

The Kalām Cosmological Argument, the Big Bang, and Atheism

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Abstract While there has been much work on cosmological arguments, novel objections will be presented against the modern day rendition of the Kalām cosmological argument as standardly articulated by William Lane Craig. The conclusion is reached that this cosmological argument and several of its variants do not lead us to believe that there is inevitably a supernatural cause to the universe. Moreover, a conditional argument for atheism will be presented in light of the Big Bang Theory.

Keywords Philosophy of religion · Metaphysics · Philosophy of physics · Big Bang Theory · God’s existence · Atheism

1 The Kalām Cosmological Argument

The modern day champion of the Kalām cosmological argument is William Lane Craig (Craig 1979, 1997; Craig and Smith 1993; Craig and Sinclair 2009).¹ This argument originally founded in Islamic philosophy is:

¹Most of the responses to Craig’s work on the Kalām cosmological argument have attempted to provide objections to him. However, for some instances of further support of the Kalām argument other than from Craig, see Koons (1997); Oderberg (2001, 2002); Moreland (2003), Kabay (2005). Further discussion of this above work is not engaged here since their particular defenses of the Kalām contention do not address and are not relevant to the particular objections I will be presenting in this paper.

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- P1) Everything that begins to exist has a cause of its existence.
 P2) The universe began to exist.
 C) Therefore the universe has a cause of its existence (Craig and Smith 1993, 4).

We shall entitle Craig's above explicitly stated rendition of the Kalām cosmological argument as being KCA1. What is interesting about KCA1 is that its second premise can be empirically supported by the Big Bang Theory. The Big Bang Theory claims that there was a mathematical point or singularity that did not exist in spacetime. It had extreme properties such as infinite temperature and infinite density. From this singularity, about 13.7 billion years ago, the universe as well as time and space exploded from it and spread out from a big bang.² This theory is confirmed based on several accounts, such as the fact that the universe is still expanding today. Moreover, the Big Bang Theory successfully predicts that there will be the cosmic microwave background, which is thermal radiation left over from the Big Bang.

Given its empirical confirmation and general consensus of agreement by theoretical physicists, I do not challenge the second premise. As it is generally accepted in physics and in the philosophy of religion, as our starting point, we shall assume for the sake of argument throughout this paper that the generally understood Big Bang Theory with the existence of the initial singularity is true. The universe began to exist about 13.7 billion years ago. Positing the existence of the initial singularity is commonly held and labeled in physics as being the "standard" generally accepted way to understand the Big Bang Theory (Cheng 2005; Heller 2009; Pickover 2011). It is readily found in college physics textbooks. This is the widely accepted view in the philosophy of religion literature as well that is held by those such as Craig and Quentin Smith. I follow this general literature in the philosophy of religion and physics. This beneficially will also allow us to interact with Craig's overall view since he posits the existence of the singularity.

Of course, there are some who challenge this interpretation. For instance, it could be the case that in the future, a theory of quantum gravity may be justified and may eliminate the existence of the initial singularity. However, theories of quantum gravity, such as string theory and loop quantum gravity, have yet to be empirically confirmed.³ Hence, I do not espouse such an interpretation here. While further elaboration on this matter concerning the interpretation of the Big Bang will require its own paper or book, due to obvious scope as well as space concerns, we will assume the standard interpretation of the Big Bang here as our starting point, which will allow us to engage and interact with the relevant literature in the philosophy of religion. Thus, I grant theists like Craig the claim that spacetime exploded out of the singularity.

As the second premise will be granted to the theist that the universe began to exist, it is the first premise that will be scrutinized. Several theorists like John Mackie (1982),

² Throughout this paper, "time" will refer to differentiated time. When discussing undifferentiated time, I will preface "time" with "undifferentiated."

³ To note, the Hartle-Hawking model is a hybrid of relativistic and quantum mathematical methods that attempts to put forth a theory of the "quantum" creation of the world from nothing, but this model does not include the cosmological application of a well-established theory of quantum gravitation as would be desired but only a very hypothetical attempt to construct a provisional model to stand in for such a theory.

Quentin Smith (1987, 1993), Graham Oppy (1991, 1995), Adolf Grünbaum (1993, 1994), and Wes Morriston (2002a, 2002b) have challenged the Kalām cosmological argument, where the staunchest criticisms have come from Smith. For instance, Smith contends that the first premise that everything begins to exist has a cause is false since quantum mechanics allows for the uncaused emergence of certain particles. Moreover, regarding the first premise, he argues against those who attempt to justify it a priori because he objects that causal claims can only be known a posteriori. However, I do not further discuss nor defend the numerous objections against the Kalām contention here. Rather, I only attempt to offer my own new objections in what follows.

Craig justifies the first premise mainly on two accounts. The first is based on empirical evidence. We have overwhelming empirical evidence with things such as cars, trees, and humans that everything that begins to exist has a cause. This point is constantly confirmed and never falsified. Thus, we can extrapolate through induction that the universe must also have a cause. To be sure, the physical universe does have a cause. It is the singularity. The singularity is not in three-dimensional space. It exists outside of and before the existence of space and time just as God is thought to as well. Therefore, it is not a part of the early universe. The immediate moment following the Big Bang is the beginning of the universe. The singularity and the Big Bang are not part of the universe. For, the universe is usually defined as a set of events, where each event is in a four-dimensional spacetime continuum of three spatial coordinates and one temporal. However, the singularity and the Big Bang are not in spacetime. Rather, spacetime exploded out of the singularity and the Big Bang. Hence, the singularity is the source of the universe. In this respect, I agree with the conclusion for the Kalām cosmological argument. The universe has a cause to its existence, and it is the Big Bang singularity. However, I take it that Craig is really trying to claim that there is a cause to the singularity and hence, the universe.

Strictly speaking, I agree with KCA1 as explicitly formulated above by Craig and do not object to it. The universe has a cause to its existence, and it is the singularity. This conclusion to the Kalām argument is generally widely accepted in physics, and there may be no need to even make or present this Kalām argument since the singularity's existence can be more immediately inferred from things like the expansion of the universe and the cosmic microwave background. However, I take it that Craig is using the Kalām argument with the intention of proving that there is some kind of cause to the singularity and thus the universe. Craig fails to see that the Kalām argument in-and-of-itself most directly leads to the widely accepted conclusion that the singularity caused the first event of the universe. He fails to properly recognize and account for the fact that in the Big Bang Theory, the singularity is not a part of the early universe. Rather, it is the cause of the universe. In the Kalām contention, he mistakenly understands the singularity to be a part of the universe. Thus, he understands the conclusion of the Kalām argument to also apply to the singularity. He wants to conclude that there is some kind of cause to the singularity like God. Therefore, since KCA1 by itself, as it is explicitly presented above by Craig, only leads to the generally accepted conclusion that the singularity caused the universe, we may cast aside the standard Kalām argument in the philosophy of religion as a proof of some supernatural being's existence, although this argument could potentially be used in physics to further support the case for the singularity. For theists, the standard Kalām cosmological argument is nothing but a mirage or illusion. Theists who would like to use the Big Bang Theory to argue for the existence of a supernatural entity should just use the existence of the

singularity as a basic assumed starting point and then somehow argue for the existence of some supernatural being that created the singularity rather than use the standardly conceived KCA1 in order to try and prove that there is a singularity that caused the universe.

Notice that I am not making the frequently observed point that KCA1 does not explicitly contain the word or notion of ‘theism’ in its conclusion, and therefore, KCA1 by itself does not sufficiently lead to a conclusion for theism. Rather, I am pointing out that theistic defenders of KCA1, such as Craig, make a fundamental mistake in their understanding of the Big Bang Theory. The singularity is not a part of the universe but rather, is the cause of the universe. Thus, there is no need to present KCA1 at all because its conclusion that there is a cause to the universe is already generally accepted and can be the assumed starting point of one’s inquiry. I also leave open the possibility that the theist may be able to significantly alter the standard KCA1 in some way in order to try and reach the conclusion that the singularity was caused by a supernatural entity. It is to an altered KCA1 that is more in line with Craig’s real intentions that we will now turn.

We will examine the Kalām argument in a restructured form that attempts to take into account Craig’s true intention of trying to prove that there was a cause to the singularity, although we will later entertain even more possible amendments to the argument. Since some theists like Craig are clearly attempting to use the Kalām contention with its explicitly stated premises to contend for an entity that caused the singularity and the universe’s existence and Craig goes to great lengths in order to do so, as an exercise, let us continue to analyze the explicitly stated first premise that he robustly defends and see whether it, when combined with his explicitly stated second premise, can potentially help to support the altered and more appropriate conclusion for Craig that there is a cause to the singularity. We can understand this restructured argument to be KCA2, which is much more in line with Craig’s intentions:

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|----|---|---|
| P1 |) | Everything that begins to exist has a cause of its existence. |
| P2 |) | The universe began to exist. |
| | | |
| C |) | Therefore, the singularity has a cause of its existence. |

His first justification for the first premise based on empirical grounds commits the fallacy of hasty generalization in that it bases an induction on an unrepresentative sample. For, the empirical confirmation and induction he makes that all things that begin to exist have a cause to its existence applies only to physical objects. We only see physical objects and we do not see abstract objects such as mathematical objects. Even though all of our experiences demonstrate that all physical objects we come in contact with have a cause to their existence, this allows us to only induce that all physical objects must have a cause.⁴ We cannot conclude based on our experience with physical objects that all physical *and abstract* objects must have a cause to their existence. For,

⁴ This point may be the same point made by Smith when he writes that the first premise is about macroscopic events but the singularity is not even an event in four-dimensional spacetime (Craig and Smith 1993, 119–120). Although it may be unclear and Smith discusses this topic in a few quick sentences, it appears like he might want to conclude that the first premise does not even apply to the singularity. However, even if my point here echoes Smith, I offer my own objections in the immediate subsequent paragraphs.

we have no positive empirical evidence that confirms than any abstract object, such as the singularity which existed before the beginning of the physical world, has a cause(s).⁵ However, this is precisely the kind of empirical evidence we need in order to draw the empirical induction concerning abstract entities that Craig attempts to make. To draw an empirical induction using physical objects in order to make a conclusion concerning physical and abstract objects is unwarranted. The singularity does not exist in spacetime and is a mathematical point. It is not a physical object. Hence, Craig fails to show that the singularity has a cause based on his first naturalistic justification of the first premise.

Furthermore, we may explore the fact that unlike physical objects, the singularity does not exist in time. While observed physical objects, such as chairs and tables, Craig uses for his induction do have a cause as they are placed in a temporal order of having a time before their existence, where there was a cause in this prior time that led to the existence of such objects, the singularity is not in time where it is placed on a temporal order such that we may really say that there was an earlier *time* before the singularity. Although Craig states that the singularity is “nothing,” this is disingenuous in that he clearly writes that the singularity is a mathematical point or abstract object with widely agreed upon properties such as infinite density and infinite temperature (Craig and Smith 1993, 227). He does not really maintain that the singularity is actually nothing. He agrees with the general physics literature that it is an abstract object with several properties. He further claims that the singularity existed in an undifferentiated time, where seconds, hours, days, months, etc. do not exist. Since time was emitted from the Big Bang singularity and this singularity existed before the existence of time, the singularity did not exist in real time, so one cannot say that there was an earlier time before the singularity. If there was an earlier time, it potentially may require that as with physical objects, there should be a cause to the singularity, a cause such as God. This dissimilarity between the singularity and physical objects in respect to time provides further reason to believe that Craig’s empirical justification based on observation of physical objects for the first premise is not applicable to the singularity.

Another way to think about this objection is that the singularity really did not “begin to exist.” The first premise states: Everything that begins to exist has a cause of its existence. This premise presupposes time. As can be seen by Craig’s empirical justification of the first premise, this first premise is primarily meant to be about observable physical objects and events that are placed in time since physical objects like a dog or a cat do begin to exist. There was a time before their existence. Hence, such objects begin to exist. However, the singularity did not begin to exist in the same sense of being in time, where there was a time prior to the singularity’s existence. Therefore, the singularity is not a member of the category *everything that begins to exist* that is used in the first premise that “everything that begins to exist has a cause.” It is not a member of this category

⁵ In physics, entities with infinite values are considered “non-physical” since they defy all attempts to measure them, even estimates carried out on a purely theoretical basis. Hence, the Big Bang singularity is deemed to be an abstract rather than physical object in part because it contains infinite properties such as infinite density and temperature. The initial singularity is also an abstract object because it is held to exist before the existence of spacetime.

because it did not “begin to exist” like physical objects do, physical objects in which there is a time prior to their existence. For, there was no time before the singularity. The singularity exists before the existence of time. We cannot truly say that there was a real time before the singularity. Therefore, since the first premise does not even apply to the singularity, it follows that it is impossible for KCA2 in-and-of-itself to prove that there was a cause(s) to the singularity, a cause such as God.

Craig also attempts to justify the first premise of KCA2 based on the reason that it is simply a priori intuitively obvious that everything that begins to exist must have a cause. Based on his gut a priori metaphysical intuition, the first premise is true. However, recall that the singularity did not “begin to exist” because there was no time before the singularity. While Craig’s intuition may apply to physical objects, as explicitly stated, it does not apply to the singularity. Even if the premises to KCA2 are true, the conclusion does not follow that something caused the singularity. Such an inference is invalid. Craig’s intended Kalām cosmological argument with its explicitly and exactly stated premises is an invalid argument, and the conclusion that something caused the singularity cannot be reached.

2 Objections and a Conditional Argument for Atheism

Given my above points, one may now question what the source of the singularity is. It still may appear to Craig and others that there must be a source for the existence of the singularity. The singularity requires a cause, and God is the cause. However, just as theists hold God’s existence to be brute and fundamental in that there is no external source for God, the atheist may equally hold that the singularity is also brute without a source. After all, both the singularity and the purported God are abstract entities that do not exist in spacetime. Both entities do not have a time before their existence because there was no such thing as differentiated time at and before the explosion of the Big Bang. Hence, in this respect, the singularity and the supposed God both equally have a claim to being fundamental and uncaused. However, if this is the case, then *ceteris paribus*, the atheistic theory in which there is the singularity but no God is simpler than the theistic theory that there is a singularity and there is a God.⁶ If all else is equal,

⁶ To note, Grünbaum (1994) makes the separate and distinct point that since the singularity does not exist in time, it is not an event. Events supposedly must have the property of being in time. Thus, the singularity cannot have a cause such as God since only events can be caused. I believe Grünbaum’s criticism of the Kalām argument is incorrect because the Big Bang is an event. For, an interesting concern arises here in that if the singularity cannot be a part of an event and only events can cause events, then how can the singularity cause the beginning of the universe? This is a concern for both the theist and atheist because the Big Bang Theory maintains that the singularity caused the universe, where the theist adds the additional point that God caused the singularity. In response, we simply may broaden our notion of an “event” to include occurrences that do not exist in time, such as the singularity and its explosion at $t=0$.

Ockham's razor, as an ontological principle, can come into play in favor of atheism.⁷

A possible counter may be that the first premise can be simply altered to state that "Everything that exists or existed has a cause of its existence" rather than "everything that *begins to* exist has a cause of its existence." The second premise may then be altered to read "The singularity existed." Hence, since the singularity existed, it has a cause to its existence. This argument is KCA3:

- $$\begin{array}{l} \text{P1) } \left. \vphantom{\text{P1)}} \right) \text{ Everything that exists or existed has a cause of its existence.} \\ \text{P2) } \left. \vphantom{\text{P2)}} \right) \text{ The singularity existed.} \\ \hline \text{C) } \left. \vphantom{\text{C)}} \right) \text{ The singularity has a cause to its existence.} \end{array}$$

However, the first premise of KCA3 is too strong in that if it is true, God too will require a cause to his existence, a result that is incompatible with Judeo-Christian-Islamic theism.

One may object that perhaps the second premise rather than the first one should be amended. Perhaps the original first premise can be justified via a priori intuitions, and the second premise can be altered to state that the singularity began to exist. This might support a desirable conclusion for theists. Let us call this contention KCA4:

- $$\begin{array}{l} \text{P1) } \left. \vphantom{\text{P1)}} \right) \text{ Everything that begins to exist has a cause of its existence.} \\ \text{P2) } \left. \vphantom{\text{P2)}} \right) \text{ The singularity began to exist.} \\ \hline \text{C) } \left. \vphantom{\text{C)}} \right) \text{ Therefore, the singularity has a cause of its existence.} \end{array}$$

Nevertheless, the immediate problem with KCA4 is with the amended second premise. For, the singularity did not begin to exist because there was no time before the singularity. The singularity is brute.

Now that we have critiqued four variants of the modern day Kalām cosmological argument, as alluded to above, we now have the resources to make a conditional contention for atheism.⁸ This argument draws from the general oversight by certain theists such as Craig, where they fail to see that the singularity is not a part of the early universe but rather, the singularity caused the universe to come into existence. It also

⁷ One may question why Ockham's razor may apply before the singularity to eliminate God from the equation. If all else is equal between any two competing theories, then parsimony can come in to play to adjudicate between them. At hand, we have two competing theories about whether there is or is not a God that created the singularity. A major focus of the very theories at hand is on possible events before the singularity. Insofar as we have competing theories about the possible existence of a supernatural entity before the singularity and Ockham's razor may apply between any competing theories, Ockham's razor can be relevant. Moreover, in essence, we are dealing with an ontological question as to whether a supernatural entity exists before the singularity or not. Hence, ontological parsimony can be a relevant factor. Ontological parsimony can indiscriminately apply to theories that contain entities that do not exist in real time as well as to abstract objects.

⁸ For an alternate positive argument for atheism using the Big Bang Theory, see work done by Quentin Smith (Craig and Smith 1993).

relies on the above development that the singularity does not have a time before its existence, where therefore, the singularity can be brute and uncaused. Moreover, it uses the fact that *ceteris paribus*, an ontology with the singularity minus God is more parsimonious than an ontology with the singularity and God.

- P1) The Big Bang singularity is the cause of the universe's existence.
 P2) The Big Bang singularity can itself be brute and uncaused.
 P3) *Ceteris paribus*, an ontology with the singularity minus God is more parsimonious than an ontology with the singularity.
 C1) Therefore, if all else is equal, an ontology with the singularity minus God is true.
 C2) Therefore, if all else is equal, then atheism is true.

This conditional argument for atheism takes the old and familiar idea that a physical world without God is more ontologically parsimonious than a world with God. However, it newly reformulates this old idea within the confines of the Big Bang Theory, a theory that at minimum contains the physical world *and* the additional abstract entity that is the singularity. Upon getting clear on the fact that the singularity caused the universe to come into existence and also coming to grips with the fact that the singularity does not exist in time and can, therefore, be brute, we can begin to make the conditional contention that *ceteris paribus*, the physical world and the abstract singularity is more parsimonious than the ontology that includes the physical world with God and the singularity. This conditional argument is a new development in the literature that has yet to be explicitly stated.

However, it is important to realize that this is only a conditional argument that *if* all else is equal in terms of factors such as explanatory power, consistency, coherence, and predictive success, an atheistic worldview has the advantage in that it is more parsimonious than a theistic worldview. In other words, *if* all else is equal between these two worldviews, then atheism is true due to ontological parsimony. It is obviously beyond the scope of this paper to address whether or not the antecedent of the conditional is true. For, this would require examining numerous issues in physics, biology, anthropology, etc. as to whether a purely naturalistic worldview has the same or perhaps even greater explanatory power and predictive success as compared to a theistic worldview. Hence, for our purposes, I will leave this positive contention for atheism as being merely a conditional claim. Nevertheless, all in all, this contention takes an old idea concerning ontological parsimony and restructures it in light of the above-discussed developments—that are not clear to all—in understanding the Big Bang Theory. In this respect, it is a new contribution to the field and it is a potential advantage for the atheist that may be held in safekeeping for possible future use. In what follows, I address further objections that not only apply to the above conditional Big Bang argument for atheism but they may also apply to some of my above contentions against KCA2.

One may object that God's existence is metaphysically necessary and this is what qualifies him to be an uncaused cause, but the singularity's existence may not be metaphysically necessary. Therefore, the singularity is not an uncaused cause, but rather, it is caused by God. First, let me point out that God being necessary must be proved. Let us for the moment cast aside my previous objections to KCA2 and further discuss KCA2, a contention that Craig intends to make. On one understanding of KCA2, it is an a posteriori argument, where there is an attempt to justify the first

premise based on empirical evidence, as discussed above, and the second premise is empirically supported by the Big Bang Theory. Therefore, on this understanding, KCA2 does not attempt to prove that God is a priori metaphysically necessary. It is also questionable whether the argument attempts to prove that God is a posteriori metaphysically necessary. There are a posteriori necessities that hold metaphysically in all possible worlds, such as that water is H₂O, but such a posteriori necessities are usually excluded to only identity claims between two properties, where the concepts of the two properties in the identity claim are rigid designators. There does not appear to be an identity claim concerning God's existence and some property in the Big Bang Theory to somehow claim that God's existence is a posteriori necessary. God's existence as an uncaused cause is not claimed as being identical to and nothing over and above some property in a physics theory. Thus, if the empirically understood KCA2 proved God's existence as an uncaused cause, God's existence would be a contingent truth, not a necessary one.

I am pointing out here that for the given objection to work—that the singularity does not exist necessarily but God does, and therefore, the singularity is not an uncaused cause but God is—God being necessary must be proved and there is not the requisite material in KCA2, understood as an a posteriori argument, to make such a proof. Hence, within the confines of the empirically understood KCA2, this objection at hand is not applicable. To note, one may attempt to contend that God's existence is necessary by using a number of different arguments besides the Kalām contention as there are many different arguments for God's existence in the philosophy of religion as well as corresponding objections to them. However, such arguments lie beyond our present scope, where, as previously stated, the only theistic arguments we have the space to examine here are those that pertain and are related to the modern day Kalām cosmological argument.

KCA2 may also be understood as being an a priori contention. As previously discussed, the first premise may be attempted to be justified based on a priori intuitions. Furthermore, the second premise that the universe has a beginning can also be potentially buttressed with a priori argumentation. For instance, Craig also contends a priori that an actual infinite cannot exist. A view in which the universe has no beginning posits an actual infinite. Therefore, such a view is false and the universe has a beginning. On this a priori justification-based understanding, KCA2 may claim that a theistic being is a priori metaphysically necessary while the singularity is not.⁹ Therefore, a theistic being is an uncaused cause while the singularity is not. As a result, the singularity is caused by a theistic entity.

In response to this and the general objection that the singularity must be metaphysically necessary to be an uncaused cause, to be an uncaused cause does not require that one's existence be metaphysically necessary. Hence, this kind of objection does not work. If it is a contingent truth of physics that the singularity caused the actual universe to come into existence, then it actually really is the case that the singularity existed before time and thus can be fundamental since there is no time before the singularity. As discussed above, it actually can be the case that the singularity is fundamental and is an uncaused cause. While the singularity may not be fundamental and an uncaused

⁹ Recall from above that even on this a priori justification-based understanding of KCA2, KCA2 is still an invalid argument.

cause in all possible worlds, in the actual world or state of affairs, the singularity a posteriori is in fact fundamental and thus, it actually is the uncaused cause of the universe. The same would hold true if it is a contingent truth from the Big Bang Theory and empirical observation that we can infer that God caused the singularity and thus the universe to come into existence. In the actual state of affairs rather than in all possible worlds, God would also be fundamental and would be an uncaused cause based on a contingent truth. In fact, I take it that this is or would be Craig's route for attempting to prove that God actually is an uncaused cause based on the empirically understood KCA2. God caused the singularity, and since God exists before the existence of time, there is no time before God's existence, and therefore, he is an uncaused cause. In his empirical-based justification of KCA2, Craig puts forth this claim as a contingent a posteriori truth that he attempts to largely support based on empirical evidence from physics and based on empirical observations. If Craig's empirical-based KCA2 did work, then in the actual real world or state of affairs, God is indeed the cause of the singularity and the universe. This conclusion will satisfy the theist. An entity need not be metaphysically necessary to be an uncaused cause. Being metaphysically necessary in relation to being an uncaused cause is neither here nor there. It is irrelevant. That something is an uncaused cause in the actual world or state of affairs can be a contingent truth, and really, this is all that is needed to satisfy either the atheist or the theist. Thus, the objection—that the singularity does not exist necessarily, and therefore, it is not an uncaused cause—is invalid.

One then may wonder how it is the case that an abstract object like the singularity can cause a physical event. How can it be the case that the singularity, which is an abstract object that does not exist in spacetime, causes the universe to come into existence?¹⁰ Notice that if God caused the singularity and the singularity caused the universe, the theist would also have this burden of explaining how the singularity can cause a physical event. Regardless, in order to fill out my view, it is still incumbent upon me to provide an answer to this question.

In order to respond to this, we need to examine why it is held that abstract objects cannot influence physical events. The first reason is that this breaks the basic law of the conservation of energy in physics. The conservation law states that energy can be neither created nor destroyed, and the total energy of an isolated physical system cannot change but must be conserved. For instance, if causal powers from an abstract object are flowing into a physical system, then energy will not be conserved. The reply to this is that not only does space and time not exist until after the Big Bang but the singularity is also not governed by the laws of physics. Since the laws of physics do not exist and apply to the singularity because the laws of physics are all formulated on a spacetime background and there is no spacetime before the existence of the universe, the conservation law does not apply to the singularity. Hence, the singularity causing the universe to exist does not violate the law of the conservation of energy since this law did not even exist yet for this act of causation.

¹⁰ Since the Big Bang singularity is not in time, we cannot understand causation in respect to the singularity causing the universe to come into existence in Humean terms, where causation includes the notion of temporal priority. Rather, we may understand causation in this particular instance in conditional terms or perhaps more traditionally as a relation of production.

A second possible reason for claiming that abstract objects cannot influence physical events is that causation is underwritten by causal laws and the causal laws we know about only include physical-to-physical causation rather than abstract-to-physical causation. Abstract-to-physical causation will violate the causal laws of nature. However, even if all the causal laws deal with physical-to-physical causation, once again, such laws of nature do not apply to the singularity since the singularity existed before spacetime and the very existence of all natural laws. Thus, the singularity does not violate any causal laws, and the singularity can cause the first moment of the universe to come into existence.

Along the same lines, a third possible reason is due to the causal closure of the physical. This principle states that if a physical event has a cause, it will have a sufficient physical cause. However, the justification of the causal closure principle is, as expected, based on macroscopic evidence from physics. For instance, physics has discovered basic causal laws and physical forces in which there is no abstract-to-physical causation but only physical-to-physical causation. Hence, we have the justification of the causal closure of the physical based on basic causal laws and forces, and therefore, the singularity cannot cause the first physical event. However, once again, the causal closure of the physical does not apply to the singularity since the justification of the causal closure is based on physical laws and the singularity is not governed by physical laws. Moreover, since causal closure is based on empirical evidence, the empirical evidence in physics, such as the expanding universe and the microwave background radiation, demonstrates that there is an abstract-to-physical causal event, namely, the singularity causing the universe to come into existence. Empirical evidence helps to demonstrate that physical-to-physical causation is not the only kind of causation, and there is a specific abstract-to-physical causation occurrence as laid out in the Big Bang Theory. Empirical evidence in physics helps to justify that the singularity caused the first physical event and that the causal closure of the physical does not apply in all cases. The objection concerning the causal closure of the physical fails, and the singularity can cause the universe's existence.

A final objection is that since the singularity existed before the existence of natural laws, there cannot be an explanation of the beginning of the universe in terms of using scientific natural laws. Since scientific explanations require the invocation of scientific laws and no such laws are available to explain the beginning of the universe, the explanation of the beginning of the universe ultimately must be personal and must include a theistic being (Swineburne 1979). There must be a supernatural explanation. However, the premise that scientific explanations require the invocation of scientific laws is false. Thus, the objection is unsound. A singularity can still provide an abstract-to-physical causal explanation of the beginning of the universe even though there is no explanation based on a physical law, such as one that uses the deductive-nomological model of scientific explanation, where on this model, explanations include laws.¹¹ In the philosophy of science, there are a variety of different kinds of explanations, such as functional and causal explanations, that do not require the invocation of laws. This is contrasted with other models of explanation, such as the deductive-nomological model.

¹¹ Notice that the causal explanation here is a novel non-mechanistic causal explanation since it is not concerned with a physical-to-physical act of causation. Once again, that there can be this abstract-to-physical non-mechanistic causation has been defended and argued for above.

The objection at hand is problematic in that it fails to account for all the various kinds of viable scientific explanations; many of which do not require the invocation of laws. Moreover, this kind of causal explanation can still be naturally and empirically based in that, for instance, the fact that the singularity causally explains the beginning of the universe is supported by empirical evidence, such as the expanding universe and the cosmic microwave background radiation. Hence, even though the singularity does not explain the beginning of the universe by using physical laws, it does not need to invoke physical laws. It can still provide a causal explanation that is heavily based on empirical evidence, where causal explanations, as a class, need not necessarily invoke laws. In this respect, it does not immediately follow that theism must be true if the singularity cannot explain the beginning of the universe based on using physical laws. The objection at hand is unsound.

3 Conclusion

I purport to contribute to the contemporary Kalām cosmological argument literature in that I provide new objections against this kind of proof for God's existence. Moreover, I develop a conditional argument for atheism using the Big Bang Theory and provide a novel defense of it. I have shown how the modern Kalām argument (KCA1) draws the widely accepted conclusion that there is a cause to the universe, and it is the singularity. The contention in-and-of-itself does not show that there is a cause to the singularity, a conclusion that Craig desires to reach. I then have shown that if we alter the conclusion to the argument by following Craig's implicit intentions such that it reads that there is a cause to the singularity (KCA2), then this will lead to numerous problems, such as committing the fallacy of hasty generalization and putting forth an invalid contention. I have responded to several objections theists might raise concerning such things as slightly altering the premises in order to try and make the Kalām argument valid (KCA3 and KCA4), contending that an uncaused cause must be metaphysically necessary and claiming that abstract objects cannot cause physical events. I also have provided a conditional Big Bang singularity argument for atheism that is based on premises such as that the singularity is not a part of the universe, a statement that is not clearly understood by certain theists in the literature, such as Craig. Furthermore, other premises are that there is no time before the singularity, the singularity can be an uncaused cause, and *ceteris paribus*, an ontology with the singularity minus God is more parsimonious than such an ontology with God. Given all of the above, I put forth and defend my conditional positive argument and also conclude that KCA1 through KCA4 fails to show that there is a cause to the singularity.

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