusion is that these implications cannot be as absurd as the advocates of the kalām argument make them out to be.<sup>17</sup>

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<sup>16</sup>Craig has, of course, given other arguments against the possibility of a beginningless series of past events. Elsewhere I have dealt with his claim that no beginningless series of events could be formed by successive addition, as well as with his animadversions on the strange case of "Tristram Shandy." See, for example, "Must the Past Have a Beginning?" *Philo* 2.1, pp. 5–19. In the present paper, my aim has been only to show that the *supposedly* absurd implications of a Hilbert's Hotel are no more telling against a beginningless series of discrete past events than they are against an endless series of discrete future ones. For most advocates of the kalām argument, this is a matter of some interest and importance.

<sup>17</sup>I wish to thank Brad Monton and Tyler Hildebrand for discussions that helped me formulate the views expressed in this paper. I would also like to thank the Editor of this Journal and two anonymous referees for many helpful suggestions.