Taking Tense Seriously in Differentiating Past and Future A Response to Wes Morriston

William Lane Craig

SUMMARY

Wes Morriston argues that even if we take an endless series of events to be merely potentially, rather than actually, infinite, still no distinction between a beginningless and an endless series of events has been established which is relevant to arguments against the metaphysical possibility of an actually infinite number of things: if a beginningless series is impossible, so is an endless series. The success of Morriston's argument, however, comes to depend on rejecting the characterization of an endless series of events as a potential infinite. It turns out that according to his own analysis it is vitally relevant whether the series of events is potentially, as opposed to actually, infinite. If it is reasonable to maintain that an endless series of events is potentially infinite while a beginningless series is actually infinite, then a relevant distinction has been established for any person who thinks that an actual infinite cannot exist.

TAKING TENSE SERIOUSLY IN DIFFERENTIATING PAST AND FUTURE A RESPONSE TO WES MORRISTON

I

According to Wes Morriston, the heart of his paperi is concerned with two 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).

He tells us that "I will argue that no relevant distinction has been established." Morriston's statement makes it evident that his critique will be directed at the second claim above. To be successful, such a critique must grant (i), at least for the sake of argument. Morriston needs to show that even if an endless series of events is merely potentially, rather than actually, infinite, then no relevant distinction between the two series has been established.

A careful reading of Morriston's paper reveals, however, that he fails in his objective, for midway through his paper, beginning in the section entitled "A Merely Potential Infinite?," Morriston shifts to attacking, rather than conceding, (i). The success of his argument thus comes to depend on

rejecting (i)'s characterization of an endless series of events as a potential infinite. It turns out that according to his own analysis it is vitally relevant whether the series of events is potentially, as opposed to actually, infinite. If it is reasonable to maintain that an endless series of events is potentially infinite while a beginningless series is actually infinite, then a relevant distinction has been established for any person who thinks that an actual infinite cannot exist.

Morriston's attack on the potential infinitude of an endless series of events is thus of much broader interest than the concerns of natural theology, for virtually all philosophers who espouse a tensed, or A-theory of time, hold that the series of successively ordered, isochronous events later than some denominated event is potentially infinite.

II

Morriston's argument prior to the crucial above mentioned shift is fatally ambiguous.ii There are two ways in which a temporal series of isochronous events which has a beginning might be endless: (i) it might be actually infinite, that is to say, composed of an actually infinite number of events; (ii) it might be potentially infinite, that is to say, composed of a finite but ever increasing number of events with infinity as a limit. The second answer entails an A-theory of time according to which temporal becoming is an objective feature of reality, whereas the first answer is naturally associated with a B-theory according to which all events in time are on an ontological par.

So with respect to Morriston's illustration of two angels who begin to praise God forever, an A-theorist will concur whole-heartedly with his statement, "If you ask, 'How many praises *will be* said?' the only sensible answer is, *infinitely many*"— that is to say, potentially infinitely many. If this answer is allowed the A-theorist, then Morriston's allegedly parallel arguments collapse. God could have made room for potentially infinitely many more praises by a third angel, in which case potentially infinitely many praises are "added," and the praises of all three angels will be sung in the same potentially infinite amount of time. No absurdity there, for the number of praises said by the angels will always be finite, even though increasing toward infinity as a limit. Or again, if God determined that the angels stop after the fourth praise or if one angel were silenced, potentially infinitely many praises would be prevented, but in one case only four praises will be said while in the other potentially infinitely many will be said. Again, there is no absurdity, since the infinity is merely potential. Nothing parallel can be said of a beginningless series of events, for given the asymmetry of temporal becoming the past cannot be potentially infinite, for then it would have to be finite but growing in a backwards direction.

If such an answer is allowed the A-theorist—as it must be if Morriston is to succeed in showing that construing an endless series of events as potentially infinite is not relevant to the argument—

, then it is clear that Morriston's cases are not at all parallel to a beginningless series of events. As becomes even clearer in *kalam* arguments for the past's finitude based on the impossibility of forming an actual infinite by successive addition,[iii] the asymmetry of time marks a huge metaphysical difference between past and future on an A-theory of time. Perhaps the most telling sentence in Morriston's paper is his puzzled query, "What difference could a mere change of tense make?"

III

Realizing that the A-theorist will insist that an endless series of events is properly a potential rather than an actual infinite, Morriston in the second part of his paper turns, contrary to his stated purpose, to challenging the claim that an endless series of events is merely potentially infinite. He asks, "Is it clear that the endless series of future praises envisaged above is a potential, rather than an actual, infinite?" "Given the reality of temporal becoming, should we say that the endless series of events that I have envisaged is a merely potential infinite?"

In order to justify a negative answer to those questions, Morriston misconstrues the A-theorist's view in a perverse but interesting way. When the A-Theorist affirms claim (i) above, the endless series of events that he is talking about is the actual series of events that have occurred. But as Morriston makes clear, he is talking instead about a series which, on the A-theory, in no sense exists, namely, the series of events that have not yet happened. So Morriston says, "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." This will strike an A-Theorist as a bizarre ontology, one at least to which the A-theorist is by no means committed. There is no such series as Morriston imagines, any more than there is a series of events which were prevented, which is constantly increasing as time goes on. Morriston has not shown that claim (i) is false with respect to the series which the A-Theorist has in mind, for the referent of the phrases "an endless series of events" and "an endless future" in claims (i) and (ii) is a *different* series than the series Morriston is envisaging.

Morriston denies that he is talking ontology. He says that he could rephrase his claim to be that the collection of future tensed truths about the angels' praises is losing members. But then he *is* talking ontology, for such a rephrasing seems to presuppose that truths are abstract objects, which has not been justified. Morriston needs to 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. Morriston later returns to his suggestion that rather than future events, which on an A-Theory of time are not part of reality, we consider future-tensed truths or corresponding tensed facts. But this move makes two unjustified assumptions: first, Platonism with respect to propositions and,

second, the actual infinitude of propositions or facts. If we accept these assumptions, there is no need for appeal to future-tensed truths in order to designate an actual infinitude of propositions, since for every proposition *p* there is the further proposition that *Tp*, or that *it is true that p*. The finitist will therefore either deny Platonism with respect to propositions, taking them to be useful fictions perhaps, or deny that there are an infinite number of propositions, since, God's knowledge being non-propositional, propositions are the byproduct of human intellection and so merely potentially infinite in number, as we come to express propositionally what God knows in a non-propositional way.

Morriston reiterates his intuition that the number of angelic praises that will be said in an endless series is actually infinite. But the only praises that are actual are the ones that are said, and they will always be finite in number. An actually infinite number of praises will not be said. Consider the more familiar examples of the potential infinite in spatial division and addition. There is an enormous difference between taking a spatial line to be a densely ordered composition of points and taking it not to be composed of points but potentially infinitely divisible. On the latter view one can continue to divide a line endlessly, but one will not make an actually infinite number of divisions. These are entirely distinct views of the nature of space, and the one cannot be collapsed into the other. Or again, if the universe is finite (due to space's having a positive curvature) but endlessly expanding, the volume of the universe is potentially infinite, but it will not become actually infinite. There is a world of difference between models of the universe in which space is actually infinite in extent and models in which space is ever-expanding but always finite.

Similarly in Morriston's illustrations what is real or actual is always finite. So in answer to Morriston's question, "How many praises will be said?", we should answer, "Potentially infinitely many," and distinguish this from the question, "What is the number of praises in the series of future praises?", the answer to which is "None."

Morriston insists that on an A-Theory of time, past events likewise do not exist, so the non-existence of future events does not make any real difference. But despite confessing some puzzlement about the concept of the potential infinite as a limit, iv Morriston seems prepared to concede that the series of events that have happened is merely potentially infinite in the *later than* direction. Moreover, it is clear that nothing parallel can be truthfully said of the series of events that have happened in the *earlier than* direction. The number of events that have happened earlier than any given event can therefore only be either finite or actually infinite. On an A-Theory of time the temporal series of events comprises everything that has happened and nothing more. Note well the use of the perfect tense in this characterization. The perfect tense of "has happened" covers every time up through the present and so includes every event past and present. Everything that has happened has been actualized. As the medievals put it, these events

have exited from their causes and are therefore no longer in potentiality. The actual world thus includes both what does exist and what did exist. But events which have yet to take place, being pure potentialities, are, on a tensed view of time, not part of the actual world.v

The ontological distinction between the past-present on the one hand and the future on the other is especially perspicuous in "growing block" views of time, such as that enunciated by the middle C. D. Broad and defended by Morriston's colleague Michael Tooley. A proponent of the *kalam* argument who accepts the growing block view has no difficulty in differentiating the actuality of the past from the potentiality of the future. My claim is that the tenseless existence of the past block of events is not a necessary condition of the past's actuality. Even if past events do not exist, they are still part of the actual world in a way that future events are not, since the actual world comprises everything that has happened.

IV

In conclusion, it seems clear that Morriston has not succeeded in the central purpose of his paper, namely, to show that even if an endless series of events is merely potentially infinite, that fact establishes no relevant distinction between the beginningless past and an endless future. He was instead forced to shift to arguing that an endless series of events cannot be taken to be potentially infinite. But his argument seriously misconstrued the A-Theory of time, substituting an imaginary series of events for the ongoing series of events that have actually happened.

Footnotes

i Wes Morriston, "Beginningless Past, Endless Future, and the Actual Infinite," *Faith and Philosophy* .

ii Although I am not entirely happy with Morriston's reconstruction of my argument for finitism, I let that pass. Rather than speaking of alternative possible worlds, I should speak in terms of counterfactual conditionals. If every other guest in Hilbert's Hotel were to check out, how many would be left? The thought experiment does not depend on the truth of the antecedent. I think that there are non-trivially true counterfactuals with impossible antecedents, *e.g.*, "If God did not exist, the universe would not exist."

iii The difference between the potentiality of the future and the actuality of the past emerges with special clarity in the *kalam* arguments for the beginning of the universe based on the impossibility of forming an actual infinite by successive addition. For example, al-Ghazali invites us to suppose that Jupiter and Saturn orbit the sun in such a way that for every one orbit that Saturn completes Jupiter completes two. The longer they orbit, the further Saturn falls behind. If they continue to

orbit forever, they will approach a limit at which Saturn is infinitely far behind Jupiter. Of course, they will never actually arrive at this limit. But now turn the story around: suppose Jupiter and Saturn have been orbiting the sun from eternity past. Which will have completed the most orbits? The answer is that the number of their orbits is exactly the same, *viz.*, infinity! That may seem absurd, but it seems to be the inevitable result of the actuality of the past as opposed to the potentiality of the future.

iv Limits play an essential role in the mathematical process of differentiation, one of the pillars of the calculus. The limit of a certain function $f(x)$ is the value of that function as x approaches a given number. This is written:

$$\lim_{x \to a} f(x) = L$$

which is read, "As x approaches a, the limit of $f(x)$ is L." Sometimes one is interested in finding the limit of a function as the value of a increases indefinitely, in which case one substitutes the sign of the potential infinite "∞" for a:

$$\lim_{x \to \infty} f(x) = L$$

In such cases we are said to be determining the limit "at" infinity. Sometimes the value of a function increases indefinitely as the inputs approach a certain number, in which case the limit of the function is infinity:

$$\lim_{x \to a} f(x) = \infty$$

In neither case is the infinite a number, as $\aleph_0$ is. In Morriston's illustrations both the value of a and the limit of the function $f(x)$ are ∞. So, *e.g.*, if for every one praise uttered by one angel there are two uttered by the other,

$$\lim_{x \to \infty} f(x) = 2x = \infty$$

As x approaches infinity, so does the output of the function $2x$. Significantly, the function value $f(a)$ is completely unrelated to the value or even the existence of a limit as x approaches a, *i.e.*, "at" a. Thus, in Morriston's illustration we are not talking about the value $f(\infty)$. Infinity is merely approached, not attained. So if we compare the number of praises offered by the angels, we find that they increasingly diverge:

lim $g(x) = 2x - x = \infty$

$x \to \infty$

But now contrast the case of two angels praising God at a 2:1 ratio from eternity past. In this case, as in the case of Saturn and Jupiter in al-Ghazali's illustration mentioned in note 3, infinity has been attained; an actually infinite number of praises has been sung. In this case we are, indeed, concerned with the value $f(a)$, and it can only be $2 \cdot \aleph 0 = \aleph 0$.

v The lesson of McTaggart's Paradox is that, if we take tense seriously, there can be no maximal description of reality such as is imagined in possible worlds semantics, which provide purely tenseless descriptions of the way the world might be. For an attempt to introduce tense into possible worlds semantics, see William Lane Craig, *The Tensed Theory of Time: A Critical Examination,* Synthese Library 293 (Dordrecht: Kluwer Academic Publishers, 2000), pp. 208-10.