

On Gillespie's Misapplication of the A-Theory of Time to the Impossibility of an Actual Infinite in the *Kalam* Cosmological Argument

by

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In the first issue of *The Examined Life On-line Philosophy Journal*, Robert Gillespie, Jr. responded to Dr. William Lane Craig's philosophical sub-argument (against an actual infinite) to the second premise of the *kalam* cosmological argument by denying its consistency with the A-Theory of time [*editor's note: the original article can be found [here](#)*]. Gillespie argues that the A-Theory of time only permits the impossibility of an actual infinite if the actual infinite is somehow instantiated simultaneously. In this article I wish to suggest that his objections can be disavowed because he either misapplies the A-Theory of time or he misunderstands the nature of past events. In either case one can justifiably retain the sentiment of the impossibility of an actually infinite number of things thus preserving the victory of the *kalam* argument.

I. THE SECOND PREMISE OF THE *KALAM* COSMOLOGICAL ARGUMENT

Gillespie's layout of the *kalam* cosmological argument bears little controversy and does not require any further commentary, especially since his primary source is one of this century's primary defenders of it – William Lane Craig.ⁱ Those familiar with the *kalam*'s structure know that the controversy in the quasi-syllogism is the second premise:

The universe began to exist.

Astrophysicists have spent a great deal of time and energy vitiating previous models of the Big Bang theory in favor of new and, needless to say, novel ideas about the universe's origin. Everything from cyclical models to vacuum fluctuation models to Grand Unified Theories have been proposed as new theoretical spins on the Big Bang portrait.ⁱⁱ The success of the second premise in the *kalam* argument resides, not only in its popular confirmation by the general scientific population, but in the basking of the wealth of philosophical realism which precludes the actual infinite from ever being a real existent. The *kalam* argument, when it was originally proposed by Islamic philosophers in the Middle Ages, gained its force due to its argumentative tact in rebuffing the notion that there could ever be an infinite number of rotating concentric spheres in the universe because if time were infinite then each sphere (no matter how close or far) would have rotated an equal number of times. Since the Principle of Correspondence seems to be threatened by this realization, Islamic philosophers considered this as evidence against the actualization of an infinite number of things.ⁱⁱⁱ Thus the contention in Gillespie's evaluation revisits this altercation by concentrating on the philosophical subarguments to the *kalam*'s second premise which posits a similar problem.

This simple premise is perhaps the most vital organ of the *kalam* cosmological argument and, if successfully refuted, would certainly put this argument into academic arrest. This simple statement, yet one which has been the target of both philosophers and scientists, is the key to a sound deductive argument

whose implication is to believe in an ultimate cause of the universe. Defenders of the *kalam* argument have split the support for the belief that the universe began to exist into two categories: (i) Philosophy (which shows that there cannot be an infinite regression of time since that would imply the absurd notion that an actually infinite number of things exists in the real world), and (ii) Science (which shows us through the best astronomical model of the origin of the universe and through the Second Law of Thermodynamics that observation confirms that the universe began to exist). If at least one of these independent legs of support turns out to be true then we have no rational choice but to concede that the universe began to exist. Hence this would imply the conclusion – that the universe has a cause.^{ix} So let us now take a look at Gillespie’s refutation of the sub-arguments to the second premise which I have divided into two segments.

II. GILLESPIE’S FIRST ARGUMENT: THE PROBLEM OF AN ACTUAL PAST FROM AN A-THEORY PERSPECTIVE

Fortunate for the interest of space in this article, the veracity of the A-Theory of time is not under dispute. Instead, Gillespie is only interested in showing that Craig himself adheres to the A-Theory of time. So the controversy surrounds, not around the A-Theory versus the B-Theory, but around the alleged internal inconsistency between an A-Theory of time and the problem of an actually infinite number of past temporal events. Gillespie writes:

[A]ccording to the A-theory, past events no longer exist. That is, from an ontological perspective, the series of past events does not consist of a narrowly actual and coexistent membership, and therefore cannot draw upon those principles governing such a series. At most, *the series of past events constitutes only a broadly actual series*. Thus, if Craig is arguing for the thesis that the *Hilbert’s Hotel* illustration demonstrates the absurdity entailed in a beginningless series of past events, then his argument either: 1) fails due to a misapplication of the illustration’s principle (it cannot apply to a broadly actual series), or 2) he is conceiving of the series as being constituted by narrowly actual elements. . . . Craig will not accept the first option, so he must be opting for the second. But if this is so, then this clearly places him at odds with the A-theory of time.

For Gillespie, if Craig wants to maintain that past events do not exist (because of his allegiance to the A-Theory of time) then he cannot adhere to the view that past events are somehow “constituted by narrowly actual elements.” By “narrowly actual” Gillespie means to suggest that something merely exists or, in his words, “that which exists.” So the disarming feature confronting A-Theorist supporters of the *kalam* argument can be observed by the following statements:

- (1) There are no actual infinities.
- (2) Past events are not actual (implied by the A-Theory)
- (3) Past events can be infinite.

Because Craig accepts the truths of (1) and (2) then, logically, he is committed to the possibility of (3). Craig himself certainly believes in (1) but it no longer has any force because (2) is logically consistent with (3). But is Gillespie's objection that an infinite past is inconsistent with the A-Theory a good one? Some reasons suggest that it is not.

When Dr. Craig speaks of the impossibility of an actual infinite being instantiated in the real world he means to suggest that there can be no actual infinite sets that bear any ontological status beyond nominalist or conceptualist restraints. So one way of unraveling the controversy is as easy as understanding the difference between *past events* and *the past itself*. The A-Theory is meant to disclose the nature of the events contained in the past as ceased while the sub-argument for the second premise of the *kalam* argument is meant to preclude the actual existence of an infinite past itself. The reasoning behind this occurs from the simple fact of temporal accumulation. No *kalam* supporter is upset at the veracity of (2) but to conclude that the past itself is not an actual accumulation is to betray our intuitions about history. This would mean that my having eaten breakfast yesterday does not accumulate in a way that the breakfast contributes to the present. Thus it would result in the absurd notion that digestion occurs from nonexistent events! Past events are surely connected to present-day events. And I think this is the motivation behind Dr. Craig's rejoinder.^v Consider that the sinking of the Titanic is not a real thing at present (and is to be conceived of as having ceased to exist). But it is obviously false that the sinking of the Titanic *as a historical event* is not a real thing. Indeed, Gillespie wants to preserve events contained in the past when he introduces *broad actuality* when he writes, "The sinking of the H.M.S. Titanic on April 14, 1912 was an actual event and constitutes an instance of broad actuality." The narrow/broad actuality dichotomy is understood to be a present-existence/former-existence contrast.^{vi} The Titanic sinking is an instance of broad actuality while the existence of this article is narrowly actual. But it seems apparent to me that when the past and the past's individual events are properly distinguished then Gillespie's elucidation of narrow vs. broad actuality conforms to

(4) The past is narrowly actual.

and

(2') The past's distinct events are broadly actual.

At first blush it appears that (4) overtly contradicts the A-Theory of time in that the theory defines the past as nonexistent. However, the subject of (4) is *not the events contained in the past* but the *present acknowledgment of the existence of a past*. That is, it is presently true in the here and now that we have a past history. This makes the past as a temporal container a narrow actuality to the present observer. However, the distinct events *of* the past can be understood as broadly actual. The "past" functions in an equivocal sense to that of the events of the past and Craig's analysis that there is something of the past that exists today carries some weight. Thus if (4) and (2') can be true then there arises no problem for the A-Theorist supporter of the *kalam* argument. But this objection appears to be too easy as it relies on a simple semantic re-evaluation. It appears that the critic could argue for an actual infinite number of other past events (i.e. infinite matter/energy) without being threatened by this solution. Are there other good reasons to deny Gillespie's objections and to accept a univocal meaning of "past" thus sustaining confidence that there can be no actual events in the past? I think that there are. Let us look at Gillespie's second objection.

III. GILLESPIE'S SECOND ARGUMENT: REPLACEABLE EVENTS OF HISTORY PERMIT AN ACTUALLY INFINITE NUMBER OF EVENTS

Now I contend that past events cannot be actually infinite in an A-Theory interpretation, not because past events are tantamount to nonexistent events, but because the events of history *are actual accumulations*. Gillespie thinks that this cannot be the case because each event in history is *replaced* by another event of history so that it is possible for an infinite number of events to rotate through time. He writes:

[A]s time progresses, certain events come into being (i.e., begin to occur) thereby augmenting the total number of events in existence at any given moment in time. Yet at the same moment other events are passing out of being (i.e., ceasing to occur), thus lowering the total number. As a result, the total number of events in existence over time is not static, but dynamic: past events cease to exist and future events come into existence.

For Gillespie, all temporal events are replaced instead of accumulated. So then he gives the analogy of a cargo truck that can hold an infinite number of boxes granted that for each box that is loaded one box is removed. He goes on to explain that “it is a process of constant rotation: the first worker loads one box, and the second worker simultaneously unloads another. In this way, there is no limit to how many boxes can be loaded onto the truck, for there is always room for another as a result of the simultaneous unloading.” This, he surmises, means that “there is nothing that logically necessitates the view that there must have been an absolutely primary box.” The careful reader may understand that what Gillespie is inadvertently arguing for is a *potential* infinite and not an *actual* one. While it is true that one could *potentially* load a cargo truck with an infinite number of boxes while simultaneously unloading one box as each box is added, it does not follow that one could *actually* do so. Therefore, the problem I have with this analogy is not with the number of boxes that could circulate through the cargo truck but with the number of boxes themselves that cannot accumulate to an actually infinite number. Surely their placement in or out of the cargo truck is irrelevant to the quantity of the boxes themselves. It seems that no matter how many times a new box is added and removed one could always add another box. In fact, one could take the *Hilbert’s Hotel* illustration and convert it to this one. Consider that the number of boxes that have circulated in and out of the first cargo truck had been one at a time. Now consider a second cargo truck whose workers load their truck simultaneously with the first one. But this second truck loads every *other* box that the first truck unloads at the same time and then removes its box as another one is loaded. If the workers of the first truck have cycled an infinite number of boxes then the second truck, even though they only loaded every other box discarded by the first truck, has cycled just as many boxes as the first truck! So that

(5) Truck #1 loaded boxes 1, 2, 3, . . . 4

and

(6) Truck #2 loaded boxes 2, 4, 6, . . . 4

Even though truck #1 cycled twice as many boxes as the second truck, truck #2 loaded just as many boxes as the first one which seems to be absurd. This illustration shows why the Principle of Correspondence is violated and serves to show the initial problem of actualizing an infinite number of things.^{vii} So the initial problem of an actual infinite still remains.

Therefore, theists can remain confident in the *kalam* cosmological argument because of its philosophical affirmation that past events or the past itself cannot actually be infinite. But if philosophy shows that the past cannot be infinitely old then the second premise to the *kalam* argument is sustained. This means that the universe began to exist and gloriously leads to the conclusion that the universe has a cause.

IV. CONCLUSION

As I read Gillespie’s refutation of the *kalam* cosmological argument it appears that the focus of his objection attempts to impale the problem of an actual infinite found in the philosophical subargument to the

second premise on the A-Theory of time. For Gillespie, the nature of the A-Theory renders past events as nonexistent and that past events do not accumulate but are replaced. Therefore, he says, Dr. Craig cannot object to an actual infinite because the actual infinite does not occur simultaneously. However, I have shown that the nature of the A-Theory of time does not preclude the problem of an actual infinite number of past events so long as one is able to make the distinction between past events and the past itself or that past events are not replaced but, rather, are accumulated. Either solution renders Gillespie's arguments about the inconsistency of the A-Theory of time with the impossibility of an actual infinite false.

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END NOTES

- i. Other contemporary defenders of the *kalam* cosmological argument include G. Whitrow, J. P. Moreland, Richard Swinburne, and Phil Fernandes. [[back to article](#)]
- ii. For example, see the recent article "Give Peas a Chance," *Astronomy* (September, 1999), pp. 38-46. This article focuses on theories proposed by Stephen Hawking, Neil Turok, and Andrei Linde. [[back to article](#)]
- iii. See S. de Beurecueil, "Gazzali et S. Thomas d'Aquin: Essai sur la preuve de l'existence de Dieu proposee dans l'Iqtisad et sa comparaison avec les 'voies' Thomiste," *Bulletin de l'Institut Francais d'Archaeologie Orientale* 46 (1947), p. 203. [[back to article](#)]
- iv. For a fully developed look at this, see S. L. Guthrie, "Evidence for the Existence of God" (<http://sguthrie.tripod.com/kalamcosmo.htm>). [[back to article](#)]
- v. Gillespie cites Craig's comments in "Finitude of the Past and God's Existence," *Theism, Atheism, and Big Bang Cosmology*, Quentin Smith and William Lane Craig (New York: Oxford University Press, 1995, paperback edition), pp. 24-25. But Gillespie fails to cite the following sentences which reflect my objection here. Craig writes, "if the temporal sequence of events is infinite, the set of all past events will be an actual infinite." He then cites Fernand Van Steenberghe who writes, "now a universe eternal in the past implies an infinite series in act, since the past is *acquired*, is *realized*; that this realization has been successive does not suppress the fact that the infinite series is *accomplished* and constitutes quite definitely an infinite series in act" (p. 25). [[back to article](#)]
- vi. A *kalam* supporter could vouchsafe the argument for the impossibility of an actual infinite by defining "actual" in such a way as to incorporate both the *narrow* and *broad* actuality. So it could be said quite simply that all events, whether existing now or have ceased to exist, cannot be an actual infinite. I think one would be within their metaphysical rights do suggest this. [[back to article](#)]

vii. Some philosophers of mathematics have suggested that the reason why the Principle of Correspondence does not work with infinite numbers is because the Principle applies only to nontransfinite numbers. But this will not do because the reason why the Principle does not apply to transfinite numbers is because they cannot be instantiated in the real world. Therefore the failure to apply the Principle to an infinite number is reason why there can be no actual infinities. For an in-depth analysis of the philosophy behind the critique of transfinite actuality see Stephan Körner, *The Philosophy of Mathematics* (New York: Dover Publications, 1986), pp. 72-97. [[back to article](#)]
