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**Al-Kindi's and W. L. Craig's  
Cosmological Arguments**

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## **Al-Kindi's and W. L. Craig's Cosmological Arguments**

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### **Abstract**

In this paper I shall consider the similarities and differences in the cosmological argumentation on the existence of God between the 9<sup>th</sup>-century Muslim philosopher al-Kindi and contemporary Christian philosopher William Lane Craig. My focus here will not be on the value and soundness of their argumentation, but only on the structure and type of their arguments. The credit for this argumentation's reappearance in the modern thought belongs to Craig, who referred to it, above all, in his book *Kalam Cosmological Argument* (1979). The basic elements of their general form of argument can be found in the works of the 6<sup>th</sup>-century Christian theoretician John Philoponus. All major steps of Craig's *kalam* cosmological argumentation can be found in al-Kindi's works. Bearing in mind his large opus on the *kalam* cosmological argument, it is surprising to see Craig writing that this argument is "extremely simple", and has the form as follows: 1. Everything that begins to exist has its cause. 2. The world began to exist. 3. Therefore, the world has its cause. Generally considered we might think that a better way to express this argumentation would follow three major steps: 1. First, it has to be proved that the world is not eternal, or that it began to exist. 2. Second, that world does not come to exist by itself, but that it has a cause of its beginning. 3. Third, that cause of the beginning of its existence is an orthodoxly conceived monotheistic God. Philoponus gives his arguments only for the first two steps of this argumentation. Al-Kindi presents his arguments for all three steps. Craig, in essence, repeats al-Kindi's arguments, but adds some convergent arguments that are based on two contemporary scientific theories, unknown during Philoponus and al-Kindi's times: Big Bang cosmological theory and the second law of thermodynamics.

**Keywords:** Al-Kindi, W. L. Craig, *Kalam* cosmological argument, God, infinity

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## Introduction

Here we shall consider some similarities and some differences in the cosmological argumentation for the existence of God between 9<sup>th</sup>-century Muslim philosopher al-Kindi and contemporary Christian philosopher William Lane Craig. Our focus here will not be on the value and soundness of their argumentation, but only on the structure and type of their arguments. The medieval *kalam* cosmological argument, which in its whole structure begins with al-Kindi's works, has almost been forgotten in the modern West. All credit for its new life belongs to Craig, who referred to it, above all, in his book *Kalam Cosmological Argument* (1979).

Bearing in mind his large *opus* about the *kalam* cosmological argument, it is surprising that Craig writes that this argument is "extremely simple", and has the following general form:

1. Everything that begins to exist has a cause.
2. The world began to exist.
3. Therefore, the world has a cause.

It is probable that this form of argument was explicitly presented for the first time by al-Ghazali, who, in his book *Kitab al-Iqtisad*, writes: "Every being which begins has a cause for its beginning; now the world is a being which begins; therefore, it possesses a cause for its beginning" (Al-Ghazali, 1963: 15-16). Rudimentary elements of this general form of argument we can find in the works of 6<sup>th</sup>-century Christian thinker John Philoponus.

But the general form of argument is not simple at all, and is definitely not "extremely simple". This argument has a complex structure containing many subarguments. We shall now present the general structure of the *kalam* cosmological argumentation, which one can recognize in both al-Kindi, and Craig. I think that, rather, this argument develops through three major steps:

1. First, it must be proved that the world is not eternal, or that it began to exist.
2. Second, that world does not come to exist by itself, but it has a cause of its beginning.
3. Third, that the cause of the beginning of its existence is monotheistic God.

## Historical Significance of al-Kindi's Argumentation

Before we move to a comparison, we can first say something about the historical significance of al-Kindi's argumentation. Aristotle, especially in the *Physics* VIII, and *On the Heavens* I, gives developed argumentation for and against the eternity of the world. The result of his argumentation was the conclusion that world is eternal. Christian philosopher John Philoponus made

the first attack on Aristotle's solution. His criticism of Aristotle was directed against the coherence between two of his theses; that actual infinity is impossible, and that the world *ex parte ante* is eternal.

Philoponus gives some significant contributions to the first step of argumentation with which we are come to the conclusion that world is not eternal or that it began to exist. Some of his arguments are repeated in writings of medieval Muslim and Jewish thinkers (Davidson, H., 1969). It seems that he believes that it is self-evident that the world is not cause of itself, and that the cause of the beginning of the world is a monotheistic conceived God.

Al-Kindi was, it seems first thinker who gave the full structure of the *kalam cosmological argument*. He had developed his own argument for the finitude of world, an argument for the thesis that the world has a transcendent cause (or that world is not cause of itself), and argument that the cause of the beginning of the world is the God of monotheism. These are essentially the same steps, which make up the parts of Craig's contemporary *kalam* cosmological argumentation. Because of this, their arguments are suitable for comparison.

### **Characteristics of al-Kindi Arguments**

Although Philoponus in some way bases his arguments on mathematics as well, in all of his arguments he sticks to the thesis that actual infinity is impossible, and explicitly uses examples which have no mathematical character. Except in his most famous work, *On the First Philosophy*, al-Kindi also gives mathematical proofs for the impossibility of actual infinity in some of his shorter epistles: *On What cannot be Infinite and of What Infinity May be Attributed* (Al-Kindi, 1975), *On Divine Unity and the Finitude of the World's Body* (Al-Kindi, 2007) and *On the Finitude of the Universe* (Al-Kindi, 1965).

There are many points where al-Kindi's speaks about the mathematical character of the first step of his argumentation. *First*, the objects of his argumentation are homogeneous magnitudes, *second*, his argumentation begins with axioms or with, as he says, "premises that are first, evident, and immediately intelligible", and, lastly, his favored type of argumentation is *argumentum reductio ad absurdum*.

In an essay *On the Finitude of the Universe*, the mathematical characteristic of entities with which he operates in argumentation is explicated more clearly than in other works. It is in general implicitly assumed. In the forementioned essay he explicitly says that the object of argumentation will be "magnitudes". Let us see how he defines the word "magnitude". He writes: "When we say 'magnitude' in this discipline (mathematics) we mean by it only one of three things. Either (1) that which has length only, I mean by this the line, or (2) that which has length and breadth only, I mean by this the surface (plane), or (3) that which has length and breadth and depth, I mean by this the body". (Al-Kindi, 1965: 187) Here we can operate, he claims, only with

"homogeneous magnitudes",<sup>1</sup> and under homogeneous magnitudes he means those "magnitudes which are altogether lines or altogether surfaces or altogether bodies". Nevertheless, it seems that al-Kindi has in mind impossibility of mathematical operations on non-homogeneous magnitudes. We, for example, can not collect lines and bodies, or subtract a body from a surface.

In his works *On first philosophy* and *On Divine Unity and the Finitude of the World's Body*, the homogeneous magnitude under consideration is the body. In the work *On the Finitude of the Universe* the object of argumentation is a pure concept of homogeneous magnitude. In *On What cannot be Infinite and of What Infinity May be Attributed* the objects under consideration are just "something" or "thing". In accordance with all that he says, it seems that al-Kindi is motivated by didactic reasons. Namely, in the latter essay al-Kindi writes: "I am penning here what is in my opinion sufficient on view of the extent of your knowledge." (Al-Kindi, 1975: 194)

### **First Step of Argumentation: Finitude of the World**

The proposition "the world began to exist" implies that the world is not eternal or that it has no infinite past. If we prove that the world does not have an infinite past, we have proved that it began to exist. Let us first see how Craig formulates this argument. He usual provides us with two kinds of arguments. The first set of arguments he calls metaphysical, or philosophical, or deductive, and they are: 1) the argument based on "*the impossibility of the existence of an actual infinite*"; and 2) the argument based on "*the impossibility of forming an actual infinite by successive addition*". The second set of arguments Craig calls the inductive or scientific arguments, and they are: 1) the argument based on the Big Bang cosmological theory, and 2) the argument based on the second law of thermodynamics. We will consider only metaphysical or philosophical arguments, because the Big Bang cosmological theory and second law of thermodynamics were unknown during al-Kindi's time. At first glance, it seems that the two argument of the first set are similar, but both al-Kindi and Craig claim that they are independent.

The first argument of the first set of argumentation, based on *the impossibility of the existence of an actual infinite*, has the following general form:

1. An actual infinite cannot exist.
2. An infinite temporal regress of events is an actual infinite.
3. Therefore, an infinite temporal regress of events cannot exist.

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<sup>1</sup>One can see the concept of "homogeneous magnitude" in Euclid's *Elements* (Book. 5. Def. 3.).



The soundness of whole argument depends on the first premise. For the second premise, we need only to recognize that the infinite temporal regress of events is an actual infinite.

Craig usually only defends the impossibility of existence of something infinite in the real spacio-temporal world from the theory of the infinite sets, which was developed from 19<sup>th</sup>-century mathematician Georg Cantor's consideration of this issue. He also gives examples in which he tries to show that any attempt to realize infinity in the spacio-temporal world leads to contradiction or to the absurd. For that purpose, Craig often refers to David Hilbert's view, given in his paper *On the Infinite*, and quotes following, well-known words: "The infinite nowhere to be found in reality. It neither exists in nature, nor provides a legitimate basis for rational thought" (Hilbert, D. 1964: 151).

One of the most interesting parts of al-Kinidi's *opus* is his attempts to give a proof to the first premise of the above-mentioned argument. As we have said, his argumentation begins with axioms. Despite al-Kindi presenting these axioms in different variations, we shall cite one presented in *On the First Philosophy*. This "true first premises which are thought with no mediation" are, writes he, the following:

1. All bodies of one is not greater than the other are equal.
2. Equal bodies are those where the dimensions between their limits are equal in actuality and potentiality.
3. That which is finite is not infinite.
4. [When] a body is added to one of equal bodies it becomes the greatest of them, and greater than it had been before that body was added to it.
5. Whenever two bodies of finite magnitude are joined, the body which comes to be from both of them is of finite magnitude (This being necessary in the case of every magnitude as well as in the case of every object possesses magnitude.
6. The smaller of every generally related thing is inferior to the larger, or inferior to a portion of it (Al-Kindi, 1974: 114).

After presenting these axioms al-Kindi goes on to the argument itself. The type of argument that he applies is *reductio ad absurdum*, applied to the object of argumentation—the body. Al-Kindi, as is usual in the case of *reductio ad absurdum*, begins with an assumption of *reductio*, which is the following: "Now if there is an infinite body, then whenever a body of finite magnitude is separated from it, that which remains of it will either be a finite magnitude or an infinite magnitude." In this type of argument, it is usually sufficient to prove that one of the disjuncts is contradictory or that it leads to a contradiction. In that case, the other disjunct will necessarily be true. Al-Kindi tries to demonstrate that both disjuncts are contradictory or absurd.

The argument for the *first disjunct* is presented in this way: "If that which remains of it is a finite magnitude, then whenever that finite magnitude which

is separated from it is added to it, the body which comes from them both together is a finite magnitude [ax. 5]; though that what comes to be from them both is that, which was infinite before something was separated from it. It is thus finite and infinite, and this is an impossible contradiction" (Al-Kindi, 1974: 115).

The *second disjunct* is divided into a new *disjunction*, and al-Kindi's *reductio* here take the following form: "If the remainder is an infinite magnitude, then whenever that which was taken from it is added to it, it will either be greater than or equal to what it was before addition". The argument for the absurdity of the *first subdisjunct* of the *second disjunct* goes as follows:

If it is greater than it was, than that which has infinity, the smaller of two things being inferior to the greater, or inferior to the portion of it—if the smaller body is inferior to the greater, then it most certainly is inferior to a portion of it—and thus the smaller of the two is equal to a portion of greater. Now, two equal things are those whose similarity is that the dimensions between their limits are the same, and therefore the two things possess limits—for 'equal' bodies which are not similar are those (in) which one part is numbered the same, though (as a whole) they differ in abundance or quality or both, they (too) being finite—and thus the smaller infinite object is finite, and this is an impossible contradiction, and one of them is not greater than the other. (Al-Kindi, 1974: 115)

The *second subdisjunct* of the *second main disjunct* al-Kindi presents in this way:

If it is not greater than that which was before it was added to, a body having been added to a body and not having increased anything, and the whole of this is equal to it alone—it alone being a part of it—and to its (own) part, which two (parts) join, then the part is like the all, (and) this is impossible contradiction. (Al-Kindi, 1974: 116)

The aim of this argumentation is to give proof that the world *ex parte ante* is not infinite. Al-Kindi thinks that with this argumentation he "has been explained that any quantitative thing cannot have infinity in actuality", and, since time is quantitative, it cannot have infinity in actuality. Therefore, time must have a finite beginning. Al-Kindi comes to the conclusion that the world *ex parte ante* is finite through the principle of coextensiveness, according to which time, motion and body are coextensive. We should put aside al-Kindi sophisticated argumentation regarding the coextensiveness of time, motion, and body. It is sufficient here to say that al-Kindi comes to the conclusion that the world *ex parte ante* is finite, through the coextensiveness of time and the 'body of whole' (universe). Because time is duration of the body, there cannot exist any body without time. Thus, if time is *ex parte ante* finite, then the body of whole or the universe is *ex parte ante* finite also. In this way, we come to the

conclusion that the world begins to exist (Al-Kindi, 1974: 116-121; 2007: 143-145).

Let us now see how Craig comes to this same conclusion. After proving that the actual infinite is only conceptual idea, and that it cannot be something that exists in reality, Craig claims that an infinite temporal regress of events is an actual infinite. Therefore, infinite temporal regress of events cannot exist. But because the temporal existence of world *ex parte ante* is nothing other than the temporal series of past events of the world's existence, than the world must begin to exist.

The *second* argument of the first set of argumentation, the argument based on *the impossibility of forming an actual infinite by successive addition*, Craig (with Sinclair) calls metaphysical, or philosophical, or deductive arguments (Craig, L. W. and Sinclair, D. J., 2009: 103). This argument has the following general form:

4. The temporal series of events is a collection formed by successive addition.
5. A collection formed by successive addition cannot be an actual infinite.
6. Therefore, the temporal series of events cannot be an actual infinite.

At the beginning of the presentation of this argument, in *On the First Philosophy*, al-Kindi clearly suggests that it is an independent argument by saying: 'Let us now explain it in another way that it is not possible for time to have infinity in actuality' (Al-Kindi, 1974: 121). He again considers this issue *reductio ad absurdum*, but now in classical form according to which the absurdity of one disjunct implies that the other disjunct becomes true. The assumption of the reduction is the next disjunction: *past time is or infinite or finite*. Here he assumes the coextension of the time and body. al-Kindi defends the thesis that past time is finite by showing that other disjunct is subject to contradiction or absurdity. This argument, already known to Philoponus, al-Kindi presents in the following way: "If a definite time cannot be reached until a time before it is reached, nor that before it until a time before it is reached, and so to infinity; and the infinite can neither be traversed nor brought to an end; than the temporally infinite can never be traversed so as to reach a definite time" (Al-Kindi, 1974: 121-122). In other words, if in its current state world must have traversed a infinite number of previous states, than, because infinity cannot be traversed, the current state of the world would never exist. But the current state of the world does exist. Therefore, the world has a finite number of previous states, and it has no infinite past. Consequently, there is a beginning of the world's existence.

Craig also says that this argument is independent because it "denies that the collection containing an actual infinite number of things can be *formed* by adding one member after another." The core of Craig argumentation is very

similar to al-Kindi's argument. Let us see how this looks in Craig's version. He writes:

[B]efore the present event could occur, the event immediately prior to it would have to occur; and before that event could occur, the event immediately prior to it would occur; and so on *ad infinitum*. One gets driven back and back into the infinite past, making it impossible for any event to occur. Thus, if the series of past events were beginningless, the present event could not have occurred, which is absurd. (Craig and Sinclair, D. J., 2009: 118)

### **Second Step of Argumentation: Was the World's beginning caused or it is the cause of itself?**

In the second step of the argumentation, one must prove that world is not the cause of its own beginning, but that this cause transcends it. What is significant is that presentation of that problem in *On the First Philosophy* comes immediately after the previous step of the argumentation. At the beginning of *The Third Chapter of the First Part*, al-Kindi says: "An investigation whether it is or is not possible for a thing to be the cause of the generation of its essence, shall now follow the previous (discussion)" (Al-Kindi, 1974: 123). Because we are here presenting the structure of the whole argument we cannot discuss al-Kindi's sophisticated dialectics of essence and existence, whose main conclusion is that no one thing can be the cause of itself. Consequently, the world cannot be cause of itself, and, therefore, it must have been brought into existence by something that transcends it.

Al-Kindi, as we will see, shows that the inference from the conclusion that the world has a transcendent cause to the conclusion that that cause is a monotheistic God is not immediate. It requires a further step, which, according to our presentation of the structure of the entire argumentation, is the last step of the argument.

Before we coming to this last step in the structure of the *kalam* cosmological argument, let us say something about Craig's consideration of the second step. In many of his shorter presentations Craig simply assumes the causal principle expressed in the first premise of the "simple" general form of the argument. Craig but usually considers this question in a discussion regarding the Big Bang cosmological hypothesis (see Craig, L. W. and Smith, Q., 1993). In many of his considerations of this question Craig rejects the hypothesis that world begins its existence uncaused, spontaneously, or that it is cause of its own beginning, and he offers us arguments for the hypothesis that there was a cause of the world's beginning. His arguments usually have a probabilistic character. His argument for the hypothesis that there was a cause of the world's beginning is more probable than other hypotheses. In one of his last declarations on this question he says that the principle expressed in the

premise "everything that begins to exist has a cause" is "obviously true—at least, more plausibly true than its negation" (Craig, 2009: 182).

In his conclusion, Craig on gives us three closely connected reasons for this. *First*, he defends an old metaphysical principle *ex nihilo nihil fit*. In other essays, he writes that, "if absolutely nothing existed prior to the Big Bang—no matter, no energy, no space, no time, no deity—, than it seems impossible that anything should begin to exist" (Craig, 1993: 627). It is thus more probable that there was a cause of the world's beginning. For the *second* reason he asks *why only universe?* Namely, if the causal principle is valid for all other cases in the world, then why it would not be valid for the beginning of the world itself? *Third*, Craig's reason rests on the *experiential confirmation*. The general validity of the causal principle (validity without exception) has its confirmation, thinks Craig, in both our everyday life and scientific experiment. With regard to the general validity of the causal principle in science he cites the "naturalistic philosopher of science" Bernulf Kanitscheider, who writes that the rule *ex nihilo nihil fit* is a "metaphysical hypothesis which has proved so fruitful in every corner of science that we are surely well-advised to try as hard as we can to eschew processes of absolute origin" (Kanitscheider, 1990: 344). The validity of the causal principle, concludes Craig, is more probable then its negation. Bing bang cosmology does not allow for material cause, because before the big bang no matter, energy, space, or time exists. However, in accordance with his probabilistic mode of argumentation, Craig writes: "For if coming into being without a material cause seems impossible, coming into being with neither a material nor an efficient cause is doubly absurd" (Craig and Sinclair, 2009: 189).

### **Third Step of Argumentation: The Cause of the beginning of the Existence of the World is a Monotheistically Concieved God**

In this step we see argumentation for the thesis that the cause of the beginning of the world is a monotheistically concieved God. The God of classical monotheism is usually described by its attributes. The qustion is, to what attributes can we arrive at through conceptual analysis of the cause of the beginning of the world? The first attribute of God is that God is one. Al-Kindi offers us an argument for the oneness of God in *On the First Philosophy* and *On Divine Unity and the Finitude of the World's Body*. Here we will present his argument according to his last work, although in this work he uses the word 'Creator'. It is, in the flow of his entire argumentation, too "early". Namely, with little bit of benevolence to al-Kindi *opus* we can find a relatively developed argument for a oneness of a cause, and than an argument that this cause is a Creator or, as he says, an *agent*. Instead of *Creator* we will here use the word *cause*. Applying the thesis of impossibility of infinite regress to this issue, al-Kindi in his argumentation starts with the disjunction that this cause must be either one or many. If thay are many then they must be composite. Compositions, writes he, "have a composer". If it is a many, then it must have

composer, etc. In this way then there is "something [that is, the sequence of agents] that is actual infinite—but the falsity of this has been explained" (Al-Kindi, 2007: 147-148). Therefore, the first cause must be one.

Craig basically repeats al-Kindi's argumentation. He writes that the first cause must be uncaused, "since [...] an infinite regress of causes is impossible". Although "one could [...] arbitrarily posit a plurality of causes in some sense prior to the origin of the universe, but ultimately, if the philosophical *kalam* arguments are sound, this causal chain must terminate in a cause which is absolutely first and uncaused". Craig adds the principle of Ockham's razor to al-Kindi's argumentation, which, as he thinks, "dictates that we are warranted in ignoring the possibility of a plurality of uncaused causes in favor of assuming the unicity of the first cause" (Craig and Sinclair, 2009: 192).

The other property of the first cause to which both al-Kindi and Craig refer is that this cause is personal. Al-Kindi, in the *On the First Philosophy*, further concludes that the first cause is the True One. This True One is "the cause from which there is a beginning of motion". That which sets something in motion is, he says, "the agent" (Al-Kindi, 1974: 162). In *The One True and Complete Agent and the Incomplete Metaphorical "Agent"* he writes that "first true action is bringing being into existence from nonbeing". This action is properly God's action. Only to this action properly applies the term "creation". Namely, "the true agent acts upon what is affected without itself being acted in any way" (Al-Kindi, 2007a: 169). The True Agent, as the first, is the real and last origin of motion. Because of this, it can be called a Creator.

In Craig's language, the action of al-Kindi's agent is, basically, a personal action. Craig (with Sinclair) offers us three reasons for the personal character of the first transcendent cause. Let us present them in short. *First*, he cites the Richard Swinburne (Swinburne, 2004, 35-38) who claims that there are two types of causal explanation: scientific explanation explicated in the language of laws and initial conditions and personal explanation in terms of agents and their volitions. According to the Big Bang hypothesis, the first state of the universe "cannot have a scientific explanation, since there is nothing before it, and therefore, it cannot be accounted for in terms of laws operating on initial conditions" (Craig and Sinclair, 2009: 193). *Second*, to the personal character of the First Cause, we arrive, suggests Craig, at a conceptual analysis of it. With that analysis, it is not hard to show, he writes, that the first cause must be an immaterial, beginningless, uncaused, timeless, and spaceless being. He finds that there are only two candidates we can describe with these attributes: either abstract objects or unembodied minds. Abstract objects (like numbers, sets, propositions, and properties) cannot be first cause. Therefore, cause of the beginning of the world can only be an unembodied mind. *Third*, that the First Cause has a personal character is also implied, he writes, "by the fact that only personal, free agency can account for the origin of a first temporal effect from a changeless cause" (Craig and Sinclair, 2009: 193).

In the end, we can conclude that Al-Kindi's *kalam* cosmological argument has all the elements contained in Craig's more developed argument. The main

differences are in the additional convergent and confirmatory arguments, which are developed in contemporary science and philosophy.

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