An infinite temporal regress is compatible with the *Doctrine of Creatio Originans*

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Abstract. In this paper I show that the existence of an infinite temporal regress does not undermine the soundness of Craig's version of the *Kalam* Cosmological Argument. To this end I shall focus on a particular complication that Craig raises against one of his arguments in support of a finite temporal regress. I will show that this complication can be made innocuous by extending the notion of A-theoretic time, which is presupposed by Craig's argument, to include a notion of temporal becoming that is compatible with the existence of an infinite regress of temporal events. All this shows that God could have created an infinite temporal regress a finite time in the past without this entailing a contradiction.

1. The Argument from the Impossibility of Forming and Actual Infinite through Successive Addition

Craig presents the *Kalam* Cosmological Argument in the following form:

(1) Everything that begins to exist has a cause of its existence.
(2) The universe began to exist.
(3) Therefore, the universe has a cause of its existence.[1]

Craig claims that further analysis of what it means for the universe to have a cause shows that this cause is timeless, immaterial, spaceless, and a personal agent.[2] Given that these are among the traditional properties of God, Craig concludes that God exists. In this paper I focus on one of the arguments Craig provides in defense of premise 2, namely the argument from the impossibility of forming an actual infinite through successive addition.[3] This argument can be expressed as follows:

(4) A collection formed by successive addition cannot be an actual infinite.

(5) The temporal series of events is a collection formed by successive addition.

(6) Therefore, the temporal series of events cannot be an actual infinite.[4]

Craig defines "actual infinite" by contrasting it with the concept of "potential infinite". A potential infinite collection or an indefinite collection is finite in number at any one time but is continually being added to so as to increase without limit. On the other hand an actual infinite collection is a completed whole totality:

> The crucial difference between an infinite set [an actual infinite] and an indefinite collection [a potential infinite] would be that the former is conceived as a determinate whole actually possessing an infinite number of members, while the latter never actually attains infinity, though it increases limitlessly.[5]

It is made clear by Craig that he has no quarrel with the idea of the potential infinite, that is, the idea that a collection or quantity could be increased indefinitely without limit.[6]

For arguments sake I will assume that premise 4 is true, although I might add that this seems to me to be a highly reasonable assumption to make.[7] The reason behind this is due to the very nature of the actual infinite itself:

> The reason is that for every element one adds, one can always add one more ... Another way of seeing this point is by recalling that $\aleph_0$ has no immediate predecessor. Therefore one can never reach $\aleph_0$ by successive addition or counting, since this would involve passing through an immediate predecessor of $\aleph_0$.[8]

As there is no infinitieth member of an infinite series to reach, there can be no completion by successive addition of an infinite series. What makes a series or a collection infinite is not that it has a last member that is the infinitieth member but that it does not have a last member at all.

Craig summarizes his case for premise 5 as follows:

> As for premise [5], the only persons who deny this step of the argument are proponents of a static conception of time. Since they reject the reality of temporal becoming, they deny that the past

was formed by successive addition. All times exist tenselessly, and there is no lapse of time. But our lengthy inquiry into the nature of time ... brought us to the conclusion that the static conception of time is wrong. Time is dynamic, and therefore the past has been formed sequentially, one moment lapsing after another.[9]

Craig advocates the dynamic or tensed or A-theory of time. According to this theory the present has a unique ontological status relative to the past and future. In short only the present is real, whilst the future and past lack reality. Time is a series (known as an A-series) of moments coming into existence one after another and then passing away one after another. As time is a series of becomings, one moment or event coming into existence after the other, the collection of events (that either have existed or do exist) is formed by successive addition. In the above passage Craig draws attention to an alternative theory of time to the A-theory. The static conception, or the B-theory or tenseless theory, denies that the present has a unique ontological status over and above the past and future. The past and future are just as real as the present. The B-theory, therefore, denies that time is a series of becomings, of one moment coming into existence after another. Rather time is a tenselessly or timelessly existing series of events or moments that are ordered according to the relations of earlier than, simultaneous with, and later than. Such a series is known as a B-series. According to the B-theory, the collection of events is not formed through successive addition, rather it is a collection that is given all at once in a tenseless or timeless state.

There are two arguments that Craig thinks overwhelmingly tip the balance in favor of the A-theory of time at the expense of the B-theory, namely the argument from tensed language, and the argument from our experience of tense.[10] Both of these arguments are based on empirical evidence, namely the phenomenology of consciousness and the characteristics of human language. Very roughly, according to the former argument, all language contains a reference to tense that cannot be eliminated without changing the meanings of sentences in which tense is expressed. Craig takes this as powerful prima facie evidence that there are tensed facts that are true of the world: "For the A-theorist tense in language is but a reflection of the way the world is, of ontological tense".[11]

According to the latter argument, regardless of whether or not language is tensed, people experience tense as a fundamental part of their mental lives. For example, time appears to flow in a certain direction;

people remember the past and not the future; our attitudes to the future are different from those toward the past; the presentness of experience, etc. These characteristics are so fundamental to this mental life that it is impossible for a person to imagine what it would be like to live in a world without tense. Once again Craig takes this as very powerful prima facie reason to think that reality is tensed. Craig argues that our belief in the objectivity of temporal becoming (which is formed as a result of our experience of temporal becoming) is not only a basic belief but is a properly basic belief: "[o]ur belief has been neither rebutted nor undercut and therefore remains properly basic."[12] I will assume in this paper that Craig is correct in his assessment of where the balance of argument lies with respect to these two theories of time.

2. An Objection and Response

Craig raises the following complication for the argument from the impossibility of forming an actual infinite through successive addition, in particular premise 4 (i.e., A collection formed through successive addition cannot be an actual infinite):

> The only way a collection to which members are being successively added could be an actual infinite would be for it to have an infinite 'core' to which additions are being made. But then it would not be a collection formed by successive addition, for there would always exist a surd infinite, itself not formed successively but simply given, to which a finite number of successive additions have been made. But clearly the temporal series of events cannot be so characterised, for it is by nature successively formed throughout.[13]

Two aspects of this passage need to be emphasized. First, that the possibility of there existing an infinite core to which additions are being made raises a counter example to premise 4. Secondly, that ultimately this possibility will not undermine the argument from the impossibility of forming an actual infinite through successive addition because the temporal series of events is not an infinite core to which additions are being made. Beginning with the second point I will show that both of these are mistaken, i.e., that the temporal series could consist of an infinite core that is being added to, and that this is not a counter example that shows that the universe fails to have a beginning.

Could the temporal series be such that there is an infinite core of events that are being successively added to? For now I want to put aside the question of what it means for an infinite core of events to be brought into existence all at once rather than successively. I will examine what metaphysical sense can be given to this idea in the next section. Instead I want to look at the question of how Craig could know that such a thing was not true of the temporal series given the evidence he propounds for the A-theory of time. Craig claims that

> ... prior to any arbitrarily designated point in the temporal series, one has a collection of past events up to that point which is successively formed and completed and cannot, therefore, be infinite.[14]

Given the arguments Craig has put forward for the A-theory, is he entitled to make this claim?

In my view Craig's arguments for the A-theory fall short of showing that the entire temporal series was formed one event after another. As was explained above in Section 1, Craig's primary reason for advocating the reality of tense and temporal becoming (and so the A-theory of time) is the human experience of tense and temporal becoming, along with the linguistic expression of that experience. As powerful as these reasons are for advocating the reality of tense and temporal becoming, further reason is required to show that "...prior to any arbitrarily designated point in the temporal series, one has a collection of past events up to that point which is successively formed and completed." The human experience of tense and temporal becoming only takes us so far back along the temporal series of events. It is conceivable that prior to the existence of humans, temporal becoming did not occur on an event by event basis. Rather, it is conceivable that a collection of events came into existence all at once and then passed away all at once, and then, with the advent of human existence, temporal becoming occurred on an event by event basis. Moreover, the collection of events given all at once could have been infinite in number, in the sense that there is no first and/or last event (like a ruler with a maximum of one edge). To emphasize, the arguments based on human experience of tense and temporal becoming do not show that tense and temporal becoming occur on an event by event basis throughout the temporal series, only that tense and temporal becoming on an event by event basis are concurrent with human experience of these.

Indeed the arguments from the human experience of tense and temporal becoming do not even show us that temporal becoming during human existence occurs event by event. Human temporal experience is a macro-phenomenon that excludes periods of time below a certain threshold. It is conceivable that what we experience as single moments are in fact atoms or chronons of several events given all at once – each chronon coming into being, and then ceasing to exist one chronon after another. Moreover, temporal becoming may be constituted not by single events, but single atoms or chronons of events, where before the beginning of human existence, one of these chronons was made of an infinite number of events. Certainly these possibilities are logically possible (or at least it would be difficult to show they entail a contradiction). Whether they make real or metaphysical sense is a question that I will leave for the subsequent section of this paper. For now I wish to point out that Craig is not entitled to ignore the possibility that the temporal series is not an infinite core to which single events are being added. His arguments for the reality of tense and temporal becoming are compatible with this possibility.

But this takes us to the second aspect of the above passage – the existence of such an infinite core of events undermines the argument from the impossibility of forming an actual infinite through successive addition. I wish to suggest that the existence of such a possibility would not show premise 2 to be false, i.e., it will not show that the universe fails to have a beginning. This is because the notion of beginning that is relevant, given Craig's purposes, to premise 2 is an A-theoretic notion of beginning. The A-theoretic notion of beginning is not so much that of a first event as it is of a first coming into being of something that did not exist. Whether the first moment that comes into being is a single event or not is beside the point. A coming into being, all at once (i.e., not successively), of a first infinite collection of events would do just as well. The A-theory of time is primarily about a series of moments coming into being, regardless of the nature of these moments. What is important is that with the existence of humans these moments have the appearance of being single events given successively.

On this basis we should therefore amend premise 5 of the Argument from the Impossibility of Forming an Actual Infinite Through Successive Addition to read the following:

(5′) The temporal series of becomings is a collection formed by successive addition,

where a becoming can consist of any arbitrary number of events. Premise 5′ is certainly compatible with the arguments that Craig raises in favor of the A-theory of time. Moreover, it allows for the possibility cited by Craig where one of the becomings is an infinite sequence of events given all at once. In addition, all this is compatible with the claim that the universe has a beginning. Beginning here is meant in an A-theoretic sense of a first becoming. This is the relevant sense of "beginning" given that what Craig wishes to show is that there was a first coming into being and that this was created by God. What I wish to do now is show that the idea of a moment or becoming made of multiple (even infinite) numbers of events is metaphysically meaningful.

3. The Nature of an A-theoretic Infinite Temporal Regress

In his more mature analysis of the A-theory and the nature of temporal becoming, Craig asks the question with regard to the A-theory: What is it that comes in to existence, and then passes away one after another? Of what does the present consist? Or, alternatively for how long does the present endure? Craig explores three common answers to these questions: the present moment is an instant; the present moment is a chronon; and the present is a non-metrical moment.[15]

According to the first of these the temporal series is a series of zero durations that come into existence one after another. In the second account of temporal becoming time is a series of discrete and finite temporal atoms (known as chronons) that come into existence one after another. Although these chronons can be sub-divided indefinitely in thought, in reality they are indivisible in as much as nothing happens between chronons, only at them. An alternative view to the instant and chronon accounts of the present is to deny that time is composed of instants or atoms. Rather, duration is prior to any metric that may be imposed upon it. With regards to this last alternative, although it is true that time can be divided indefinitely, it is not the case that it is actually composed of such divisions. What this implies is that the question of the extent of the present is only meaningful after a standard or measure of comparison has been set. So in reply to the question "How long is the present?" one needs to "... stipulate what it is we are talking about: the present vibration of an atomic clock, the present session of congress, the present war or what have you?"[16]

I am not going to get into a debate over which of these is the better account of temporal becoming and the nature of the present. Craig analyses the pros and cons of each of these views in his account of the A-theory.[17] What I want to put forward is an alternative to these three accounts of the present that will allow for the metaphysical possibility that time can consist of an infinite core of events to which finite additions are being made.

In order to construct a notion of time that allows for the real or metaphysical possibility of this, I wish to revisit the B-theory of time. According to the B-theory, the temporal series is a tenselessly or timelessly existing series of events that are ordered according to the relations of earlier than, simultaneous with, and later than. Regardless of whether the B-series actually exists, such a thing is a real or a metaphysical possibility. Now I wish to introduce the notion of an X-series. The X-series shares with the B-series the fact that all the events of which it consists are of equal ontological status, and are ordered according to the relations of earlier than, simultaneous with, and later than. What makes a X-series different from a B-series is that the former does not have a tenseless or timeless existence. Rather, it comes into being and then passes away, in the same sense in which individual moments or events in an A-series, as described by the A-theory, do.

Now it is possible that time is an A-series that begins with an X-series, coming into existence and then passing away, which is then followed by one event after another. Moreover, it is possible that the X-series component of this A-series is made up of an infinity of events all ordered according to the relations of earlier than, simultaneous with, and later than. But this is just the possibility that Craig raises as a complication for the argument from the impossibility of forming an actual infinite through successive addition.

This extended notion of an A-series can take on some interesting properties. I now wish to introduce the notion of a X-chronon. An X-chronon is simply an X-series made up of an arbitrary number of events. One can imagine an A-series made up of X-chronons, such that each X-chronon comes into existence and then passes away in much the same way that single events do in conventional accounts of the A-theory. Within each X-chronon is an arbitrary number of events. One can conceive of a temporal series that is constituted by X-chronons of varying "sizes", i.e., number of events. There is a first of these X-chronons which is made of an infinite number of events, i.e., the initial X-chronon does not have a first and/or last event.

This is then followed by subsequent X-chronons. The X-chronons that correspond to the existence of humans are small enough to make it appear that temporal becoming occurs one event after another. Indeed, such X-chronons could be constituted by a single event.

What follows is that we can make metaphysical sense of the possibility that the temporal series is made up of an infinite core of events followed by finite additions of events. Moreover, this is quite compatible with the universe having a beginning in an A-theoretic sense, i.e., a first becoming.

4. Coherence, Intelligibility, and the X-series

To an extent, it would be understandable if someone were to object to the extension of an A-theoretic notion of time to include an X-series and X-chronon, on the basis that these were possibly incoherent or unintelligible. Such an extension of an A-theoretic notion of time stretches ones intuitions to the limit. But of course one can exaggerate this point and mistake it for a genuine objection to such an A-theoretic account of time. An A-theoretic notion that includes a notion of an X-series is not much more, if at all, a stretch of the intuitions than the conventional A and B-theories. Moreover, using intuition as a guide to coherence and intelligibility is very risky business indeed.

Before preceding any further it will prove useful to say something in favor of the coherence of the X-series and the X-chronon. That both of these may be incoherent will probably be the prime reason for rejecting the analysis that is to follow. My argument for the coherency of the X-series and the X-chronon can be stated as follows:

(1) If the A and B-theories are coherent, then the notions of an X-series and an X-chronon are coherent.
(2) The A and B-theories are coherent.
(3) So, the notions of an X series and an X-chronon are coherent.

Premise (2) is reasonable enough and the majority of metaphysicians would be willing to grant it. Premise (1) is the crucial premise in the argument and arguably it is true. To see this it has to be understood that an X-series is just a B-series, which has had the property of being tenseless and timeless, abstracted from it. But if the notion of a B-series is coherent, then the notion of an X-series is coherent. The removal of the property of being tenseless and timeless does not result

in the remaining notion implying a contradiction. If you think that it does, then think of an X-series that is made up of a single event. This is indistinguishable from a single component of an A-series, as it is normally understood. But if the notion of an A-series made up of a single event is coherent, then the notion of an X-series is coherent.

Similar considerations show the coherence of the notion of an A-series made up of X-chronons. If the notion of an X-series is coherent, then the notion of an A series made up of X-chronons is coherent. This is because an A-series made up of X-chronons is merely a series that consists of one X-series coming into existence and passing out of existence after another.

5. Hyper-time and the X-series

The theory of time I have presented in this paper is rightly considered to be a hybrid of the A- and B-theories of time. Like other hybrids of the A- and B-theories, this theory leaves itself open to the suspicion that it presupposes a notion of hyper-time. In the metaphysics of time, the term "hyper-time" is a dirty word. To accuse a metaphysician of espousing a theory of time that presupposes a concept of hyper-time is to drain her of credibility. This is because it is usually thought that the introduction of hyper-time into a theory results in a vicious regress, and it renders the theory metaphysically extravagant. In this section I shall show that the theory of time presented in this paper does indeed presuppose a notion of hyper-time. But I will argue that it is not the problematic notion of hyper-time that characterizes other hybrids of the A- and B-theories, because it does not result in a vicious regress and it need not be metaphysically extravagant.

Hybrids of the A- and B-theories of time have been around for some time.[18] Characteristically, these theories take a B-theoretic ontology as the basic ingredient of time and then add to this ontology A-theoretic properties. According to such a theory, all the events that make up the temporal series are, as with the events that make up a B-series, equally existent. So temporal change does not consist in the coming into being of one event after another. Rather, temporal change consists of the attaining of the properties of tense by each event one after another. An event has the property of being future. It then attains the property of being present from the event before it. It then passes the property of being present to the next event in the series thereby attaining the property of being past. The only proper-

ties that change are the properties of tense, specifically the properties of being future, present, and past, and not the reality of such events.

It is well known that this hybrid-theory of time implies a contradiction, namely that an event both is present and is not present.[19] As such, the theory is false – time, as we know it, does not function as this theory suggests. The contradiction is implied by the fact that for any event E at t_1, this event is present at t_1, and at another time t_2, which is just as real as t_1, E is past or future, and so not present. So, given that being past and future imply being not present, E is both present and not present.

Where the notion of hyper-time enters an analysis of this sort is as an attempt to avoid such a contradiction. Rather than events being past, present, and future, relative to one another (which produces the contradictions as all events on the temporal series are equally existent), they are instead past, present, and future relative to a hyper-time. In this way an event can be absolutely present (and not relative to some other event) in virtue of being so in hyper-time. Of course such a solution fails to solve the contradiction, as the hyper-time also suffers from the same problems as time itself, i.e., it implies a contradiction. This is because all of the events in hyper-time are both equally existent and tensed (just as they are in time), and so are both present and not present. In order to solve the contradiction one would have to introduce a hyper-hyper-time and so on, thus introducing a vicious regress of hyper-times. The concept of hyper-time, therefore, is traditionally associated with conceptual failure.

The theory of time I espouse in this paper is very different from the hybrid theories of time that have been the subject of discussion in reference to the notion of hyper-time. Rather than begin with a B-theoretic ontology and then add A-theoretic properties to this, I begin with an A-theoretic ontology and add to this ontology B-theoretic properties. So on the hybrid view I espouse, not all events are equally existent. The only events that exist are those that are present, with past and future events being non-existent. So temporal becoming is characterized by the coming into existence of events. However, it is the case that events that exist (and so are present) can be ordered relative to one another in a B-theoretic sense, i.e., they can be ordered according to the relations of earlier than, simultaneous with, and later than. I have termed such a series an X-series. The events of an X-series come into being together as a totality, and then pass out of existence together as a totality.

That the hybrid theory I develop in this paper presupposes the doctrine of presentism (the doctrine that only present events have existence) removes from this theory the kinds of contradictions generated by other hybrid theories. The only events that exist are those that are present. Temporal becoming is the coming into existence of events and is not the exchanging of the property of tense from one event to the next. Therefore, there do not exist future or past events relative to which present events possess the property of being non-present. The only events that exist are events that are present. Given this there is no need to introduce a notion of hyper-time in order to avoid the contradiction, keeping in mind that in the end the notion of hyper-time does not actually resolve the contradiction.

However, there is an important sense in which the hybrid theory of time discussed in this paper does make use of a notion of hyper-time. Events on such a temporal series are temporally ordered in two very distinct ways. First, each X-series is ordered relative to another X-series according to past, present, and future. The terms "past", "present", and "future" are to be understood in a presentist sense in this context, i.e., only the present X-series exists, whilst the past and future X-series do not exist. So all the events that make up an existent individual X-series are ordered to one another according to the relation of being present with one another, simply because they are all existent. In addition, the events in an individual X-series are related to individual events in the other (non-existent) X-series of the temporal series according to the relations of past, and future (again understood in a presentist sense).

Secondly, in addition to these A-theoretic relations, the events in an individual existent (and so present) X-series are related to each other according to the relations of earlier than, simultaneous with, and later than (understood in a non-presentist, B-theoretic sense). This is a very different understanding of temporal relation to the presentist notions of past, present, and future. Given that two different notions of temporal relation characterize each event, it is useful to regard one of these as a sort of hyper-time. Now given the negative connotations that arise when this term is used, it may be preferable to refer to the poly-dimensional nature of time. Time has two dimensions – an A-theoretic, presentist dimension and a B-theoretic dimension. Each event can be understood as being located in an abstract two-dimensional space of this sort. No one of these dimensions should be considered as being any more "hyper" than the other.

So the notion of hyper-time used in this hybrid theory is not an unsuccessful solution to the generation of a contradiction. What though of the charge that this notion of hyper-time is metaphysically extravagant? With respect to the hybrid notion of time I have proposed, I believe that the charge of metaphysical extravagance is at best premature. Just as the poly-dimensionality of space is required in order to make sense of the properties of space and motion, the poly-dimensionality of time may be required in order to make sense of the properties of the temporal series.

There are certain circumstances under which the postulation of a hyper-time, as implied by the hybrid theory advocated in this paper, would not be metaphysically extravagant. If tense and temporal becoming are objective features of the temporal series, and the series of temporal events form an infinite collection, then the hybrid theory of time that I have proposed is, at the very least, relatively well supported. Neither the A- nor B-theories could make sense of such properties of the temporal series of events. The B-theory, according to Craig at least, has difficulty explaining how the temporal series of events can be a collection formed through successive addition, as it implies that the series of temporal events is a collection existing all at once in a tenseless state. The A-theory is unable to account for an infinity of past events, given that this theory implies that the series of past events is a collection formed through successive addition, and it is not possible to form an infinite collection through successive addition (again given the soundness of Craig's analysis).

On the other hand, the hybrid theory I have developed would be able to account for tense and temporal becoming and the infinity of the past. Now if the evidence supports the claim that tense and temporal becoming are objective features of reality, and that the collection of past events is infinite, then the fact that this hybrid theory presupposes hyper-time is hardly metaphysically extravagant.

On the other hand, if it were shown that the past were finite and/or tense and temporal becoming are not objective features of reality, then these would not count against the hybrid theory I have developed as they are compatible with this hybrid theory. On my theory it is possible to have a finite number of events in an X-series. Moreover, it is possible that only one of these X-series comes into existence and so tense and temporal becoming would not be objective features of the temporal series for beings within this X-series. However, the A- and B-theories would be just as capable of accounting for these properties, and given that neither of these presupposes a

hyper-time, they may be considered preferable to the hybrid theory I propose.

So, only the demonstration that time is finite in the past and/or the demonstration that tense and temporal becoming are objective features of reality will render the hybrid theory metaphysically extravagant. So the question comes down to what the nature of the temporal series is. This is a question that I will remain agnostic on. The purpose of developing this hybrid theory was in order to defend Craig's Kalam Cosmological Argument in the event that it is found that the past is infinite. Suffice to say though, the doctrine that the past is infinite has been in favor on and off throughout the history of science and so cannot be discounted. So, the objection that this notion of hyper-time is metaphysically extravagant is premature at best.

6. Conclusions

The paper can be summarized as follows. Craig raises a counter example to premise 4 (a collection formed through successive addition cannot be an actual infinite), specifically a collection that consists of an infinite core to which finite additions are being made. Craig claims, however, that this will not count against the temporal series being finite as time is not so constituted. I have argued that Craig's arguments for the reality of tense and temporal becoming are quite compatible with the possibility that time has an infinite core of events to which additions of events are being made. In addition I showed that even if this were true, this would be compatible with the universe having a beginning in an A-theoretic sense, i.e., time having a first becoming, and this is sufficient for Craig's purposes. I then developed an account of temporal becoming that made metaphysical sense of this idea, namely that temporal becoming occurs in X-chronons of arbitrary size.

The implication of this analysis is that if there somehow turned out to be a good argument for the existence of an infinite regress of temporal events (whether it be in the form of a sound philosophical argument or well-confirmed scientific theory), this would not count against premise 2 of the *Kalam* cosmological argument. This is because an infinite regress can be understood in the A-theoretic sense developed above. Such an infinite regress is compatible with a first temporal becoming, and, given the plausibility of premise 1 (everything that begins to exist has a cause of its existence), this is best understood as

a creatio originans on the part of a spaceless, timeless, and immaterial personal agent.

Not only is evidence for an infinite temporal regress not to be feared on evidential grounds, neither is it to be feared on the grounds that it conflicts with Christian tradition and orthodoxy. That God could create an infinite temporal regress has been accepted by notable thinkers in the Christian community, among them Thomas Aquinas:

> Anyone thinking seriously about it, then, must conclude that those who held that the world has always existed, but at the same time said that it was caused by God, are guilty of no conceptual incoherence ... They [the opponents of the possibility of an eternal creation] also adopted arguments from Aristotle, among which the most difficult has to do with the infinity of souls ... it has not been proven that God could not create an actual infinite.[20]

Creation of an everlasting universe is not a problem for God, although Aquinas did not believe that God had done this. In short, evidence of an infinite temporal regress is compatible with the Christian doctrine of *creatio ex nihilo/originans*, again because it is compatible with a first coming into being from nothing.

Notes

1. William Lane Craig, *The Kalam Cosmological Argument* (London: MacMillan Press, 1975), p. 63.
2. Craig, *Kalam*, pp. 149–153. See also Craig, 'Design and the Cosmological Argument,' *Mere Creation: Science, Faith, and Intelligent Design* ed. William A. Dembski (Illinois: InterVarsity Press, 1998), pp. 334–340.
3. Throughout this paper I assume that it is possible for there to be an actual infinite collection of things. Craig has a series of arguments that aim to show that it is really impossible for an actual infinite number of things to exist. See *Kalam*, pp. 69–102. My own view is that these arguments are not convincing. However, what I attempt to show in this paper is that even if these arguments fail and the temporal series is an actual infinite collection, then the argument from the impossibility of forming an actual infinite will survive and show that the universe has a beginning.
4. Craig, *Kalam*, p. 103.
5. Craig, *Kalam*, p. 69.
6. Craig, *Kalam*, pp. 65–69.
7. The reason for premise 4 has nothing to do with not having enough time. See Craig, *Kalam*, p. 104. Among those who claim that premise 4 assumes a finite period of time is Wallace I. Matson, *The Existence of God* (Ithaca: Cornell

University Press, 1965), p. 60. Craig has shown that the argument can be rewritten in terms of time itself rather than events formed in time. See William Lane Craig, 'Wallace Matson and the Crude Cosmological Argument,' *Australasian Journal of Philosophy* 57 (1979): 166. Neither does premise 4 assume an infinitely distant starting point, as having no starting point at all will generate the same problems. Those who claim that this premise assumes an infinitely distant starting point include J.L. Mackie, *The Miracle of Theism: Arguments For and Against the Existence of God* (Oxford: Clarendon Press, 1982), p. 93; Graham Oppy, 'Craig, Mackie, and *Kalam* Cosmological Argument,' *Religious Studies* 27 (1991): 195; and William J. Wainwright, *rev. of* The Kalam Cosmological Argument by William Lane Craig, *Nous* XVI.2 (1982): 333.

8. Craig, *Kalam*, p. 104.

9. Craig, *Time and Eternity: Exploring God's Relationship to Time* (Illinois: Crossway Books, 2001), p. 229.

10. Craig, *The Tensed Theory of Time: A Critical Examination* (London: Kluwer Academic Publishers, 2000), pp. 3–130; 131–165.

11. Craig, *The Tensed Theory of Time*, p. 19.

12. Craig, *The Tensed Theory*, p. 164.

13. Craig, *Kalam*, p. 105.

14. Craig, *Kalam*, p. 105.

15. Craig, *The Tensed Theory*, pp. 228–248.

16. Craig, *Time and Eternity*, p. 159.

17. Craig, *The Tensed Theory*, pp. 228–248. Craig favors the view that the present is a non-metrical moment.

18. Such a hybrid theory was first suggested by J.M.E. McTaggart, 'The Unreality of Time,' *Mind* 17 (1907): 457–474, in the context of his arguments against the reality of time. A more recent, and sophisticated, example of such a hybrid theory is Quentin Smith, *Language and Time* (New York: Oxford University Press, 1993).

19. This contradiction was first exposed in McTaggart, 'The Unreality of Time' and forms the basis for his claim that time is unreal. Craig, *The Tensed Theory*, pp. 169–217 has a detailed appraisal of the problems with such hybrid theories of time.

20. Aquinas, 'On the Eternity of the World Against the Murmurers,' *Thomas Aquinas: Selected Writings*, ed. Ralph McInerny (London: Penguin Classics, 1998), pp. 716–718.