ARGUMENTS FOR RELIGIOUS BELIEF

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CHAPTER ONE

Does the Universe Have a Cause?

The question of whether the universe has a cause typically falls under the umbrella of the cosmological argument, the aim of which is to establish the existence of something outside the natural order. In this debate, Robert Koons argues that the universe must have a cause, and that there must be something distinct from the universe that is uncaused. On the other side, Graham Oppy argues that if there is an uncaused cause, we should prefer the hypothesis that that cause is a part of the natural order to the hypothesis that it exists outside that order.

The Universe Has a Cause

Robert C. Koons

I. Introduction

Causation is one of the most fundamental building blocks of metaphysics, the "cement of the universe," as J. L. Mackie once put it. Consequently, I do not have a definition to offer, but we can say this much: when we discover the causes of something, we are in a position to *explain* it. Since explanations cannot be circular, neither can be causation itself.

Causation is a kind of relation, but what kind of things does it relate? What are its relata? Some suggest that the relata are states of affairs, others facts, others events, and still others fundamental truths (i.e. the truth of certain fundamental propositions). I will take no position here on this question, but for the sake of simplifying the exposition, I will speak of states of affairs, understanding by this something like

Contemporary Debates in Philosophy of Religion, Second Edition. Edited by Michael L. Peterson and Raymond J. VanArragon.
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David M. Armstrong's conception,[1] according to which an actual *state of affairs* is something that actually exists and that actually combines certain entities and properties into a fact-like complex, corresponding to a simple, atomic proposition. In addition, I will argue (in section II) that we must take *pluralities* of these states of affairs as potential joint causes and effects, rather than focusing exclusively on individual ones.

I argue in section II that not everything has a cause. First, I offer two arguments there against the possibility of an infinite causal regress. I also argue that the plurality of all states of affairs ("Reality") must be uncaused. So, there is at least one uncaused thing (or plurality of things). In section III, I provide a set of epistemological arguments for thinking that we must know *a priori* a principle that successfully draws the line between the caused and uncaused things. I apply this principle in section IV to the universe, with the result that the universe (properly defined) falls within the class of caused things. In section V, I offer one supplemental argument for the conclusion that the universe has a cause.

II. Does Everything Have a Cause?

Does absolutely everything have a cause? By "everything," I mean everything, and all pluralities of things, in the appropriate ontological category. If the causal relata are states of affairs or situations, then *causal universalism* would be the thesis that all states of affairs, both individually and in all combinations, have causes. If we think instead in terms of causal explanation as a relation between ontologically fundamental truths, then the thesis would be that all such truths and all pluralities of such truths have causal explanations. For the sake of simplicity of exposition, I will assume that the basic relata of causation are states of affairs, but all of my arguments would apply with equal force on the alternatives.

Causal universalism invites assent because of its simplicity. However, there are two considerations that provide grounds for denying it. First, there are good reasons to embrace *causal finitism*, the thesis that all causal chains are finite in length, ruling out all causal cycles and infinite causal regresses. Second, the ban on causal circularity also rules out infinite regresses. Finally, if we assume that self-causation is impossible, then causal universalism leads to a contradiction when it is applied to the totality of all states of affairs.

A. Causal Finitism

In some important recent work,[2] Alexander Pruss has defended the thesis of causal finitism, the thesis that any state of affairs can have only a finite number of causes in a well-founded network. This entails that there can be no cycles or infinite regresses, which in turn entails that causal universalism is false, since every causal network must terminate in one or more uncaused nodes.

[1] Armstrong, D.M. (1997). *A World of States of Affairs*. Cambridge: Cambridge University Press.
[2] Pruss, A.R. (2018). *Infinity, Causation, and Paradox*. Oxford: Oxford University Press.

One argument for causal finitism relies on a family of hypothetical "super tasks," such as the Grim Reaper paradox of Jóse Benardete.[3] Benardete asks us to imagine a victim, Fred, who is assailed by an infinite phalanx of would-be executioners, the Grim Reapers. Each Grim Reaper is assigned a deadline between midnight and 12:01 a.m.: if the Reaper finds Fred alive at its assigned moment (because no earlier Reaper has killed him), then it kills Fred. If an earlier Reaper has already killed Fred, it does nothing. The Reapers' assigned deadlines are arranged in the following way: for Reaper #1, the deadline is 12:01 a.m.; for Reaper #2, it is 30 seconds after midnight; for Reaper #3, it is 15 seconds after midnight; and so on, ad infinitum. There is no first Reaper (in the order of time): in order to survive any finite period after midnight, Fred must escape an infinite number of earlier deadlines (which is, per hypothesis, impossible).

The story leads quickly to a contradiction, on the assumption that Fred does not die unless one of the Reapers kills him. At least one Grim Reaper must act, since if all of the Reapers whose numbers are greater than 1 do nothing, then Reaper #1 will act. However, it is impossible for any Grim Reaper to act, since, for any n, Grim Reaper #n cannot do so unless Fred survives until its assigned deadline at $\frac{1}{2^n}$ seconds after midnight. It is impossible for Fred to survive that long, since Fred's surviving until Reaper #n's deadline entails that no Grim Reaper with a number larger than $(n+2)$ has acted, but, in that case, Reaper #$(n+1)$ must have acted.

Let us modify Benardete's Grim Reaper scenario in order to eliminate extraneous elements for our purposes. All we need is an infinite series of Signalers, each of which is capable of receiving a signal (in the form of a finite number) from its predecessor at a pre-assigned deadline and of sending an appropriate signal in time to its successor. Each Signaler is assigned a number, from 1 to infinity. Signaler #n acts according to the following rule: (i) if it receives a signal in the form of a number $m > n$ from its predecessor, then it passes this number along to its successor, and (ii) if it does not receive such a signal from its predecessor, then it sends the number n as a signal to its successor. It is easy to prove that at least one Signaler will send its number to its successor: for example, if no Signaler with a number greater than 1 does so, Signaler #1 will. However, it is also impossible that any Signaler send its number to its successor. Suppose, for contradiction, that Signaler #n does so. This means that it did not receive any number greater than n from its predecessor, but this is impossible. If Signaler #$(n+1)$ did not receive any number m greater than $(n+1)$ from its predecessor, it would have sent $(n+1)$ to Signaler #n.

When a story like this yields a contradiction, we can use this contradiction as a way to falsify at least one of the presuppositions that led us initially to the necessarily false conclusion that the story was possible. I will argue that the presupposition of the story that we should reject is the assumption that it is possible for an event to have an infinite causal history. The story clearly assumes this, since each Signaler's action or inaction at the moment of its assigned deadline depends on an infinite number of prior events (the signals created or transmitted by each of the preceding signalers). If no event can have an infinite causal history, then causal finitism must be necessarily true.

I have two arguments for this verdict. First, we can appeal to a version of what David Lewis called "patchwork principles." A patchwork principle is a principle that guides us in making judgments about what is metaphysically possible. The principle relies on

[3] Benardete, J.A. (1964). *Infinity: An Essay in Metaphysics*. Oxford: Oxford University Press.

two assumptions. First, we assume that some particular, localized situation, S, is metaphysically possible (and so contained in some possible world w_1). Second, we assume that there is a second possible world w_2 with a spatiotemporal or causal structure that provides enough "room" for S to be repeated κ (where κ is a cardinal number, either finite or infinite). On these two assumptions, the patchwork principle licenses us to conclude that there is a third possible world, w_3, in which a situation intrinsically identical to S has been repeated κ times (in the arrangement corresponding to the structure of w_2). The picture is that w_2 provides the frame, w_1 the sample patch, and w_3 the completed quilt.

As Lewis argued, patchwork principles are quite plausible. We seem to make use of such principles whenever we infer in everyday life that some situation that has never before occurred in exactly the way we envisage is nevertheless really possible. We take elements drawn from the actual world and arrange them hypothetically in a structure also drawn from the actual world.

If causal finitism is not necessarily true, then there is a possible world w_2 in which an infinite number of situations are arranged in an infinite causal regress, with each situation causally dependent in some respect on its predecessor. We have good reason to believe that an individual Signaler scenario is possible (contained in some world w_1): it is trivial to describe, for each number n, a simple electrical circuit that will do the job. Consequently, the patchwork principle entails that there must be a possible world w_3 in which the infinite Signaler scenario is realized. We know, by logic alone, that this is false. Hence, causal finitism must be necessarily true.

My second argument for causal finitism, also drawing on Pruss's work, is an inference to the best explanation. There are, in fact, a large number of paradoxes involving super tasks of various kinds. For example, Pruss has recently shown[4] that, if causal finitism is false, it would be possible to construct an *infinite fair lottery*, a lottery in which an infinite number of outcomes are possible with exactly the same probability. For example, suppose that it were possible to flip a coin an infinite number of times (with each flip assigned its own, unique natural number) and to assemble all the results in a single announcement. If so, it would be metaphysically possible for all but one of the flips to come out Heads, in which case the sole Tails result would pick out the corresponding natural number as the winner. This would be an infinite fair lottery, since each number would have (by symmetry considerations) an equal chance of being the "winner."

However, this is metaphysically impossible, since if it were to occur, it would force us to violate principles of rationality that are both fundamental and essential. Suppose, for example, that you and I both ran such lotteries and in both cases there was a winner. No matter how large my number is, I should assign a probability of 1 (or some number infinitely close to 1) that any other natural number selected in another infinite fair lottery is larger than mine, since there will be only finitely many numbers smaller and infinitely many greater. If we each prefer to "own" the larger number, then I have an overwhelmingly strong reason to prefer your unknown number to mine. But, you would have an equally strong reason to prefer my unknown number to yours, for the same reasons. In such a situation, we could both be exploited by a third party who is completely ignorant of both numbers, who could induce each of us to bet against his or her own number as the greater.

[4] Pruss, A.R. (2018). *Infinity, Causation, and Paradox*. Oxford: Oxford University Press.

B. Non-Circularity Rules Out Regresses

As Pruss has pointed out,[5] there is a connection between the prohibition of circular explanations and the prohibition of causal regresses. Suppose that there is a causal regress of the form: S_1, S_2, S_3, etc. ad infinitum, with each S_i caused by S_{i+1}. Now consider the existence of the even-numbered situations (call this fact or plurality *E*) and the existence of the odd-numbered situations, *O*. Clearly, *E* is causally explained by *O*, since every member of *E* is immediately caused by a member of *O*. But, for exactly similar reasons, *O* is causally explained by *E*. Since such circular explanation is impossible, so must be infinite causal regresses.

C. Pluralization

Causation cannot be circular. If every state of affairs and every plurality of state of affairs had a cause, the totality of *all* states of affairs (the maximum plurality) would have to have a cause. Causes are real things, so the cause of Reality itself (if we let "Reality" be the name of the plurality of all actual states of affairs) would have to be an actual state of affairs or a plurality of actual states of affairs, and so would have to be a part or a sub-plurality of Reality. This would mean that the whole of Reality would be caused by a part, a violation of non-circularity.

Is it reasonable to suppose that not only individual states of affairs but also pluralities of states of affairs are in the category of possible relata of causation? Yes, because we often do seek and find causes of such pluralities. For example, we might seek the cause (or causes) of the American Civil War, or of the existence of the solar system, or of the existence of the four fundamental forces. In addition, we often seek causal explanations for correlations and coincidences. In each of these cases, we are looking for the cause or causes of a plurality of states of affairs.

In his *Dialogues Concerning Natural Religion*, David Hume objects to the assumption that a plurality of things must have its cause in some distinct and separate plurality. We can, Hume argues, fully explain the plurality by explaining each of its parts, even if each of those parts is explained by another part of the same plurality.[6] If we accept Hume's principle, then we should say that Reality is causally explained so long as each state of affairs within it is explained by another state of affairs within it. However, Hume's claim is obviously wrong-headed. I cannot causally explain the Civil War (which is a plurality) by explaining each part of that War by reference to another part. Alexander Pruss illustrates this response well by means of his cannonball example.[7] The path of a cannonball (from cannon to destination) can be divided into an infinite number of segments in such a way that there is no earliest segment. For example, we could divide it into the second half of the movement, the second half of the first half, the second half of the first quarter, etc. ad infinitum. We can now explain each part of the path causally by referring to earlier parts, and yet we clearly have not thereby explained the cannonball's path as a whole.

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[5] Pruss, A.R. (1998). The Hume-Edwards Principle and the Cosmological Argument. *International Journal for Philosophy of Religion* 43: 149–165.

[6] Hume, D. (1990). *Dialogues Concerning Natural Religion*. M. Bell (ed.). London: Penguin Books, p. 101.

[7] Pruss, A.R. (2006). *The Principle of Sufficient Reason: A Reassessment*. Cambridge: Cambridge University Press, pp. 44–46.

III. Is There a Principle of Causation?

From section II, we can conclude that there is at least one state of affairs or plurality of states of affairs that is uncaused. We can take for granted that some states of affairs do have causes (I will set aside causal nihilism or global causal skepticism as obviously unacceptable). Is there a principled distinction between those pluralities that do and those that do not have causes? If there were no principle at all, not even a defeasible or presumptive one, then we would have to take seriously the possibility that any given situation or plurality of situations might be uncaused. Such openness to the absence of causation would lead inexorably to global skepticism about empirical or *a posteriori* knowledge (as well as to any *a priori* knowledge that depends on intuition or the intellectual appearance of truth).

All of our empirical knowledge depends on our being able to presume, with good reason, that our experiences, both sensory and mnemonic (memory-related), and all of the other natural facts that interpose causally between those experiences and the facts that they seem to represent have been caused (and caused in the appropriate way). If we had to take seriously the possibility that they were uncaused, we would face a situation very similar to that faced by Descartes in the *First Meditation*,[8] in which Descartes has to take seriously the possibility that all of his present experiences have been caused by a powerful demon bent on deceiving him. If we suppose instead that there is no demon but that all our present experiences have come into existence without cause, then we are no better off, since there could be no reliable correlation between uncaused experiences and the putative facts they present to us.

Without *a priori* knowledge of a causal principle, we would also be unable to have knowledge of the future or of any prospective future, since we could never rule out the possibility that some uncaused state of affairs could appear and influence the future in unpredictable ways.

In the absence of a causal principle, we could not even say that uncaused events are improbable. An event is improbable only if its potential causes are such as to produce the event in question only in exceptional cases. To assign an objective probability to an event is to ascribe a certain kind of cause to it, and, as a result of de Finetti's theorem (as explained by Brian Skyrms[9]), it is impossible to assign subjective probabilities coherently without a tacit commitment to objective probabilities.

Moreover, we need not only a known causal principle but also a causal principle that can be known *a priori* (prior to and independent of all empirical knowledge). Since all of our empirical, *a posteriori* knowledge presupposes our rational certainty in commitment to some causal principle, that principle must be knowable *a priori*. Our belief in a causal principle must be constitutive of being reasonable.

In addition, the *a priori* causal principle must be in the form of a conditional whose antecedent is itself applicable on *a priori* grounds to all of our empirical data. If the applicability depended on empirical knowledge, this would make the justification of our

[8] Descartes, R. (1971). *Meditations on First Philosophy*. In E. Anscombe and P. Geach (ed.), *Descartes: Philosophical Writings*. Indianapolis: Bobbs-Merrill, pp. 61–65.
[9] Skyrms, B. (1984). *Pragmatics and Empiricism*. New Haven: Yale University Press, pp. 37–62.

empirical knowledge viciously circular.[10] Therefore, what is needed is a principle that is itself *a priori* knowable and that can be applied to particular situations with *a priori* confidence. Such *a priori* knowledge is possible only in the case of *necessary truths*. Thus, it should apply equally to worlds that are "small" (relative to our world) and those that are large.

There are only four conditions that will meet all of these requirements. The conditions are (1) a plurality of states of affairs each of which is wholly metaphysically contingent; (2) a plurality of states of affairs each of which is possibly wholly temporal;[11] (3) a plurality of state of affairs each of which is such that it is possible that an intrinsic duplicate of it have a cause; and (4) a plurality of states of affairs each of which is measurably finite (one that attributes only finite degrees of any quality or quantity to entities). I claim (without argument here, due to lack of space) that these conditions are closely related: (1) entails (2), (2) entails (3), and (3) entails (4). Thus, (4) has the widest scope and is therefore the strongest principle. I will focus here on the weakest causal principles, (1) and (2), which claim that all possibly contingent and possibly temporal pluralities have causes.

Causal Principle 1 All pluralities of states of affairs each of which is wholly contingent have joint causes.

Causal Principle 2 All pluralities of states of affairs each of which is possibly wholly temporal (locatable in time) have joint causes.

Accepting the *a priori* knowability of any of these causal principles is sufficient to avert the threat of global skepticism. We can know *a priori* that all of our sensory and mnemonic experiences and appearances are contingent and temporal in character. We can also know this *a priori* about any body of conceivable scientific data, including all experimental results, observations, traces, remnants, and fossils.

In contrast, here are some failed candidates of adequate causal principles:

(5) Every plurality of non-first events (events preceded in time by other events) has a cause.[12]
(6) Every plurality of situations not including an infinite causal regress has a cause.
(7) Every plurality of situations that is not both cosmic in scale and low in entropy has a cause.

Each of these three principles fails to dispel the threat of Cartesian skepticism. For all I can know *a priori*, it might be that the states of affairs making up my present state of consciousness are all first events. I cannot know the reality of the past *a priori* and

[10] Koons, R.C. (2008). Epistemological Foundations for the Cosmological Argument. *Oxford Studies in the Philosophy of Religion* 1: 105–133.

[11] By *possibly wholly temporal* I mean a state of affairs that could wholly begin or cease to obtain in time. Something that in fact exists at all times might nonetheless be involved in a state of affairs that is possibly wholly temporal.

[12] A principle recommended by Graham Oppy (in conversation).

without any tacit appeal to causation. Similarly, the events making up my consciousness over a very short period might contain one or more infinite causal regresses, similar to the cannonball regress discussed by Pruss.[13] Finally, it might well be (for all I can know *a priori*) that my present state of consciousness is the whole of the cosmos. I also cannot know *a priori* that its entropy is very high. Thus, I cannot know *a priori* on the basis of (5), (6), or (7) that my present state of consciousness has any cause whatsoever, much less that it has the sort of cause needed for me to have any empirical knowledge.

IV. Does the Universe Have a Cause?

We're finally in a position to answer the main question: does the universe have a cause? To begin with, what is *the universe*? We could simply define the universe as the complete plurality of all states of affairs that are possibly wholly temporal or wholly contingent. Defined in such a way, the universe would obviously fall within the scope of causal principles (1) or (2). Since causation is non-circular, we can infer the existence of at least one necessary and eternal (i.e., not possibly temporal) state of affairs. We can say that the cause of the universe is simply the plurality of necessary, eternal states of affairs that are, individually or collectively, causes of some constituent of the universe. So defined, there is a unique cause of the universe.

Do we have any reason to think that there is a single necessary and eternal state of affairs that is the cause of the universe? First, compositional universalism seems plausible in the case of states of affairs, in which case the plurality of all necessary or eternal states of affairs would together compose a single state. Second, Ockham's Razor (the rule of thumb that recommends against "multiplying entities needlessly") would suggest that we prefer the hypothesis that there is just one such state of affairs. In addition, the apparent unity of the universe, both in terms of its having a single origin event (the Big Bang) and its being governed by a consistent and relatively simple set of natural laws, supports the singular-cause hypothesis.

Here is the argument so far, in a nutshell:

1. Human beings have empirical knowledge.
2. Human empirical knowledge requires that we have *a priori* knowledge that our empirical data has been caused (in the appropriate way).
3. In order to have empirical knowledge that our data have causes, it must be that there is some property *F* such that (a) we have *a priori* knowledge of some causal principle of the form, *All pluralities of F's have causes*; and (b) we have *a priori* knowledge that all of our empirical data has *F*.
4. For any *F* satisfying these two conditions, the world is a plurality of such *F*'s.
5. Therefore, the world has a cause (an extra-cosmic state of affairs or plurality of such states of affairs).

The argument is clearly valid, and premises 1 through 3 strike me as virtually undeniable. So, it is premise 4 that requires the most scrutiny. Since the causal

[13] Pruss, A.R. (2009). *The Principle of Sufficient Reason*. Cambridge: Cambridge University Press, pp. 44–46.

principle is *a priori* knowable, we can assume that it is also metaphysically necessary. A metaphysically necessary principle ought to be *anthropically neutral*: it should not be in any way biased toward the causation of states of affairs simply because those states of affairs are or would be somehow relevant to us. To think otherwise would be to introduce an unacceptable element of anthropocentricity into our metaphysics (something that should be, in particular, anathema to those naturalistically inclined). In addition, the property F should be essential to any state of affairs that has it: the F-ness of the state of affairs should be a necessary consequence of the canonical description of the state of affairs in terms of its constituent entities and properties. This means that the applicability of a causal principle should not depend on its spatiotemporal location (relative to other states of affairs) or its contingent effects or consequences.

Suppose, for *reductio ad absurdum*, that premise 4 is false, in which case there is a scenario s_1 that is consistent with our *a priori* knowledge and in which part (a sub-plurality) of the universe is uncaused (because it is outside the scope of the F's). Now consider a scenario s_2 that is like s_1 except that the uncaused sub-plurality of the universe in s_1 has been replaced by a plurality of state of affairs that are perfect duplicates of the present contents of my mind. Since the causal principle is anthropically neutral, s_2 is as consistent with our *a priori* knowledge as s_1 is. So, it is *a priori* conceivable that a mental state just like my current one be uncaused, and, since the causal principle is indifferent to the spatiotemporal location of a state of affairs, I cannot know *a priori* that my current state has any cause, leading to global skepticism. If global skepticism is false, premise 4 must be true.

V. Supplemental Argument: The Kalām Argument

Benardete's Grim Reaper paradox can also be used as an argument for the finitude of the past. To reach this conclusion, we must simply replace the causal-network patchwork principle with a temporal patchwork principle: if a scenario (described in wholly intrinsic terms) S is possible (included in a possible world w_1), and there is a second world w_2 containing an infinite number of disjoint temporal regions stretching infinitely far in the past, with each region large enough to accommodate S, then there is a third possible world w_3 in which S is repeated an infinite number of times, stretching infinitely far into the past.

We can take the Grim Signaler scenario and try to build a world in which an infinite number of Signalers have existed, each with a deadline at the beginning of an infinite number of years stretching into the past. Given the temporal patchwork principle, we must conclude that no possible world can accommodate such an infinite past, and so such an infinite past is metaphysically impossible.

From the fact that the past is finite, we can infer that every temporal being has begun to exist at some point in the past. Causal finitism entails that there can be no infinite causal regress of temporal beginnings. Hence, there must be some temporal beginnings that are not caused by other temporal beings. To reach the conclusion that these original temporal beings have been caused to exist by some eternal (non-temporally located) being, we can assume a much weaker causal principle, namely, the Kalām causal

principle (after the medieval Islamic tradition, including al-Kindi and al-Gazzali, that championed this principle):

Kalām Causal Principle: Everything that begins to exist (in time) has a cause.

Denying the Kalām causal principle would be both highly implausible and very costly in epistemological terms. We would have to take seriously the possibility that any origin event might occur uncaused at any time. There is a second variant on the Kalām, one that does not depend on using a temporal patchwork principle and a supertask to establish the finitude of the past. Instead, we can argue for the finitude of the past given just causal finitism. Suppose, for a proof by contradiction, that the past is infinite in extent even though every state of affairs has only finitely many causes. In such a case, we would eventually reach an *infinite simple past*, that is, an era of time infinite in duration (in the direction of the past) consisting entirely of uncaused states of affairs. If we assume again the Kalām causal principle, none of these uncaused states of affairs could have had a beginning to their existence. Hence, each must be infinitely old. Let *S* be one of these uncaused, beginningless, and infinitely old states of affairs. *S* persists throughout some infinitely long, beginningless duration *T*.

At this point, I can introduce a dilemma: either time itself is self-measuring, or not. A period of time is self-measuring if it contains sub-periods with definite duration even in the absence of any events occurring during the period, that is, if empty time can have duration. If time can be self-measuring in this sense, then time itself divides *S* into an infinite number of sub-events, each corresponding to the existence of some persisting entity in each of the infinitely many sub-periods of *T*. In this case, there is an infinite causal regress, as each sub-event of *S* is caused by the immediately preceding sub-event, in contradiction to causal finitism. If time is not self-measuring, then it is impossible for *T* to have any temporal measure, since there have occurred with *T* no beginning or endings from which any temporal measure could be derived.

There is a third variant of the Kalām tradition (inspired by an idea of Joshua Rasmussen's),[14] one that does not even require a proof that the world has a finite past. It is sufficient if it is *possible* that the universe (defined as the plurality of wholly contingent states of affairs) has a finite past. If we assume that the Kalām causal principle is necessarily true, then we can infer that in any possible world *w*, in which the totality of wholly contingent states of affairs has a beginning in time, it must have a cause in *w*. The only possible cause of such a totality would have to be a necessary state of affairs. By *S*5,[15] it would follow that this necessary state of affairs (capable of causing the universe) also exists in the actual world. If we add a very weak causal principle – one to the effect that, if there exists something with the power to cause the totality of wholly contingent states of affairs, then that totality probably has an actual cause – we could infer the existence of an actual cause of the universe.

[14] Rasmussen, J. (2011). A New Argument for a Necessary Being. *Australasian Journal of Philosophy* 89: 351–356.

[15] *S*5 is a modal principle that claims that whatever is possible is necessarily possible. In other words, if a state of affairs is possible in one possible world, it is possible in all possible worlds, which of course will include the actual world. See Plantinga, A. (1974). *The Nature of Necessity*. New York: Oxford University Press, pp. 51–54.

The Universe Does Not Have a Cause

Graham Oppy

I. Causal Reality

Consider causal reality: the sum of everything that enters into causal relations. If something is a cause – i.e. something that is involved in the bringing about of effects – then it is part of causal reality. If something is an effect – i.e. something that is involved in what is brought about by causes – then it is part of causal reality. If the tip of the cue strikes the cue ball, and sends it flying down the table, the impact of the cue is one of the causes of the subsequent motion of the cue ball; but, if the tip of the cue strikes the cue ball, the motion of the cue is one of the effects of the motion of the arm of the person wielding the cue. The motion of the tip of the cue is part of causal reality as both cause and effect.

Does causal reality have a cause? No, obviously not. Causal reality is the entire network of causal items under the causal relation. A cause of causal reality would be an item that is not part of causal reality, and yet which is a cause of some items in causal reality. But causal reality is the sum of everything that enters into causal relations.

Could it be that there is some part of causal reality that causes itself and then is the ultimate cause of everything else in causal reality? No, obviously not. Nothing can be a cause of itself. Causes are causally prior to their effects. If I ask you "What causes A?" and you answer "A," either you are not being serious, or else you do not understand what it is to give a proper causal explanation. "A because A" is always an explanatory solecism.

Could it be that there are circles of causes in causal reality? That is, could it be that one thing is one of the causes of a second thing, and that second thing is one of the causes of that third thing, and that third thing is one of the causes of the first thing? No, obviously not. It is a fundamental causal principle that, if one thing is a cause of a second thing, and that second thing is a cause of a third thing, then the first thing is a cause of the third thing. However, if there could be a circle of causes of the kind described just above, then it could be that there are things that are causes of themselves. But we have already seen that nothing can be a cause of itself.

Given that we are thinking about causal reality as a network of causes and effects, we can ask: how many uncaused causes are there in causal reality? At least in principle, there are three answers that might be given to this question: zero, one, and more than one.

If there are no uncaused causes in causal reality, then causal reality involves an infinite regress of causes and effects: for each cause in causal reality, there is a causally prior cause in causal reality. If there is one uncaused cause in causal reality, then causal reality has a unique initial cause: there is just one cause in causal reality that is a cause of other causes in causal reality, but that is not an effect of other causes in causal reality. And if there is more than one uncaused cause in causal reality, then there is popping into existence in causal reality: causal interactions with causal inputs from distinct uncaused causes.

Could causal reality be an infinite regress of causes and effects? Perhaps. Certainly, there is nothing that we have so far assumed about causation that entails that causal reality is not an infinite regress of causes and effects. Some philosophers think that the

hypothesis that causal reality involves an infinite regress of causes and effects can be ruled out *a priori*, i.e. independently of any input from science and experience. One very popular strategy is to argue that, if it were possible that causal reality is an infinite regress, then other scenarios which are demonstrably impossible would also be possible: e.g. hotels with infinitely many rooms, or diarists who have been planning their futures throughout an infinite past, or infinite assemblies of assassins who kill their victims without any of them firing a shot. I think that pursuit of this strategy is doomed to failure: even if it is impossible for there to be hotels with infinitely many rooms, or diarists who have been planning their futures throughout an infinite past, or infinite assemblies of assassins who kill their victims without any of them firing a shot, that simply does not decide the question whether it is impossible that causal reality involves an infinite regress of causes and effects.

Could there be hotels with infinitely many rooms, or diarists who have been planning their futures throughout an infinite past, or infinite assemblies of assassins who kill their victims without any of them firing a shot? I am inclined to think not. Here is why. I think that every possible world shares laws and initial history with the actual world, and differs from the actual world only as a result of the outplaying of objective chance. Perhaps unsurprisingly, I think that there are no hotels with infinitely many rooms, or diarists who have been planning their futures throughout an infinite past, or infinite assemblies of assassins. Moreover, I think that no matter how the objective chances play out, there is no way that the laws and some actual initial history generate hotels with infinitely many rooms, or diarists who have been planning their futures throughout an infinite past, or infinite assemblies of assassins. So these things are all outright impossible. Nonetheless, I take it to be an entirely open question whether causal reality is an infinite regress of causes and effects.

Could there be popping into existence? Perhaps; but I am inclined to think not. Given my austere view about what is possible, it should be easy to see why I say this. First up, it is not the case that things pop into existence: everything that we meet within experience – and everything that is postulated in science – has a common causal ancestry. Moreover, no difference in the historical outplaying of objective chances could make a difference to common causal ancestry. We simply have no reason to suppose that there is more than one uncaused cause.

Could there be a unique initial cause? Perhaps. Given my views about modality, and given that I take it to be an open question whether causal reality is an infinite regress of causes and effects, it should not be surprising that I take it to be an open question whether causal reality contains a single uncaused cause that is a cause of everything else.

In sum: It is an open question whether causal reality contains uncaused causes. If causal reality does not contain uncaused causes, then causal reality consists of causes and effects in infinite regress. However, if causal reality includes uncaused causes, then it is an open question how many uncaused causes it contains. I think that the most plausible hypothesis is that, if causal reality contains uncaused causes, then it contains exactly one uncaused cause; however, I would not bet my house on the truth of this hypothesis.

II. Natural Reality

The conclusions that were reached at the end of the preceding section paid no attention at all to the composition of causal reality. There are many and varied views about what kinds of causes are to be found in causal reality. In keeping with my austere views about what is possible, I hold an austere view about the kinds of causes to be found in causal reality: there are none but natural causes. Said differently: natural reality exhausts causal reality.

Here are two examples that illustrate the view. (1) Suppose that causal reality is exhausted by our universe, and that our universe is a standard big bang universe. In this case, the single uncaused cause is an initial part of our universe, or something that is associated with an initial part of our universe: "the initial singularity." (2) Suppose that causal reality is exhausted by an infinite ensemble of universes in a background de Sitter space, and that there is an infinite causal regress in that background state. In this case, there is no uncaused cause, and, in particular, our universe has causes of its coming into existence in that background de Sitter space.

What might competing views – views that deny that natural reality exhausts causal reality – look like? Here are two examples: (1) Natural reality is exhausted by our universe, which is a standard big bang universe, but God is the uncaused cause of the existence of our universe. (2) Natural reality is exhausted by an infinite ensemble of universes in a background de Sitter space in which there is an infinite causal regress, but God is the uncaused cause of the existence of that background de Sitter space. On the second view, while God is a cause of the existence of our universe, God is not the sole cause of the existence of our universe: there are causes of the existence of our universe in the background de Sitter space. However, on the second view, God is the sole cause of the existence of the background de Sitter space. And, on the first view, God is the sole cause of the existence of our universe.

There is currently no widespread consensus among expert cosmologists about whether we live in something like a standard big bang universe or whether our universe is part of an infinite ensemble of universes in a background de Sitter space in which there is an infinite causal regress. Consequently, there is no widespread consensus among expert cosmologists about whether the existence of our universe has natural causes. If our universe is part of an infinite ensemble of universes in a background de Sitter space in which there is an infinite causal regress, then the existence of our universe has natural causes, whether or not that background de Sitter space has non-natural causes.

When people ask whether our universe has a cause, typically they are not interested in the question whether our universe has natural causes. Rather, when people ask whether our universe has a cause, typically what they are really interested in is whether natural reality has a cause. From this point forward, I shall take it that the question under consideration is whether natural reality has a cause. Given that our focus is whether natural reality has a cause, we need not worry about the lack of widespread consensus among expert cosmologists about the extent of natural reality.

III. Two Hypotheses Compared

There are two views that we might take about natural reality: either natural reality exhausts causal reality, or there is more to causal reality than natural reality.

If natural reality exhausts causal reality, then either (a) there is an infinite regress of natural causes; or (b) there is a single uncaused natural cause; or (c) there are multiple uncaused natural causes.

If there is more to causal reality than natural reality, then either (d) there is an infinite regress of non-natural causes that is causally prior to natural reality; or (e) there is a single uncaused non-natural cause that is causally prior to natural reality; or (f) there are multiple uncaused non-natural causes that are causally prior to natural reality.

If there is more to causal reality than natural reality, then either (g) there is an infinite regress of natural causes; or (h) there is a single initial natural cause; or (i) there are multiple initial natural causes. (An initial natural cause is a natural cause that has causes but that does not have any natural causes.)

Is there reason to prefer one of the two views about natural reality to the other? Should we think that natural reality exhausts causal reality, or should we rather think that there is more to causal reality than natural reality? These are big questions. I do not propose to try to answers these questions here. Instead, I shall try to answer a more modest question. If we ignore all other considerations, do general considerations about causation favor the view that natural reality exhausts causal reality, or do they rather favor the view that there is more to causal reality than natural reality? That is: if the only thing that we had to go on was general considerations about causation, which of the two views should we prefer: that natural reality exhausts causal reality, or that there is more to causal reality than natural reality?

I shall argue that, if we ignore all other considerations, general considerations about causation favor the view that natural reality exhausts causal reality. After I have given my argument for this conclusion, I shall explain its significance.

My argument for the conclusion that, ignoring all other considerations, general considerations about causation favor the view that natural reality exhausts causal reality is an argument from cases. There is a limited number of live hypotheses about causal reality: the number of uncaused causes in causal reality is none, one, or more than one. On each of these hypotheses, ignoring all other considerations, general considerations about causation favor the view that natural reality exhausts causal reality. So, no matter what is true about causal reality, ignoring all other considerations, general considerations about causation favor the view that natural reality exhausts causal reality.

My argument for the conclusion that, ignoring all other considerations, general considerations about causation favor the view that natural reality exhausts causal reality is an argument from comparative theoretical virtue. When we adjudicate between competing hypotheses, we prefer more theoretically virtuous hypotheses to less theoretically virtuous hypotheses. In particular, when we adjudicate between competing hypotheses in cases where the relevant theoretical virtues are minimization of theoretical commitments and maximization of explanatory breadth and depth, we prefer those hypotheses that make the best trade-offs between minimization of theoretical commitments and maximization of explanatory breadth and depth. While there is no generally agreed algorithm for determining when one hypothesis makes a better

trade-off than another between minimization of theoretical commitments and maximization of explanatory breadth and depth, there are clear cases: in particular, if two hypotheses have the same explanatory breadth and depth, but one hypothesis involves fewer theoretical commitments than a second, then the first hypothesis is better than the second. When it comes to the question whether, ignoring all other considerations, general considerations about causation favor the view that natural reality exhausts causal reality, the only relevant theoretical virtues are minimization of theoretical commitments and maximization of explanatory breadth and depth. I shall argue that, when we compare the hypothesis that natural reality exhausts causal reality with the hypothesis that there is more to causal reality than natural reality, taking only general considerations about causation into account, we find (a) that the hypothesis that natural reality exhausts causal reality has fewer theoretical commitments than the hypothesis that there is more to causal reality than natural reality; and (b) that there is no difference in the explanatory breadth and depth of these two hypotheses.

IV. Fewer Commitments

The argument for the claim, that the hypothesis that natural reality exhausts causal reality has fewer theoretical commitments than the hypothesis that there is more to causal reality than natural reality, is straightforward. No matter which hypothesis we adopt about the number of uncaused causes in causal reality, the hypothesis that natural reality exhausts causal reality has fewer theoretical commitments than the hypothesis that there is more to causal reality than natural reality.

If there are no uncaused causes in causal reality, then, (i) on the hypothesis that natural reality exhausts causal reality, there are no uncaused natural causes; and (ii) on the hypothesis that there is more to causal reality than natural reality, either (1) there are no uncaused natural causes and there are non-natural causes; or (2) there are no uncaused non-natural causes and there are initial natural causes. However, it is obvious that the hypothesis that there are no uncaused natural causes and there are non-natural causes commits you to more than the hypothesis that there are no uncaused natural causes. And it is no less obvious that the hypothesis that there are no uncaused non-natural causes and there are initial natural causes commits you to more than the hypothesis that there are no uncaused natural causes. (In the second case, there is commitment to two different kinds of causes – natural and non-natural – and to two different kinds of natural causes – initial and non-initial; in the first case, there is commitment to only one kind of cause – natural.) So, if there are no uncaused causes in causal reality, it is less theoretically committing to suppose that natural reality exhausts causal reality than it is to suppose that there is more to causal reality than natural reality.

If there is exactly one uncaused cause in causal reality, then, (i) on the hypothesis that natural reality exhausts causal reality, there is exactly one uncaused natural cause; and (ii) on the hypothesis that there is more to causal reality than natural reality, there is exactly one uncaused non-natural cause. The hypothesis that there is exactly one uncaused non-natural cause incurs commitment to two different kinds of causes – natural and non-natural – whereas the hypothesis that there is exactly one uncaused natural cause incurs commitment to just one kind of cause – natural. Since both

hypotheses are committed to exactly one uncaused cause, and since there are no other relevant differences between them, it is obvious that the hypothesis that there is exactly one uncaused non-natural cause involves more theoretical commitments than the hypothesis that there is exactly one uncaused natural cause. So, if there is exactly one uncaused cause in causal reality, it is less theoretically committing to suppose that natural reality exhausts causal reality than it is to suppose that there is more to causal reality than to natural reality.

If there is more than one uncaused cause in causal reality, then (i) on the hypothesis that natural reality exhausts causal reality, there is more than one uncaused natural cause; and (ii) on the hypothesis that there is more to causal reality than natural reality, either (1) there is more than one uncaused non-natural cause and there are no uncaused natural causes; or (2) there is more than one uncaused non-natural cause and there is exactly one uncaused natural cause; or (3) there is more than one uncaused non-natural cause and there is more than one uncaused natural cause; or (4) there is exactly one uncaused non-natural cause and there is more than one uncaused natural cause; or (5) there are no uncaused non-natural causes and there is more than one uncaused natural cause. Sparing the reader the detailed argument by cases, it is obvious that, if there is more than one uncaused cause in causal reality, it is less theoretically committing to suppose that natural reality exhausts causal reality than it is to suppose that there is more to causal reality than to natural reality.

So, putting everything together: no matter how many uncaused causes there are in causal reality – zero, one, or more than one – it is less theoretically committing to suppose that natural reality exhausts causal reality than it is to suppose that there is more to causal reality than natural reality. But, of course, it must be that either there is zero, or one, or more than one uncaused cause in causal reality. So we can conclude outright that it is less theoretically committing to suppose that natural reality exhausts causal reality than it is to suppose that there is more to causal reality than natural reality.

V. Equal Explanatory Breadth and Depth

The argument for the claim that, given that we restrict our attention to general causal considerations and ignore all other relevant considerations, there is no difference in explanatory breadth and depth between the hypothesis that natural reality exhausts causal reality and the hypothesis that there is more to causal reality than natural reality, is also relatively straightforward.

In assessing the explanatory breadth and depth of these hypotheses for general causal considerations, setting all other considerations aside, we need to look at the answers that they provide to general causal questions: Why is there anything at all? Why is there something rather than nothing? etc. I shall argue that, no matter which hypothesis we adopt about the number of uncaused causes in causal reality, the hypothesis that natural reality exhausts causal reality provides answers to these questions that are just as good as the answers that we get on the hypothesis that there is more to causal reality than natural reality.

If there are no uncaused causes in causal reality, then (i) on the hypothesis that natural reality exhausts causal reality, the explanation for there being something rather than nothing lies in an infinite regress of natural causes; and (ii) on the hypothesis that

there is more to causal reality than natural reality, either (a) the explanation for there being something rather than nothing lies in an infinite regress of non-natural causes; or (b) the explanation for there being something rather than nothing lies in an infinite regress of natural and non-natural causes. Given that there are no uncaused causes in causal reality, to whatever extent an infinite regress of causes can explain why there is something rather than nothing, we get an equally good explanation if we suppose that there is an infinite regress of natural causes as we do if we either suppose that there is an infinite regress of non-natural causes, or else suppose that there is an infinite regress of natural and non-natural causes.

If there is exactly one uncaused cause in causal reality, then (i) on the hypothesis that natural reality exhausts causal reality, the explanation for there being something rather than nothing lies in the uncaused natural cause; and (ii) on the hypothesis that there is more to causal reality than natural reality, the explanation for there being something rather than nothing lies in the uncaused non-natural cause. Given that there is exactly one uncaused cause in causal reality, to whatever extent there being exactly one uncaused cause explains why there is something rather than nothing, we get an equally good explanation if we suppose that there is exactly one uncaused natural cause as we do if we suppose that there is exactly one uncaused non-natural cause.

If there is more than one uncaused cause in causal reality, then (i) on the hypothesis that natural reality exhausts causal reality, the explanation for there being something rather than nothing lies in the several uncaused natural causes; and (ii) on the hypothesis that there is more to causal reality than natural reality, the explanation for there being something rather than nothing lies in the several uncaused causes, at least some of which are uncaused non-natural causes. Given that there is more than one uncaused cause in casual reality, to whatever extent there being more than one uncaused cause in causal reality explains why there is something rather than nothing, we get an equally good explanation if we suppose that there are several uncaused natural causes as we do if we suppose that that are several uncaused causes, at least some of which are uncaused non-natural causes.

Putting it all together: no matter how many uncaused causes there are in causal reality – zero, one, or many – we get equally good explanations of why there is something rather than nothing if we suppose that natural reality exhausts causal reality as we do if we suppose that there is more to causal reality than natural reality. Moreover, the argument that we have given in connection with the explanation of why there is something rather than nothing extends in an obvious way to other general causal considerations: no matter how many uncaused causes there are in causal reality – zero, one, or more than one – we get equally good explanations of any general causal considerations if we suppose that natural reality exhausts causal reality as we do if we suppose that there is more to causal reality than natural reality.

VI. Modal Considerations

I anticipate that some may question the conclusion that we get equally good explanations of any general causal considerations if we suppose that natural reality exhausts causal reality as we do if we suppose that there is more to causal reality than natural reality. For example, some may say that, if there is exactly one uncaused cause in causal

reality, then that uncaused cause is a necessarily existing God; and they may add that a necessarily existing God provides a better explanation of why there is something rather than nothing than is provided by a natural "initial singularity."

Return to consideration of causal reality. There are two views that one might take about the modal status of causal reality. One might think that causal reality is everywhere contingent; or one might think that causal reality is not everywhere contingent.

If we think that causal reality is everywhere contingent, then it is obvious that there is no further explanatory advantage that accrues either to the view that natural reality exhausts causal reality or to the view that there is more to causal reality than natural reality. So we can set this case to one side.

Suppose that causal reality is not everywhere entirely contingent. If causal reality is not everywhere entirely contingent, it must be somewhere contingent. Why? Because if causal reality is everywhere necessary, then nothing in causal reality depends upon anything else. Why? Because whatever is necessary obtains no matter what. But whatever obtains no matter what obtains independently of everything else. Since effects depend upon their causes, nothing that enters into causal relations as effects is necessary. So, if everything is necessary, then there is no causation.

Suppose, then, that causal reality is somewhere contingent, but not everywhere contingent. We argue by cases that, even so, there is no explanatory advantage that accrues either to the view that natural reality exhausts causal reality or to the view that there is more to causal reality than natural reality. As before, the number of uncaused causes in casual reality is none, or one, or more than one.

If there are no uncaused causes in causal reality, and if causal reality is not everywhere contingent, then, although there is an infinite regress of causes, every merely possible world shares some history with the actual world, and has its history diverge from the history of the actual world only because chances play out differently. In this case, what is necessary is that any pair of possible worlds share some history. On the hypothesis that natural reality exhausts causal reality, a reason why there is something rather than nothing is that it had to be that there is some part of the history of the actual world. And, on the hypothesis that there is more to causal reality than natural reality, a reason why there is something rather than nothing is that it had to be that there is some part of the history of the actual world. It is obvious to inspection that, on the hypothesis that there are no uncaused causes in causal reality and causal reality is not everywhere contingent, there is no explanatory advantage that accrues either to the view that natural reality exhausts causal reality or to the view that there is more to causal reality than natural reality, when it comes to the explanation of why there is something rather than nothing.

If there is exactly one uncaused cause in causal reality, and if causal reality is not everywhere contingent, then the uncaused cause is not entirely contingent: either it is necessary, or there is some part or aspect of it that is necessary. On the hypothesis that natural reality exhausts causal reality, either the initial state of causal reality is necessary, or there is some part or aspect of the initial causal state – "the initial singularity" – that is necessary. Either way, on the hypothesis that natural reality exhausts causal reality, a reason why there is something rather than nothing is either that it had to be that there is an initial causal state, or that it had to be that there is this particular initial causal state, or that it had to be that there is this particular part or

aspect of the initial causal state. And, on the hypothesis that there is more to causal reality than natural reality, either the initial state of causal reality is necessary, or there is some part or aspect of the initial causal state – "God" – that is necessary. Either way, on the hypothesis that there is more to causal reality than natural reality, a reason why there is something rather than nothing is either that it had to be that there is an initial causal state, or that it had to be that there is this particular initial causal state, or that it had to be that there is this particular part or aspect of the initial causal state. Again, it is obvious to inspection that, on the hypothesis that there is exactly one uncaused cause in causal reality and causal reality is not everywhere contingent, there is no explanatory advantage that accrues either to the view that natural reality exhausts causal reality or to the view that there is more to causal reality than natural reality, when it comes to the explanation of why there is something rather than nothing.

If there is more than one uncaused cause in causal reality, and if causal reality is not everywhere contingent, then at least one of those uncaused causes is not entirely contingent: at least one of those uncaused causes is either necessary, or has some part or aspect that is necessary. By the same line of reasoning as in the previous case, we quickly reach the conclusion that, on the hypothesis that there is more than one uncaused cause in causal reality and causal reality is not everywhere contingent, there is no explanatory advantage that accrues either to the view that natural reality exhausts causal reality or to the view that there is more to causal reality than natural reality, when it comes to the explanation of why there is something rather than nothing.

Putting it all together: no matter how many uncaused causes there are in causal reality – zero, one, or more than one – and no matter whether causal reality is everywhere contingent or only somewhere contingent, there is no explanatory advantage that accrues either to the view that natural reality exhausts causal reality or to the view that there is more to causal reality than natural reality, when it comes to the explanation of why there is something rather than nothing. Moreover, the argument that we have given in connection with the explanation of why there is something rather than nothing extends in an obvious way to other general causal considerations: no matter how many uncaused causes there are in causal reality – zero, one, or more than one – and no matter whether causal reality is everywhere contingent or only somewhere contingent, there is no explanatory advantage that accrues either to the view that natural reality exhausts causal reality or to the view that there is more to causal reality than natural reality, so long as we restrict our attention to general causal considerations.

VII. Necessary Beings

I anticipate that some may question the conclusion that we get equally good explanations of general causal and modal considerations if we suppose that natural reality exhausts causal reality, as we do if we suppose that there is more to causal reality than natural reality, at least so long as we restrict our attention to general causal considerations. In particular, I expect that some will say that there is less theoretical cost in the postulation of a necessarily existent God than there is in the postulation of a necessarily existent "initial singularity."

According to me, postulation of ontological necessities is theoretical rock bottom: ontological necessities are always theoretical primitives. If that is right, then it is very hard to see how there could be a greater cost involved in postulating a necessarily existent "initial singularity" than there is in postulating a necessarily existent god, given that we are restricting our attention to general causal considerations. When we reckon the costs, the property of existing necessarily is attributed to an item on each balance sheet. What could possibly justify the claim that it comes more cheaply in one case than in the other?

Some may object that, while there is a tradition that supposes that God is necessarily existent, there is no tradition that supposes that the 'initial singularity' is necessarily existent. But this is irrelevant. We are interested in weighing the virtues of competing theories. The alleged novelty of the claim that the "initial singularity" is necessarily existent cuts no ice at all in the assessment of its virtues. If we restrict our attention to general causal considerations, the hypothesis that there is a necessarily existent "initial singularity" trumps the hypothesis that there is a necessarily existent creator God.

Reply to Oppy

Robert Koons

Graham Oppy does a fine job of analyzing the question of the existence of a supernatural cause of the universe, when understood on the model of a scientific inference. I approach the question from a different angle, one that is more metaphysical and prior to typical scientific inquiry, focusing on the nature of causal inference in general – seeking to define the form it must take, if any scientific knowledge is to be possible.

When doing science, we look for the best causal explanation of some phenomena. Science thus presupposes that the phenomena in question have a cause. But, as Oppy points out, it seems unreasonable to suppose that *reality as a whole* has a cause. When, then, are we entitled, or even required, to posit a cause? I argue that we must posit a cause for every phenomenon that is intrinsically causable. By a simple diagonal argument we reach the conclusion that there must exist something that is intrinsically uncausable. This is a *metaphysical* and not merely a physical singularity.

Must this uncausable singularity be "supernatural" or may it be a "natural singularity" (as Oppy puts it)? Oppy seems to take "supernatural" to be a term that applies exclusively to God. If so, I would have to prove that the first cause is not only immaterial, timeless, and metaphysically necessary but also omniscient, omnipotent, and omnibenevolent. That task goes beyond our assigned question, but I will nonetheless address it briefly.

First, an uncausable being – a being that is absolutely fundamental in the order of explanation – must have intrinsic attributes that are all metrically isolated, at zero or at infinity, like omniscience or omnipotence. A thing with finite attributes (including any physical thing or material body) must have its quantifiable boundaries and limitations explained by something more fundamental. In addition, an infinite and immaterial first cause is maximally simple. A merely natural singularity will require more degrees of

freedom, more unexplained complexity, than will a metaphysical singularity.[16] I deny that we must attribute some set of uncaused but contingent creative intentions to God. Since God's mind and power are infinite, he doesn't need to perform any prior computations or comparisons, and any prefiguring of his acts as internal representations would be superfluous: God's contingent intentions are first formulated in the world he creates.

Second, the first cause argument is part of a cumulative case for theism. As I argued in "A New Look at the Cosmological Argument,"[17] the demonstration of a first cause strengthens the design argument. It also lends support to theistic arguments from logical, arithmetical, moral, normative, and phenomenological facts and from the laws of nature and credible reports of miracles, as well as supporting a variety of epistemological arguments for God's existence.[18]

Third, the first cause argument provides an adequate objective correlate to religious experience. A principle of credulity warrants our attempting to validate as much of the content of these experiences as we can.

Let me now turn to the two crucial questions that divide us: (1) can we demonstrate that there is at least one uncaused entity? and (2) if we posit that there are uncaused entities, must we operate with some causal principle?

Oppy and I agree that causation cannot be circular, and so we agree that if there are no uncaused entities, there must be at least one infinite causal regress. I gave a number of metaphysical arguments against regresses in my essay. Two of those arguments (relying on the Grim Reaper) required David Lewis's patchwork principle as a premise, which Oppy rejects. Oppy proposes an alternative conception of metaphysical modality, one in which all possible worlds "branch off" from the actual world at some point in time. This idiosyncratic conception produces a number of counter-intuitive results. For example, if the actual universe has always contained exactly K joules of mass-energy, then it would be metaphysically necessary that the universe have exactly K joules of energy for some infinitely long initial segment. But surely the universe could have always contained K – 1 or K + 1 joules. These are conceivable scenarios, and no physical or metaphysical absurdity seems to follow from them. Oppy will have to give up entirely any sort of conceivability-possibility link, even a defeasible one, resulting ultimately in modal skepticism. How, for example, could Oppy know that any branching off from the actual world is possible, without some appeal to its conceivability? I posit exceptions to recombination principles like the patchwork principle, but only when those exceptions are entailed by well-motivated causal principles, not on an ad hoc basis.

In any case, most of my arguments did not depend on the patchwork principle. These include: (1) the plurality of all causable entities (even if it includes a regress) must have a cause; (2) infinite regresses entail circular causation; (3) regresses do not explain (e.g. the cannonball case); (4) causal finitism is the best explanation for the non-occurrence of paradoxes like the Grim Reaper; (5) regresses would undermine the

[16] Thanks to Josh Rasmussen (personal communication, May 26, 2018) for this point.

[17] Koons, R.C. (1997). A New Look at the Cosmological Argument. *American Philosophical Quarterly* 34: 171–192.

[18] See the essays in Walls, J. and Dougherty, T. (ed.) (2018). *Two Dozen (or so) Arguments for God*. New York: Oxford.

possibility of discoverable objective probabilities; and (6) regresses would undermine all empirical knowledge: if uncaused infinite regresses were possible, my current state of sensation might (for all I know) constitute such a regress, like the cannonball's flight.

If, for example, causal finitism were false and if uncaused infinite regresses were possible, then it would be possible for a Grim Reaper scenario to emerge uncaused at some point in our future. Since we can demonstrate that the Grim Reaper scenario is metaphysically impossible, it follows that either causal finitism is true or that all pluralities of causable events must be finitely caused.

Oppy might object that such an uncaused emergence of material systems in time is metaphysically impossible, even though an uncaused infinite past is possible. If there were no true causal principle ruling out uncaused regresses, what could be responsible for this impossibility? Perhaps Oppy thinks that it is ruled out by the law of conservation of mass-energy or other laws of nature. First of all, this assumes that the actual laws of nature cannot be violated, which is far from obvious. Second, Oppy needs an explanation for the truthmakers for such laws of nature. How can mere generalizations prevent the emergence of new matter? Are the laws some sort of "brooding omnipresence in the sky" that somehow govern the course of events? If so, the necessary system of laws (or its truthmaker) would count as a supernatural cause of the universe. Finally, how can the laws rule out the uncaused transformation of existing matter and energy? If an uncaused beginning of the universe is possible, uncaused changes in existing matter must also be possible *a fortiori*.

The laws of nature are grounded in the causal powers of existing things: they govern how existing things interact. They cannot prevent the emergence of new, uncaused things or uncaused changes in existing things. Only a metaphysical principle like the Principle of Sufficient Reason can do that. Laws of nature govern the realm of the caused: they have no purchase on the uncaused.

Finally, if there are uncaused events, why do we need a strong principle of causality to distinguish the caused from the uncaused? Primarily for epistemological reasons. If natural events can occur without cause, then we can never rule out the possibility that our sensory experiences, memories, and intuitive impressions are among the uncaused – they might, for all we can know *a priori*, be among the initial states of the universe – undermining all claims to knowledge.

Reply to Koons

Graham Oppy

There is much on which Koons and I agree. We agree that causation is fundamental. We agree that it could not be that everything has a cause. We agree it could not be that there is something that is self-caused. We agree that it could not be that there is a circle of causes. We agree that super tasks are impossible. We agree that infinite fair lotteries are impossible. We agree that any finite plurality of caused items itself has at least one cause. And we favor the view that there is exactly one uncaused cause, albeit with differing degrees of conviction.

But there are some things about which we disagree. Unlike Koons, I am undecided whether it is possible for there to be an infinite regress of causes. Unlike me, Koons thinks

that fundamental principles about causation are framed in terms of time and contingency. Unlike me, Koons thinks that our universe has a necessary and atemporal cause.

Koons's main argument for the conclusion that it is impossible for there to be an infinite regress of causes appeals to what he – following David Lewis – calls "patchwork principles." On the account of metaphysical possibility that I favor, the kinds of patchwork principles to which Koons appeals are false. Suppose that, in the actual world, there are signalers and there is an infinite causal regress. Even so, on my account of metaphysical possibility, given that it is not actually the case that there are infinitely many signalers, it is impossible for there to be infinitely many signalers. Koons thinks that we make use of patchwork principles whenever we infer that some situation that has never before occurred in exactly the way we envisage is nonetheless (really) possible. I disagree. I think that our judgments about what is (really) possible are grounded in our knowledge of the history of the actual world, the laws that govern what happens in the actual world, and the causal powers of the objects that belong to the actual world.

Koons's second (independent) argument for the conclusion that it is impossible for there to be an infinite regress of causes is borrowed from Alex Pruss. Koons says that, in the scenario described by Pruss, the existence of the plurality of even-numbered situations is causally explained by the existence and causal activity of the plurality of odd-numbered situations, and the existence of the plurality of odd-numbered situations is causally explained by the existence and causal activity of the plurality of even-numbered situations. In particular, Koons says that the existence of the plurality of even-numbered situations is causally explained by the existence and causal activity of the plurality of odd-numbered situations because the existence of any member of the plurality of even-numbered situations is immediately caused by the existence and causal activity of a member of the plurality of odd-numbered situations. But a complete explanation of the existence of a thing appeals to all of the causes of the thing, not merely to its most proximate cause. A member of the plurality of even-numbered situations has all preceding odd-numbered situations and all preceding even-numbered situations as causes. It simply is not true that the existence of the plurality of even-numbered situations is fully causally explained by the existence and causal activity of the plurality of odd-numbered situations alone.

Koons claims that there are two candidate adequate general causal principles: (1) every plurality of wholly contingent items has causes; and (2) every plurality of possibly wholly temporal items has causes. I think that neither of these principles is adequate. It is an open question whether, if causal reality has an origin, that origin is brutely contingent; and it is an open question whether there are parts of physical reality that are atemporal. A better candidate general causal principle is: (3) every plurality of caused items has causes. While I disagree with Koons about the work that a general causal principle can do, I think that (3) is clearly the best candidate for the role that Koons is looking to fill. And, as I noted above, we both accept (3).

Koons says that the universe is the complete plurality of wholly contingent or possibly wholly temporal items. I think that this characterization is unsatisfactory. If time is not a fundamental ingredient of physical domains – as various quantum gravitational theories suggest – then it may be that the complete plurality of possibly wholly temporal items is only a proper part of the universe. And if there is an initial singularity that is not wholly contingent, then it is clear that the complete plurality of wholly contingent items is only a proper part of the universe. A good characterization of the universe

should be neutral on the fundamentality of time and the modal standing of the initial singularity (if there is one). In my view, a better alternative to Koons's characterization is to take the universe to be the plurality of physical causal items, or the plurality of natural causal items, or the like. This characterization identifies the appropriate target, but rules out neither the necessary existence of the initial singularity (if there is one) nor the restriction of time to a proper part of the total universe.

Koons's chapter concludes with three arguments for the finitude of the temporal past. You should be able to see why I think that the temporal patchwork principle employed in the first of these arguments is false. Beyond this, the most important thing to note is that the truth of the key principle employed in all three of these arguments – the Kalām causal principle that everything that begins to exist has a cause – depends upon, among other things, whether there is an initial singularity, and whether, if so, the initial singularity is in time, and whether, if so, we should say that the initial singularity begins to exist. Since, in my view, the possibility of an infinite past stands or falls with the actuality of an infinite past, I do not think that the proof borrowed from Rasmussen raises any important new considerations.

Suggestions for Further Reading

Any number of readings can supplement the foregoing debate. Many of the themes found in Koons's essay are touched on in two of his books on metaphysics: *Metaphysics: The Fundamentals* (2015), and *The Atlas of Reality* (2017). Both are co-authored by Timothy Pickavance. Oppy has published a number of relevant texts, including *The Best Argument Against God* (2013) and *Naturalism and Religion* (2018). Both authors discuss possible worlds in this chapter: two of the most important books on this topic are David Lewis's *The Plurality of Worlds* (1986) and Alvin Plantinga's *The Nature of Necessity* (1974). Another volume of interest is *Two Dozen (or so) Arguments for God: The Plantinga Project* (2018) edited by Trent Dougherty and Jerry Walls. Readers in search of a discussion of more traditional versions of the cosmological argument might consult *The Cosmological Argument from Plato to Leibniz* (2001) by William L. Craig. Those who want to go deeper into some contemporary elaborations on the argument can look to *Necessary Existence* (2018) by Alexander Pruss and Joshua Rasmussen. Finally, the *Stanford Encyclopedia of Philosophy*'s entry on the cosmological argument, written by Bruce Reichenbach (2017) contains a thorough overview of the subject.