

Why the Universe Demands an Uncaused Cause

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The universe began to exist, and a beginning out of literally nothing is logically impossible. That is the heart of the case for a First Cause. Modern cosmology has only sharpened the ancient intuition that something cannot come from nothing, and the most popular scientific objection, that quantum mechanics shows otherwise, rests on a switch in the meaning of the word "nothing." When the equivocation is exposed, the classical conclusion stands: the universe has a cause that is itself uncaused, timeless, immaterial, and immensely powerful. This article lays out the terms, builds the logical case, and then dismantles the leading atheist responses one by one.[1]

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Terms and Definitions

Before any argument can succeed, the words have to be fixed.

A cause is whatever brings about an effect, whether by producing a thing's existence or by sustaining it.

To begin to exist means to come into being at a finite point in the past, having had no prior existence whatsoever.

[1] Artificial intelligence (*Claude*) was used in the production of this article. Specifically, AI assisted in locating and verifying quotations from scientists and philosophers, ensuring they were accurately attributed and sourced. AI was also used to refine the prose, improving clarity and structure while keeping the arguments and their logical content intact. All core arguments, positions, and conclusions were human directed. The use of AI was a tool of presentation, not a replacement for reasoning.

An actual infinite is a completed totality of infinitely many members existing all at once, which is different from a potential infinite, a finite collection that grows without limit.

A contingent being is one that exists but could fail to exist. It does not contain the reason for its own existence within itself.

A necessary being is one whose nonexistence is impossible because its essence just is to exist.

The First Cause or **Uncaused Cause** is the necessary being that grounds the existence of every contingent thing without itself depending on anything prior.

The most disputed term is **nothing**. In strict philosophical usage, nothing means "not anything at all," the complete absence of being, properties, laws, fields, space, time, possibilities, and potentials. As William Lane Craig insists, the word is "*not the name of something. It is simply a term of universal negation. It means not anything.*"[2] The reader should hold this strict sense firmly in mind, because almost every confusion in the debate arises from quietly trading it for a looser sense, such as "empty space" or "the quantum vacuum."

The Kalam Cosmological Argument

The Kalam argument, sharpened in the medieval Islamic tradition by al-Ghazali and revived in modern philosophy by William Lane Craig, runs as a clean syllogism:

Whatever begins to exist has a cause. The universe began to exist. Therefore the universe has a cause.

The argument's power lies in how modest each premise is and how forcefully the conclusion follows.

The first premise rests on a metaphysical principle older than philosophy itself: from nothing, nothing comes. Craig calls it "***a kind of first principle of metaphysics.***"[3] If something could pop into existence with no cause whatsoever, no one would be safe from horses or refrigerators appearing uncaused in their living rooms. Yet we never observe such events, and our entire scientific practice presupposes that they do not occur. Even David Hume, often misquoted as a denier of causation, wrote in 1754 that he "*never asserted so absurd a Proposition as that any thing might arise without a Cause.*"[4] He merely questioned how we know it, not whether it is true. The first premise is

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[2] William Lane Craig, "The Kalam Cosmological Argument," *Reasonable Faith*
[3] William Lane Craig, "The Kalam Cosmological Argument," *Reasonable Faith*
[4] David Hume, cited in "Justifying the Claim that From Nothing, Nothing Comes," *Bishop's Encyclopedia of Religion, Society, and Philosophy*

therefore stronger than nearly any premise in any argument an atheist might oppose to it.

The second premise, that the universe began to exist, is supported by both philosophy and modern cosmology. Philosophically, an infinite past would require an actual infinite series of past events, and Craig follows al-Ghazali in arguing that this leads to absurdities like Hilbert's Hotel, where a fully booked infinite hotel can still receive infinitely many new guests. Worse, an infinite past could never be traversed by adding moments one after another, since "one can always add one more before arriving at infinity."[5] If history had no beginning, the present moment could never have been reached, which is plainly absurd.

Scientifically, the case for a beginning is now overwhelming. The standard Big Bang model points to a finite past, and the **Borde, Guth and Vilenkin theorem of 2003** closed the major loophole. Their paper in *Physical Review Letters* proved that any cosmological model which is inflating, or expanding sufficiently fast, must be incomplete in its past directions.[6] The theorem holds regardless of energy conditions, which means even exotic inflationary, multiverse, or cyclic models cannot escape it. Alexander Vilenkin summarized the implication bluntly:

> *"With the proof now in place, cosmologists can no longer hide behind the possibility of a past eternal universe. There is no escape: they have to face the problem of a cosmic beginning."*[7]

At a conference in Cambridge held for Stephen Hawking's seventieth birthday, Vilenkin reaffirmed that

> *"all the evidence we have says that the universe had a beginning."*[8]

The conclusion that the universe has a cause then forces a further question. What kind of cause could produce space, time, and matter themselves? It cannot be physical, because physical things exist only inside the universe. It cannot be temporal, because time itself began with the universe. It cannot be mechanically necessary, because a timeless impersonal mechanism would either always produce its effect or never produce it. Only a free personal agent can choose to produce a temporal effect from a changeless state. Conceptual analysis therefore yields a cause that is uncaused, beginningless, changeless, immaterial, timeless, spaceless, enormously powerful, and personal. That description is what theists have always meant by God.

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[5] William Lane Craig, "The Kalam Cosmological Argument," *Reasonable Faith*
[6] Arvind Borde, Alan Guth, and Alexander Vilenkin, "Inflationary Spacetimes Are Incomplete in Past Directions," NASA ADS
[7] Alexander Vilenkin, "The Beginning of the Universe," *Inference Review*
[8] Alexander Vilenkin, quoted in "All the Evidence We Have Says the Universe Had a Beginning," *Bellator Christi*

Ex Nihilo Nihil Fit and the Principle of Sufficient Reason

The Latin phrase *ex nihilo nihil fit* means "from nothing, nothing comes." Parmenides used the principle in the fifth century before Christ to deny that being could arise from non-being.[9] Aristotle treated it as a starting point in the *Physics*. Lucretius opened *De Rerum Natura* with the same conviction. For the entire classical and medieval tradition, the principle was so obvious that to deny it was to abandon reason itself.

Modern philosophers continue to defend it. Alexander Pruss, in *The Principle of Sufficient Reason: A Reassessment*, argues that the principle is implicit in every causal explanation we accept in science and ordinary life.[10] Robert Koons builds a contemporary cosmological argument from a weakened version of the same intuition. The principle does not say that everything must have a temporal beginning. It says that whatever does come into being must do so from something. To deny it is to cut the cord between reasoning and reality, because if anything at all could pop into existence uncaused, then no inference from observation to cause would ever be justified.

Anthony Kenny put the practical force of the principle starkly. Writing in *The Five Ways*, he conceded that *"a proponent of the Big Bang theory, at least if he is an atheist, must believe that the matter of the universe came from nothing and by nothing."*[11] That is a price most thoughtful atheists are not willing to pay openly, which is precisely why so much of the modern debate is spent trying to redefine the word "nothing" so that the price disappears.

Scientists and Philosophers on the Beginning

The scientific testimony to a beginning is striking, and many of those who delivered it were not religious partisans.

Arthur Eddington, an early opponent of cosmic beginnings, wrote in *Nature* in 1931:

> *"Philosophically, the notion of a beginning of the present order of Nature is repugnant to me… I should like to find a genuine loophole."*[12]

No loophole was ever found.

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[9] "*Nothing Comes from Nothing*," *Wikipedia*
[10] Alexander Pruss, *The Principle of Sufficient Reason: A Reassessment*, *PhilPapers*
[11] Anthony Kenny, quoted in "Sunday Quote: Anthony Kenny on the Big Bang," *Apologetics315*
[12] Arthur Eddington, quoted at *AZ Quotes*

Robert Jastrow ended his book *God and the Astronomers* with the famous image of the scientist who, after climbing "*the mountains of ignorance*," reaches the highest peak only to be "*greeted by a band of theologians who have been sitting there for centuries.*"[13]

Arno Penzias, who shared the Nobel Prize for discovering the cosmic microwave background, said:

> "*Astronomy leads us to a unique event, a universe which was created out of nothing, one with the very delicate balance needed to provide exactly the conditions required to permit life, and one which has an underlying, one might say supernatural, plan.*"[14]

Allan Sandage, the great twentieth century observational astronomer, said:

> "*It is quite improbable that such order came out of chaos. There has to be some organizing principle. God to me is a mystery but is the explanation for the miracle of existence, why there is something instead of nothing.*"[15]

Even Stephen Hawking, in his earlier and more candid moments, granted that

> "*so long as the universe had a beginning, we could suppose it had a creator.*"[16]

That admission frames the entire later atheist project as an attempt to escape the inference, not to refute it.

Paul Davies writes in *The Mind of God* that "*the impression of design is overwhelming*," and that

> "*the laws which enable the universe to come into being spontaneously seem themselves to be the product of exceedingly ingenious design.*"[17]

Roger Penrose, in *The Emperor's New Mind*, calculated that the precision required to produce a low entropy initial state of our universe is on the order of one part in ten to the power of ten to the power of one hundred and twenty three.[18] That number is so vast that using every proton in the observable cosmos as a digit, you still could not write it out. The universe did not accidentally find itself in a state of such precision.

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[13] Robert Jastrow, *God and the Astronomers*, quoted at *Goodreads*
[14] Arno Penzias, quoted in "Quotes Relating Science and Faith," *Lick Observatory*
[15] Allan Sandage, quoted at *AZ Quotes*
[16] Stephen Hawking, quoted at *BrainyQuote*
[17] Paul Davies, *The Mind of God*, quoted at *AZ Quotes*
[18] Roger Penrose, *The Emperor's New Mind*, referenced in "Fine Tuning of Initial Conditions to Support Life," *CrossExamined*

Richard Swinburne argues from probability theory that a single, simple, necessary, all powerful mind explaining all contingent reality is vastly more economical than infinitely many unexplained physical facts, writing that *"it is very unlikely that a universe would exist uncaused, but rather more likely that God would exist uncaused."*[19]

The Quantum Objection: A Universe from Nothing

The most popular modern objection comes from quantum cosmology. Lawrence Krauss claims that empty space is *"a boiling, bubbling brew of virtual particles that pop in and out of existence"* and that the same quantum mechanics can produce an entire universe. He stated: *"Nothing is unstable. Nothing can create something all the time due to the laws of quantum mechanics."*

Stephen Hawking made a similar move in *The Grand Design* (2010), arguing that *"because there is a law such as gravity, the universe can and will create itself from nothing. Spontaneous creation is the reason there is something rather than nothing, why the universe exists, why we exist. It is not necessary to invoke God to light the blue touch paper and set the universe going."*

His earlier no boundary proposal, developed with James Hartle, treated the universe as finite but without an edge in imaginary time, so that it would have no beginning in the conventional sense.

Alexander Vilenkin proposed in 1982 that the universe might tunnel into existence through a quantum process, describing *"a cosmological model in which the universe is created by quantum tunneling from literally nothing into a de Sitter space."* Victor Stenger and Sean Carroll have made related claims, with Carroll asserting in *The Big Picture* that *"there seems to be no obstacle in principle to a universe like ours simply beginning to exist."*

These claims, taken at face value, look devastating to the First Cause argument. They are, however, not what they appear to be.

Why the Quantum Objection Fails

The fatal flaw in every version of the "universe from nothing" claim is a quiet substitution of meanings. Krauss's "nothing" is not the philosopher's nothing. It is a quantum vacuum, an inflaton field, a wave function, or a multiverse, all of which are robust physical realities governed by mathematical laws.

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[19] Richard Swinburne, referenced in the *Stanford Encyclopedia of Philosophy*, "Cosmological Argument"

The most decisive response came from David Albert, a philosopher of physics at Columbia University who also holds a doctorate in theoretical physics. In a *New York Times* review of Krauss's book in March 2012, he wrote that

> "*relativistic quantum field theoretical vacuum states, no less than giraffes or refrigerators or solar systems, are particular arrangements of elementary physical stuff.*"[20]

The vacuum of quantum field theory is not the absence of physical reality. It is one configuration among many physical fields that already exist. Albert continued:

> *the fact that particles pop in and out of existence "is not a whit more mysterious than the fact that fists can pop in and out of existence, over time, as my fingers rearrange themselves. And none of these poppings, if you look at them aright, amount to anything even remotely in the neighborhood of a creation from nothing.*"

His conclusion was blunt:

> "*Krauss is dead wrong and his religious and philosophical critics are absolutely right.*"[21]

Albert pressed the point about laws as well. The fundamental laws of relativistic quantum field theory, he wrote,

> "*have nothing whatsoever to say on the subject of where those fields came from, or of why the world should have consisted of the particular kinds of fields it does, or of why it should have consisted of fields at all, or of why there should have been a world in the first place. Period. Case closed. End of story.*"[22]

Vilenkin himself, the very physicist who first proposed quantum tunneling cosmology, agrees that the quantum vacuum is not nothing. In *Many Worlds in One* he writes:

> "A *quantum fluctuation of the vacuum assumes that there was a vacuum of some pre existing space. And we now know that vacuum is very different from nothing. Vacuum, or empty space, has energy and tension, it can bend and warp, so it is unquestionably something.*"[23]

John Lennox, the Oxford mathematician, exposes the same fallacy in Hawking's *Grand Design*. The book claims the universe creates itself because there is a law of gravity, but as Lennox observes, *"a law of nature like gravity depends on nature existing*," and the

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[20] David Albert, "On the Origin of Everything," *New York Times*, summarized at *Why Evolution Is True*
[21] Ibid
[22] Ibid
[23] Alexander Vilenkin, "The Beginning of the Universe," *Inference Review*

sentence "*the universe creates itself*" presupposes the very thing it is supposed to explain.[24] A mathematical equation cannot push anything into being. It describes behavior. It does not cause existence.

George Ellis, the cosmologist who co authored *The Large Scale Structure of Space Time* with Hawking, was even sharper. Asked whether Krauss had solved the mystery, Ellis replied:

> "*Certainly not. He is presenting untested speculative theories of how things came into existence out of a pre existing complex of entities, including variational principles, quantum field theory, specific symmetry groups, a bubbling vacuum, all the components of the standard model of particle physics, and so on. He does not explain in what way these entities could have pre existed the coming into being of the universe, why they should have existed at all, or why they should have had the form they did.*"[25]

Edward Feser, writing in *First Things*, summarized the whole maneuver as a

> "*textbook instance of the fallacy of equivocation.*"

Krauss, he observed,

> "*doesn't understand the question itself.*"[26]

When pressed about whether his "nothing" really is nothing, Krauss admitted in *The Atlantic* that he does not "*give a damn about what nothing means to philosophers.*" But the argument is a philosophical argument, and ignoring the meaning of its central term is not a refutation. It is a confession.

Even Sean Carroll, who is firmly on the atheist side of this debate, concedes the underlying point. On his blog he wrote:

> "Do advances in modern physics and cosmology help us address these underlying questions, of why there is something called the universe at all, and why there are things called the laws of physics, and why those laws seem to take the form of quantum mechanics? In a word, no."[27]

The honest atheist position, then, is that physics has not answered the question. It has not even addressed it.

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[24] John Lennox, "John Lennox Responds to Stephen Hawking," *Cross Examined*
[25] George Ellis, interview in "Physicist George Ellis Knocks Physicists for Knocking Philosophy," *Scientific American*
[26] Edward Feser, "What Part of Nothing Don't You Understand?", *Edward Feser Blog*
[27] Sean Carroll, referenced in "A Universe from Nothing," *Wikipedia*

The picture that emerges is consistent. Every quantum cosmological model presupposes at least three rich, structured realities that already exist before any "*creation event*": a quantum vacuum or wave function carrying energy and obeying physical laws, the mathematical laws of quantum mechanics themselves including specific symmetry groups and operators, and a space of possibilities or a multiverse framework in which probabilities can be defined. None of these is nothing. To call them nothing is either a verbal trick or a category mistake. The quantum objection therefore does not refute the principle that something cannot come from nothing. It illustrates it.

The "Who Created God?" Objection Answered

The most common reflexive response to the First Cause argument is the question: "Then who created God?" Craig has shown repeatedly that this objection misreads the first premise. The premise is not "everything has a cause." It is "whatever begins to exist has a cause." A being that never began to exist requires no cause of its beginning, because there was no beginning to cause. As Craig writes, "this isn't special pleading for God. This is what the atheist has always said about the universe."[28]

The deeper logical point is that an uncaused cause is required by the very structure of explanation. A necessary being, by definition, exists by the necessity of its own nature. Asking what caused it is like asking what makes a triangle have three sides. The question presupposes a category that does not apply.

Richard Swinburne adds that simplicity favors a divine first cause over a brute material one. A single, simple, necessary, all powerful mind explaining all contingent reality is a more economical explanation than infinitely many unexplained physical facts. The "Who created God?" question, far from being a knockdown, simply restates the conclusion of the argument: that there must be a being whose existence does not require a cause.[29]

The Infinite Regress Objection Answered

A second favorite move is to say that the universe could be eternal, with an infinite chain of causes stretching back forever, removing the need for a First Cause. Both philosophy and science have closed this escape.

Philosophically, an actual infinite regress of past events leads to absurdities. Hilbert's Hotel, a thought experiment developed by Craig from David Hilbert's mathematical work, shows that an actually infinite collection produces contradictions when manipulated. If a fully booked infinite hotel checks out all guests in odd numbered

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[28] William Lane Craig, "The Kalam Cosmological Argument," *Reasonable Faith*
[29] Richard Swinburne, referenced in the *Stanford Encyclopedia of Philosophy*, "Cosmological Argument"

rooms, infinitely many guests leave but infinitely many remain, and the hotel is still full. If guests in rooms higher than three check out, infinitely many leave and only three remain. Subtraction across actual infinities produces inconsistent answers, which is the signature of a logical impossibility, not merely a counterintuitive truth.[30]

Even setting Hilbert's Hotel aside, an infinite past cannot be formed by successive addition. As Craig argues, before the present event could occur, the event immediately before it would have to occur, and before that, the one before it, and so on without end. One gets driven back into the past endlessly, making it impossible for any event to occur.[31] The present has been reached, so the past must be finite.

Scientifically, the Borde, Guth and Vilenkin theorem rules out an infinite past for any universe whose average expansion rate is positive. This includes our universe, all standard inflationary models, eternal inflation, and most multiverse proposals.[32]Vilenkin's verdict that "there is no escape" is not theology dressed as physics. It is physics.

There is also a second sense of regress, the one Aquinas had in mind. He distinguished an essentially ordered series of causes, in which each member depends on the prior at the very moment it acts, from an accidentally ordered series like a chain of fathers and sons. In an essentially ordered series, every intermediate cause is a borrower of causal power. If there is no first source, there is nothing for the borrowers to borrow from, and the whole series collapses. The First Cause is required not merely at the start of time but at the very foundation of being.[33]

Conclusion

When the terms are held steady and the equivocations are removed, the picture is remarkably clear. The universe began to exist. The principle that something cannot come from nothing remains untouched. Every quantum proposal that claims otherwise turns out, on inspection, to require a quantum vacuum, mathematical laws, and structured possibilities that were already there.

The honest atheist must either accept that the matter of the universe came from nothing and by nothing, as Anthony Kenny granted, or look for a cause beyond the universe itself.

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[30] William Lane Craig, "The Kalam Cosmological Argument," *Reasonable Faith*
[31] Ibid
[32] Arvind Borde, Alan Guth, and Alexander Vilenkin, "Inflationary Spacetimes Are Incomplete in Past Directions," NASA ADS
[33] Thomas Aquinas, *Summa Theologica*, referenced in the *Stanford Encyclopedia of Philosophy*, "Cosmological Argument"

The cause that fits the data must be uncaused, because an actual infinite regress is impossible. It must be timeless, because time began with the universe. It must be immaterial, because matter began with the universe. It must be enormously powerful, because it produced everything that contingently exists. And it must be personal, because only a free agent can produce a temporal effect from a changeless state.

The Uncaused Cause is not the conclusion of an argument from ignorance. It is the conclusion of an argument from reason itself. What has changed since the medieval Kalam tradition is not the logic but the support. Cosmology, which Eddington once feared would deliver a repugnant conclusion, has confirmed precisely what the philosophical principle of *ex nihilo nihil fit* always implied. The mountain peak that Jastrow described has been climbed, and the view from the top is the same one philosophers have been describing for two and a half millennia. The universe is not self explanatory. Something must be. And whatever that something is, it carries the attributes traditionally ascribed to God.

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