the 1st cause argument





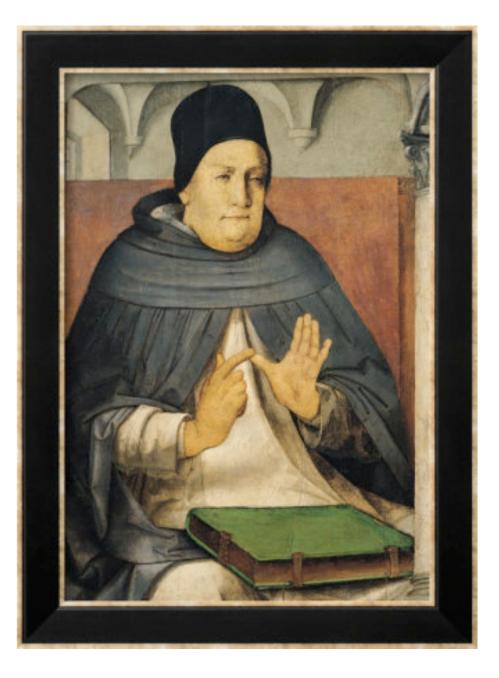
St. Thomas was born in 1225 and, while his works were extremely controversial in their time — some were condemned as heretical by the bishop of Paris — he has since come to be regarded as the greatest theologian and philosopher in the history of the Church. His Summa Theologiae — from which the arguments we will be discussing were taken — is regarded by many as the definitive philosophical exposition of the Catholic faith.





Here is the central argument of Aquinas' second way - the second of five proofs that Aquinas gave for the existence of God.

The second way is from the nature of efficient cause. In the world of sensible things we find there is an order of efficient causes. There is no case known (neither, indeed, is it possible) in which a thing is found to be the efficient cause of itself; for so it would be prior to itself, which is impossible. Now in efficient causes it is not possible to go on to infinity, because in all efficient causes following in order, the first is the cause of the intermediate cause, and the intermediate is the cause of the ultimate cause ... Now to take away the cause is to take away the effect. Therefore, if there be no first cause among efficient causes, there will be no ultimate, nor any intermediate, cause. But if in efficient causes it is possible to go on to infinity, there will be no first efficient cause, neither will there be an ultimate effect, nor any intermediate efficient causes; all of which is plainly false. Therefore it is necessary to admit a first cause, to which everyone gives the name of God.





The second way is from the nature of efficient cause. In the world of sensible things we find there is an order of efficient causes. There is no case known (neither, indeed, is it possible) in which a thing is found to be the efficient cause

of itself; for so it would be prior to itself, which is impossible. Now in efficient causes it is not possible to go on to infinity, because in all efficient causes following in order, the first is the cause of the intermediate cause, and the intermediate is the cause of the ultimate cause ... Now to take away the cause is to take away the effect. Therefore, if there be no first cause among efficient causes, there will

be no ultimate, nor any intermediate, cause. But if in efficient causes it is possible to go on to infinity, there will be no first efficient cause, neither will there be an ultimate effect, nor any intermediate efficient causes; all of which is plainly false. Therefore it is necessary to admit a first cause, to which everyone gives the name of God.

What we want to know is: Is this a good argument for God's existence? Is it valid? Is it sound?

But to answer these questions, we first need to figure out what the premises of Aquinas' argument are.



The second way is from the nature of efficient cause. In the world of sensible things we find there is an order of efficient causes. There is no case known (neither, indeed, is it possible) in which a thing is found to be the efficient cause

of itself; for so it would be prior to itself, which is impossible. Now in efficient causes it is not possible to go on to infinity, because in all efficient causes following in order, the first is the cause of the intermediate cause, and the intermediate is the cause of the ultimate cause ... Now to take away the cause is to take away the effect. Therefore, if there be no first cause among efficient causes, there will

be no ultimate, nor any intermediate, cause. But if in efficient causes it is possible to go on to infinity, there will be no first efficient cause, neither will there be an ultimate effect, nor any intermediate efficient causes; all of which is plainly false. Therefore it is necessary to admit a first cause, to which everyone gives the name of God.

But right away we have a problem: the text uses a phrase, 'efficient cause,' with which you are likely unfamiliar.

A reasonable first strategy is to try out a familiar candidate. So let's suppose that 'efficient cause' just means 'cause,' and see how far that gets us.



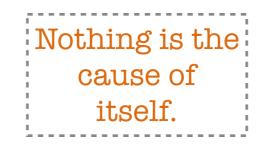
The second way is from the nature of efficient cause. In the world of sensible things we find there is an order of efficient causes. There is no case known (neither, indeed, is it possible) in which a thing is found to be the efficient cause

of itself; for so it would be prior to itself, which is impossible. Now in efficient causes it is not possible to go on to infinity, because in all efficient causes following in order, the first is the cause of the intermediate cause, and the intermediate is the cause of the ultimate cause ... Now to take away the cause is to take away the effect. Therefore, if there be no first cause among efficient causes, there will

be no ultimate, nor any intermediate, cause. But if in efficient causes it is possible to go on to infinity, there will be no first efficient cause, neither will there be an ultimate effect, nor any intermediate efficient causes; all of which is plainly false. Therefore it is necessary to admit a first cause, to which everyone gives the name of God.

To begin our search for the premises of Aquinas' argument, let's look at the third sentence.

This seems to state a premise which we could write as follows:





The second way is from the nature of efficient cause. In the world of sensible things we find there is an order of efficient

causes. There is no case known (neither, indeed, is it possible) in which a thing is found to be the efficient cause

of itself; for so it would be prior to itself, which is impossible. Now in efficient causes it is not possible to go on to infinity, because in all efficient causes following in order, the first is the cause of the intermediate cause, and the intermediate is the cause of the ultimate cause ... Now to take away the cause is to take away the effect. Therefore, if there be no first cause among efficient causes, there will

be no ultimate, nor any intermediate, cause. But if in efficient causes it is possible to go on to infinity, there will be no first efficient cause, neither will there be an ultimate effect, nor any intermediate efficient causes; all of which is plainly false. Therefore it is necessary to admit a first cause, to which everyone gives the name of God. Nothing is the cause of itself.

There are two kinds of premises in arguments: independent premises, which are supposed to stand on their own, and derived premises, which are supposed to follow from other premises. Which do you think this is?



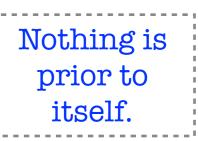
The second way is from the nature of efficient cause. In the world of sensible things we find there is an order of efficient causes. There is no case known (neither, indeed, is it possible) in which a thing is found to be the efficient cause of itself; for so it would be prior to itself, which is impossible. Now in efficient causes it is not possible to go on to infinity, because in all efficient causes following in order, the first is the cause of the intermediate cause, and the intermediate is the cause of the ultimate cause ... Now to take away the cause is to take away the effect. Therefore, if there be no first cause among efficient causes, there will

be no ultimate, nor any intermediate, cause. But if in efficient causes it is possible to go on to infinity, there will be no first efficient cause, neither will there be an ultimate effect, nor any intermediate efficient causes; all of which is plainly false. Therefore it is necessary to admit a first cause, to which everyone gives the name of God. Nothing is the cause of itself.

He seems to argue for it in the passage immediately following this sentence, which suggests that it is a derived premise.

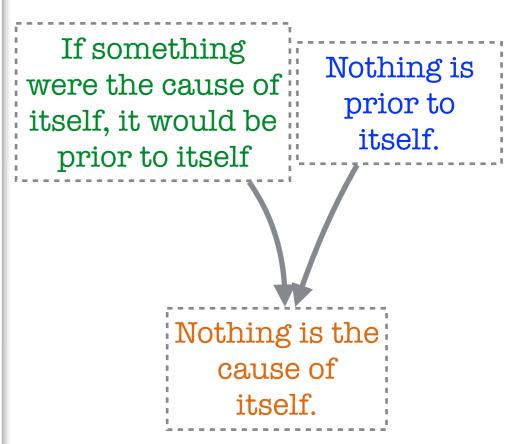
What premises do these passages express?

If something were the cause of itself, it would be prior to itself





The second way is from the nature of efficient cause. In the world of sensible things we find there is an order of efficient causes. There is no case known (neither, indeed, is it possible) in which a thing is found to be the efficient cause of itself; for so it would be prior to itself, which is impossible. Now in efficient causes it is not possible to go on to infinity, because in all efficient causes following in order, the first is the cause of the intermediate cause, and the intermediate is the cause of the ultimate cause ... Now to take away the cause is to take away the effect. Therefore, if there be no first cause among efficient causes, there will be no ultimate, nor any intermediate, cause. But if in efficient causes it is possible to go on to infinity, there will be no first efficient cause, neither will there be an ultimate effect, nor any intermediate efficient causes; all of which is plainly false. Therefore it is necessary to admit a first cause, to which everyone gives the name of God.



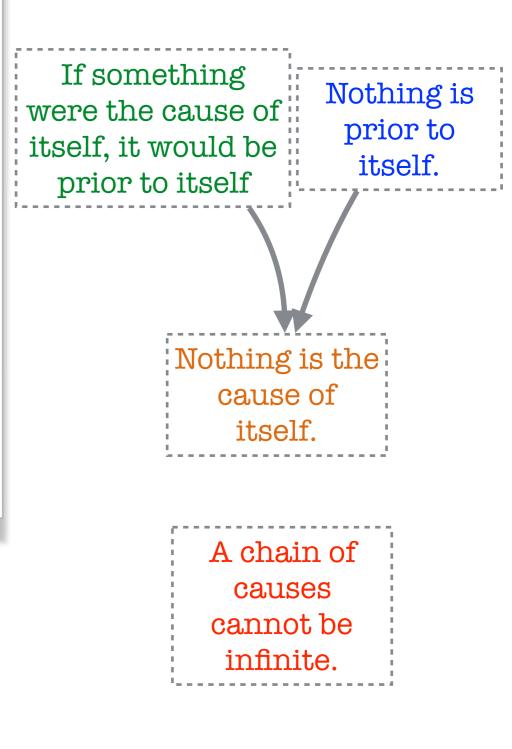
We seem to get another premise in the next sentence.

A chain of causes cannot be infinite. •

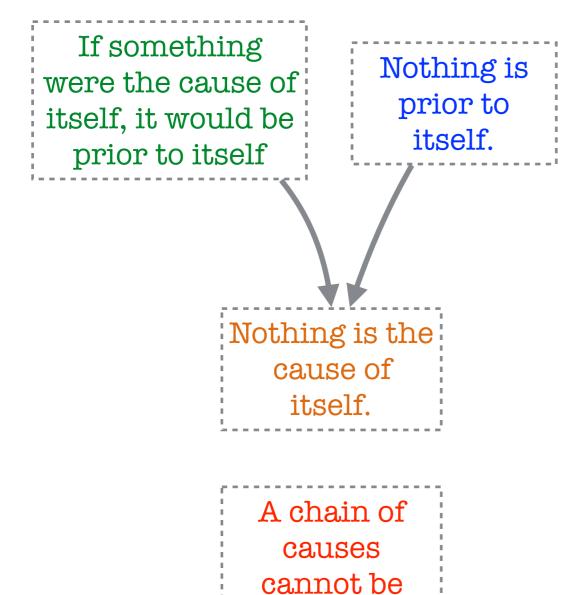
The second way is from the nature of efficient cause. In the world of sensible things we find there is an order of efficient causes. There is no case known (neither, indeed, is it possible) in which a thing is found to be the efficient cause of itself; for so it would be prior to itself, which is impossible. Now in efficient causes it is not possible to go on to infinity, because in all efficient causes following in order, the first is the cause of the intermediate cause, and the intermediate is the cause of the ultimate cause ... Now to take away the cause is to take away the effect. Therefore, if there be no first cause among efficient causes, there will be no ultimate, nor any intermediate, cause. But if in efficient causes it is possible to go on to infinity, there will be no first efficient cause, neither will there be an ultimate effect, nor any intermediate efficient causes; all of which is plainly false. Therefore it is necessary to admit a first cause, to which everyone gives the name of God.

It is pretty clear that this is a derived premise, since we get a long argument for it in the passage immediately following.

Let's set this difficult passage to the side for now, and see if we can figure out the shape of Aquinas' argument.







Notice that as we are doing this we are using simple ordinary language as much as possible. The aim is to be clear, not to use fancy or antiquated terminology.

infinite.

We've now got some premises on the table. But to figure out whether they make for a valid argument, we need to first figure out what conclusion they are supposed to be an argument for.

Fortunately, it is pretty clear that at least one thing Aquinas is arguing for is the following:

T	here is a	i.
		÷
fir	st cause.	
		¹

By this Aquinas means "there is something which causes other things to exist but was not itself caused to exist by anything."

Let's put our proposed argument in premise/conclusion form.



 If something were the cause of itself, it would be prior to itself.
Nothing is prior to itself.
Nothing is the cause of itself. (1,2)
A chain of causes cannot be infinite.
There is a first cause. (3,4)

Here we represent the fact that (3) is a derived premise intended to follow from (1) and (2) by writing '(1,2)' after it.

Is this argument valid? Does the conclusion follow from (3) and (4)?

It is invalid if we can describe some possible situation in which the premises are true but the conclusion false.

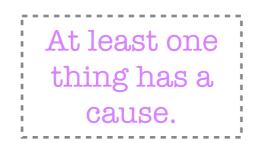
Here's one: nothing ever causes anything. If nothing ever caused anything, then the premises of our argument would be true, since nothing would ever be the efficient cause of anything, including itself, and there would be no infinite causal chains, since there would be no causal chains of any sort. But the conclusion would be false: there would be no causes, so there would be no first cause. Hence our argument is invalid.



If your interpretation of an argument is invalid, your first question should be: was the author assuming some extra premise which, if added to the argument, would make it valid?

The second way is from the nature of efficient cause. In the world of sensible things we find there is an order of efficient causes. There is no case known (neither, indeed, is it possible) in which a thing is found to be the efficient cause of itself; for so it would be prior to itself, which is impossible. Now in efficient causes it is not possible to go on to infinity, because in all efficient causes following in order, the first is the cause of the intermediate cause, and the intermediate is the cause of the ultimate cause ... Now to take away the cause is to take away the effect. Therefore, if there be no first cause among efficient causes, there will be no ultimate, nor any intermediate, cause. But if in efficient causes it is possible to go on to infinity, there will be no first efficient cause, neither will there be an ultimate effect, nor any intermediate efficient causes; all of which is plainly false. Therefore it is necessary to admit a first cause, to which everyone gives the name of God.

And it is pretty clear if we look at the second sentence that the answer to this question is 'Yes.'



Let's add this to our argument and see if it helps.

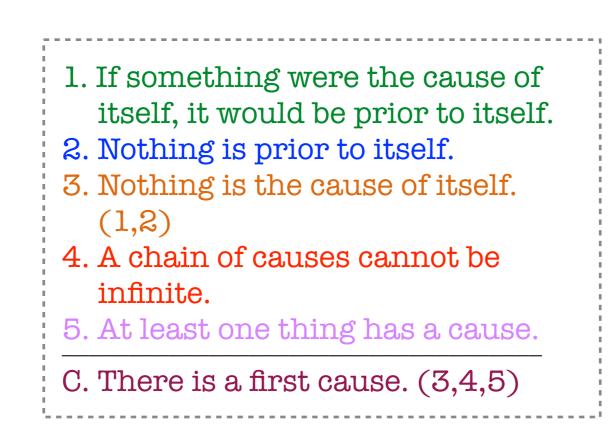


If something were the cause of itself, it would be prior to itself. Nothing is prior to itself. Nothing is the cause of itself. (1,2) A chain of causes cannot be infinite.

C. There is a first cause. (3,4)

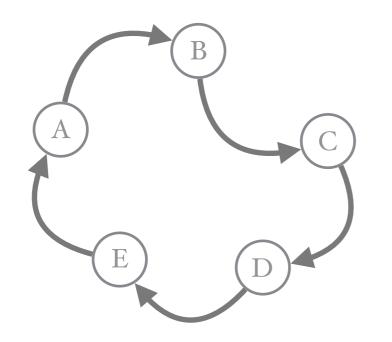
At least one thing has a cause.





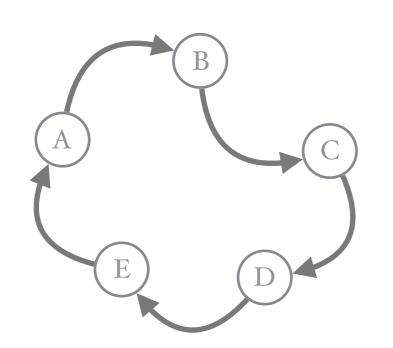
Is this argument valid?

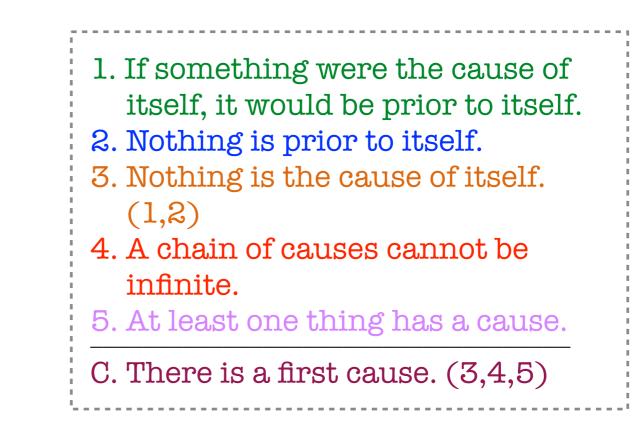
You might think that it is not, because we might have a circular chain of causes:



Here there is no infinite causal chain; nothing is the cause of itself; and yet there is no uncaused cause. Does this show that the argument we've developed so far is invalid?



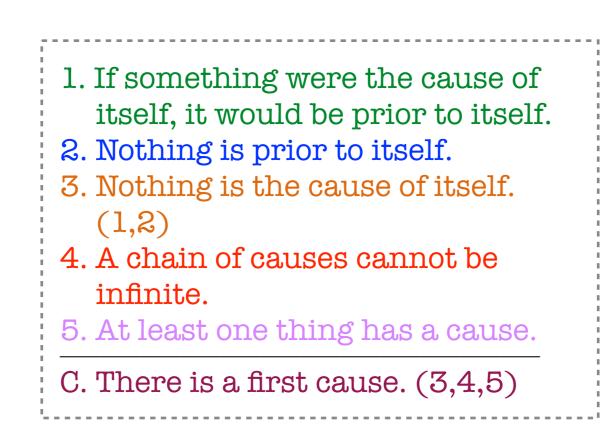




This is a little tricky. There is a sense in which in this example nothing is the cause of itself, because nothing is **directly** the cause of itself. But it still seems like things are **indirectly** the cause of themselves. After all, if A causes B and B causes C, isn't there also a sense in which A causes B?

Let's agree to understand "causes" in our argument as meaning "directly or indirectly causes." Then the kind of causal chain pictured above is ruled out by premise (3).

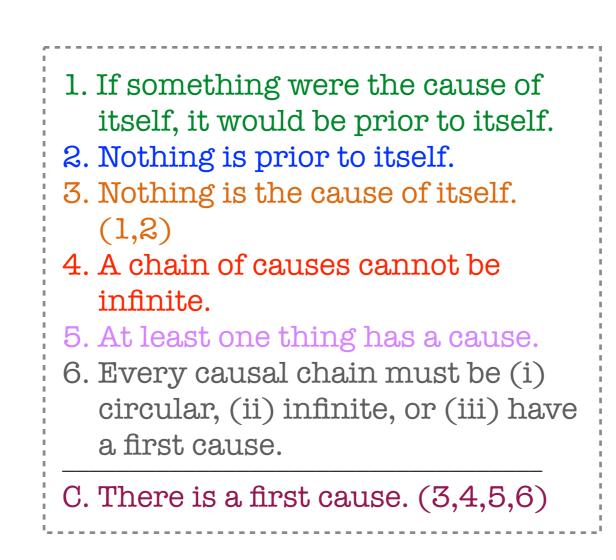




With this stipulation, the argument seems valid, because the following assumption seems to be true: Every causal chain must be (i) circular, (ii) infinite, or (iii) have a first cause.

Since our argument seems to depend on this assumption, we may as well make this explicit by adding it as a premise to our argument — even though it is not something which Aquinas explicitly says.





Does this argument show that there is at least one first cause, or exactly one first cause?

This argument seems pretty clearly valid. But it also seems pretty clearly incomplete as an interpretation of Aquinas. Why?



- 1. If something were the cause of itself, it would be prior to itself.
- 2. Nothing is prior to itself.
- 3. Nothing is the cause of itself. (1,2)
- 4. A chain of causes cannot be infinite.
- 5. At least one thing has a cause.
- 6. Every causal chain must be (i) circular, (ii) infinite, or (iii) have a first cause.
- C. There is a first cause. (3,4,5,6)

Aquinas' ultimate aim is not to argue for the existence of a first cause; his ultimate aim is to argue for the existence of God. So the thing we have labeled as a conclusion must actually just be a (derived) premise in the overall argument.

How can we get from our argument to the conclusion that God exists?



- 1. If something were the cause of itself, it would be prior to itself.
- 2. Nothing is prior to itself.
- 3. Nothing is the cause of itself. (1,2)
- 4. A chain of causes cannot be infinite.
- 5. At least one thing has a cause.
- 6. Every causal chain must be (i) circular, (ii) infinite, or (iii) have a first cause.

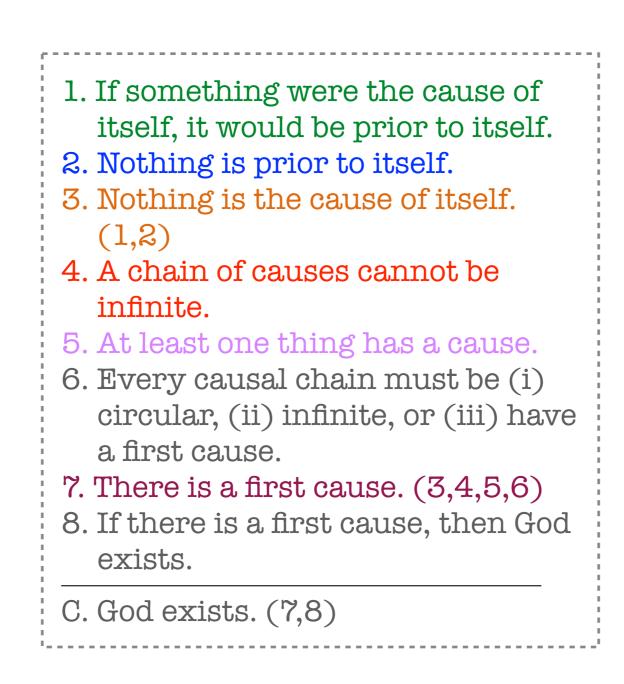
C. There is a first cause. (3,4,5,6)

How can we get from our argument to the conclusion that God exists?

The simplest way is to add a premise which Aquinas seems to assume:

	,
If there is a first	
cause, then God	
exists.	
· · · · · · · · · · · · · · · · · · ·	





This is a valid argument, and seems to be a plausible interpretation of the piece of text with which we began.



- 1. If something were the cause of itself, it would be prior to itself.
- 2. Nothing is prior to itself.
- 3. Nothing is the cause of itself. (1,2)
- 4. A chain of causes cannot be infinite.
- 5. At least one thing has a cause.
- 6. Every causal chain must be (i) circular, (ii) infinite, or (iii) have a first cause.
- 7. There is a first cause. (3,4,5,6)
- 8. If there is a first cause, then God exists.

C. God exists. (7,8)

But who cares whether this is a valid argument for the conclusion that God exists? What we care about is whether the conclusion is true - and to be sure of that, we need to know that the argument is sound. Validity is only half the puzzle; the premises also have to be true.



- 1. If something were the cause of itself, it would be prior to itself.
- 2. Nothing is prior to itself.
- 3. Nothing is the cause of itself. (1,2)
- 4. A chain of causes cannot be infinite.
- 5. At least one thing has a cause.
- 6. Every causal chain must be (i) circular, (ii) infinite, or (iii) have a first cause.
- 7. There is a first cause. (3,4,5,6)
- 8. If there is a first cause, then God exists.
- C. God exists. (7,8)

Suppose that someone objected to the argument by saying that, while it is valid, it has a single false premise premise (7). Why would this be confused?

So to defend Aquinas' argument, we just need to defend its independent premises — (1), (2), (4), (5), (6), and (8).

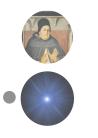
Which of these look the most questionable?



I suggest that we focus in on premises (4) and (8).

4. A chain of causes cannot be infinite.

8. If there is a first cause, then God exists.

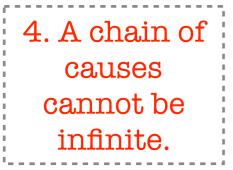


4. A chain of causes cannot be infinite. You might remember that I said that Aquinas gave us an argument for (4), which is expressed in the passage highlighted in yellow.

The second way is from the nature of efficient cause. In the world of sensible things we find there is an order of efficient causes. There is no case known (neither, indeed, is it possible) in which a thing is found to be the efficient cause of itself; for so it would be prior to itself, which is impossible. Now in efficient causes it is not possible to go on to infinity, because in all efficient causes following in order, the first is the cause of the intermediate cause, and the intermediate is the cause of the ultimate cause ... Now to take away the cause is to take away the effect. Therefore, if there be no first cause among efficient causes, there will be no ultimate, nor any intermediate, cause. But if in efficient causes it is possible to go on to infinity, there will be no first efficient cause, neither will there be an ultimate effect, nor any intermediate efficient causes; all of which is

plainly false. Therefore it is necessary to admit a first cause, to which everyone gives the name of God.





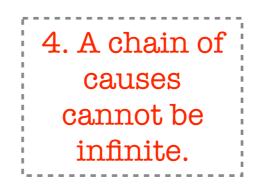
Aquinas says that if you take away the first cause from a causal chain, you thereby take away every subsequent cause; hence if the first cause of every actual causal chain had been taken away, there would be no caused things in existence. But, as he says, this is "plainly false" - there are caused things in existence, so the first cause of every causal chain must not have been taken away.

The problem with this argument is not that anything Aquinas says is incorrect; the problem is that the argument is simply misdirected. Infinite causal chains are not finite causal chains whose first link has been erased; they are causal chains in which every link is preceded by another. Consider the following infinite series:

....-5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5,

Is this a finite series whose first member has been "taken away"?





But even if Aquinas' defense of (4) is unsuccessful, (4) might still be true. Can you think of any way to argue for it?

One way to do this is to use a thought experiment called 'Thomson's lamp.'



Suppose that I told you that I have a lamp in my office which turned on and off 10 times between 8:00 and 9:00 this morning. Would this make sense?





Suppose that I told you that I have a lamp in my office which turned on and off 10 times between 8:00 and 9:00 this morning. Would this make sense?

Now suppose that I told you that it turned on and off 1000 times during this interval. Would that make sense?

Now suppose that I told you that it turned on and off infinitely many times during this interval. Would that make sense?

Here is an argument that it would not:

If the lamp turned on and off infinitely many times during this period, then there is no last event of it turning on or off. So at 9:01 the lamp cannot be on, since every on-turning is followed by an off-turning. But it also cannot be off, since every off-turning is followed by an on-turning. So, at 9:01 the lamp is neither on nor off. But that is impossible. So an infinite series of on- and offturnings is impossible.



If the lamp turned on and off infinitely many times during this period, then there is no last event of it turning on or off. So at 9:01 the lamp cannot be on, since every on-turning is followed by an off-turning. But it also cannot be off, since every off-turning is followed by an on-turning. So, at 9:01 the lamp is neither on nor off. But that is impossible. So an infinite series of on- and offturnings is impossible.

Now, you might reply that this only shows that a certain sort of infinite chain is impossible. For we can contrast two different sorts of infinite chains — those with no last member, and those with no first member. This is like the contrast between these two different infinite series of numbers:

· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·
5 1 3 2 1	1 2 2 1 5
¦ −3, −4, −3, −∠, −1	I, Z, J, 4, J,
1	··

It looks like our argument only shows the impossibility of the second kind of infinite causal chain. But which sort would make trouble for Aquinas' argument?

However, perhaps we can adapt our argument to show that the first sort of infinite series is also impossible.



However, perhaps we can adapt our argument to show that the first sort of infinite series is also impossible.

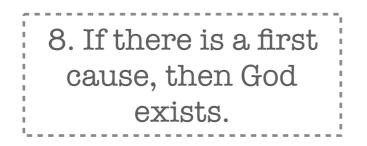
Suppose that the lamp turned on and off infinitely many times between 8:00 and 9:00, and that there was no first event of it being turned on or off. So at 7:59 the lamp could not have been off, since then the first event would have been an on-turning. But at 7:59 it also could not have been on, since then the first event would have been an off-turning. So, at 7:59 the lamp is neither on nor off. But that is impossible. So there had to be a first onturning or off-turning between 8:00 and 9:00.

Is this argument convincing?

Does this argument rely on the assumption that the infinite series took place in a finite interval of time? Could a similar argument show that there can be no infinite series of on- and off-turnings in an infinite period of time?

If not, then it looks like this argument, even if it works, can only rule out the possibility of an infinite causal chain if we assume that the age of the universe is finite. Is that a reasonable assumption?



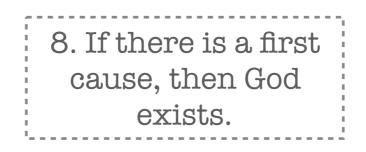


Let's turn to premise (8). Here is one hypothesis which would seem to falsify (8):

The Big Bang The first event in the history of the universe was an explosion of an extremely dense collection of particles, with every particle moving apart from every other particle. This event had no cause - in particular, no intelligent being set it into motion and, further, every subsequent event has been an effect of this event.

This would appear to be a description of a world in which there is a first cause, but God does not exist. So it looks as though, if we are to believe (8), we must have some reason for rejecting the above hypothesis.





Might one defend (8) by saying that this hypothesis is impossible, on the grounds that there can't be an uncaused cause, like the explosion of particles described?

Instead, it seems like Aquinas has to argue that nothing like the Big Bang could genuinely be a first cause. Things like the Big Bang have to have a cause; but things like God don't.

And that is, in a way, exactly what Aquinas tried to do (though of course he did not have the Big Bang in mind). He tried to argue that something which was an uncaused cause would have to have other properties, which God has, but the Big Bang does not.



Rather than pursue Aquinas' thought on this further, let's consider one way of developing the argument which was prominent in a school of Islamic thought which predates Aquinas. This version of the argument makes use of the following premise:

Everything which begins to exist at some time must have a cause.

Because the universe — including the Big Bang — has a beginning in time, the universe as a whole — again, including the Big Bang — must have a cause. So the Big Bang can't be the first cause — and indeed nothing in the universe can be.

If one accepts this extra premise, and one accepts the assumption that the universe came to exist at some time, then it follows that the universe was caused to exist by something outside the universe.



Everything which begins to exist at some time must have a cause.

Because the universe — including the Big Bang — has a beginning in time, the universe as a whole — again, including the Big Bang — must have a cause. So the Big Bang can't be the first cause — and indeed nothing in the universe can be.

If one accepts this extra premise, and one accepts the assumption that the universe came to exist at some time, then it follows that the universe was caused to exist by something outside the universe.

And then there are just two options — that thing must be eternal, or it must have come to exist at a certain time.

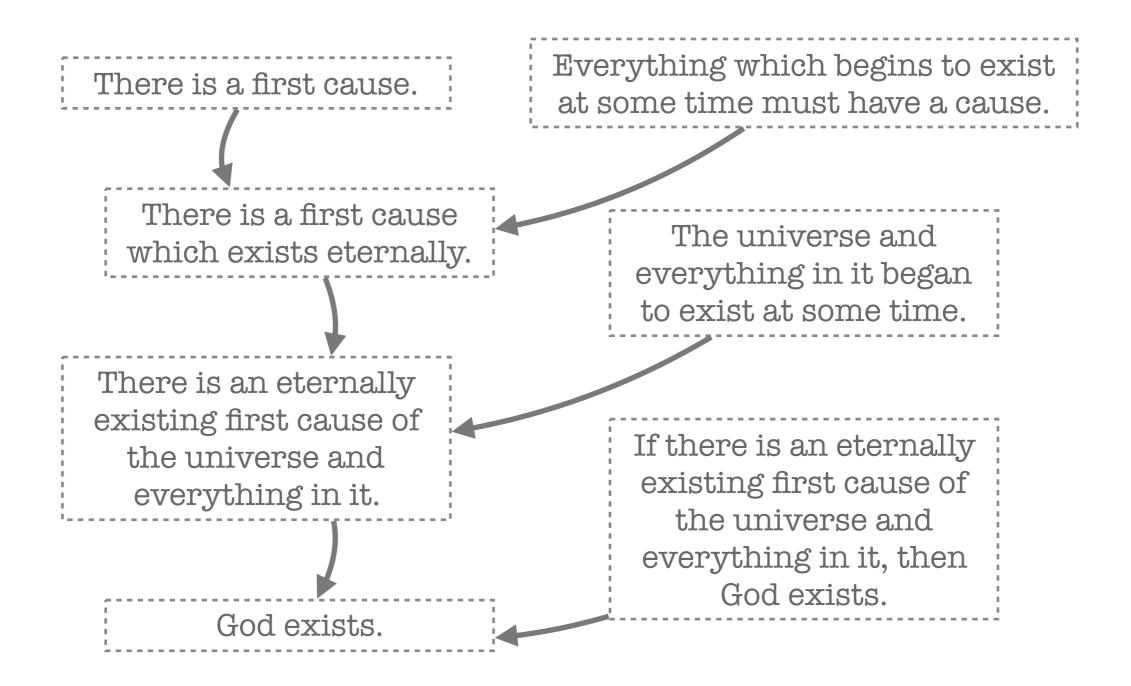
If we go with the second option, then it must have had a cause. And then *that* thing would have to be eternal, or have come to exist a certain time.

If we agree with Aquinas that there can't be infinite causal chains, then this must come to an end somewhere. And that end must be an eternal thing which is (whether directly or indirectly) the cause of the universe.



If we agree with Aquinas that there can't be infinite causal chains, then this must come to an end somewhere. And that end must be an eternal thing which is (whether directly or indirectly) the cause of the universe.

How might we lay out this argument?





We can put this together with the argument from Aquinas to give us the following argument.

- 1. If something were the cause of itself, it would be prior to itself.
- 2. Nothing is prior to itself.
- 3. Nothing is the cause of itself. (1,2)
- 4. A chain of causes cannot be infinite.
- 5. At least one thing has a cause.
- 6. Every causal chain must be (i) circular, (ii) infinite, or (iii) have a first cause.
- 7. There is a first cause. (3,4,5,6)
- 8. Everything which begins to exist at some time must have a cause.
- 9. There is a first cause which exists eternally. (7,8)
- 10. The universe and everything in it began to exist at some time.
- 11. There is an eternally existing first cause of the universe and everything in it. (9,10)
- 12. If there is an eternally existing first cause of the universe and everything in it, then God exists.

C. God exists. (11,12)

This is a version of what is sometimes called the kalām argument, after the school of Islamic thinkers which developed several versions of it.



There are a number of questions one could raise about this argument. But let's focus in on one premise:

12. If there is an eternally existing first cause of the universe and everything in it, then God exists.

Could one object to this premise in much the way that we objected to Aquinas' assumption that if there is a first cause, then that thing must be God? How do we know that this eternally existing first cause of the universe is God?

This is a reasonable question. Here is one way which a defender of the kalām argument might respond.



This is a reasonable question. Here is one way which a defender of the kalām argument might respond.

Most theists are less certain that God exists than they are that 2+2=4; most atheists are less certain than God does not exist than they are that 2+2=4. So most of us think that there is some chance that God exists and some chance that God does not exist.

Let's now consider a few different hypotheses which you might think have some chance of being true.

Simple theism God exists, and God created the universe. **Simple atheism** The universe is all there is; nothing created it. **Quasi-theism**

Something created the universe, but it is not God. Who knows what it is.



Let's now consider a few different hypotheses which you might think have some chance of being true.

Simple theism God exists, and God created the universe. **Simple atheism** The universe is all there is; nothing created it.

Quasi-theism Something created the universe, but it is not God. Who knows what it is.

If you ask most atheists which is most likely to be true, they will probably go for simple atheism.

Just to have an example, let's imagine that you are an agnostic, and that you think that simple theism has a 45% chance of being true, simple atheism has a 50% chance of being true, and quasi-theism has a 5% chance of being true.

If you are convinced by the kalām argument that there is an eternally existing first cause of the universe, then that rules out simple atheism.

•

Just to have an example, let's imagine that you are an agnostic, and that you think that simple theism has a 45% chance of being true, simple atheism has a 50% chance of being true, and quasi-theism has a 5% chance of being true.

If you are convinced by the kalām argument that there is an eternally existing first cause of the universe, then that rules out simple atheism.

True, the kalām argument does not rule out quasi-theism. But you already thought that simple theism was 9 times more likely to be true than quasi-theism; since those are you only two options, you should now think that simple theism has a 90% chance of being true.

Does this show that, depending on how likely you thought simple theism and quasi-theism were in the first place, it might be reasonable to accept premise 12 of the kalām argument?