

Æternus Est: Divinity as a Conceptual Necessity in the Principle of Causation

Abstract: The modern belief that mindless forces can be ultimate efficient causes of natural events is a conceptual impossibility. The logically ultimate cause of any change, the something that is ultimately making it occur in the present moment, is either a mind or not. More specifically, the cause either chooses to act or it does not. By choice here, I mean an act of free will in the libertarian sense. Where there is choosing in this sense there must be a mind. And when we say that an agent acts thus freely, we mean that it acts without being causally determined to act by anything beyond itself. However, this is conceptually indistinguishable from the idea of an ultimate efficient cause. To say that an agent is the ultimate cause in a causal chain is, by definition, to say that it acts without being caused to act by anything beyond itself. It is the head of the causal chain. It is, therefore, a matter of conceptual necessity that ultimate causes be minds, a fact that we have been blind to since the Scientific Revolution on the bad analogy of machines. Thus, every force ultimately governing the universe must be a mind corresponding either to the polytheist's or the monotheist's generic definition of divinity, and monotheism's eternal mind will always be the most complete and justifiable explanation for the existence of the universe as a whole, even for the existence of the gods themselves.

“This most elegant system of the sun, planets, and comets could not have arisen without the design and dominion of an intelligent and powerful being. He is eternal and infinite, omnipotent and omniscient.”

-Sir Isaac Newton, *Scholium Generale to Principia Mathematica*

Concerning the passage above, astrophysicist Neil deGrasse Tyson writes, “[I]n the absence of data, at the border of what he could explain and what he could only honor - the causes he could identify and those he could not - Newton rapturously invokes God” (Tyson 2005). Tyson goes on to say, “Today secular philosophers call that kind of divine invocation ‘God of the gaps’ The term suggests that some entity, endowed with a mental capacity far greater than the human mind can muster, created or enabled all the things in the physical world that we cannot explain through scientific methods” (Tyson 2005). Tyson’s general purpose in writing this essay was to caution his readers against invoking God or gods as the cause of any mysterious effect they observe. His specific purpose in noting the appearance of this invocation in the work of a man whom he praises as “one of the greatest intellects the world has ever seen” is to show that the idea is so tempting that even the most brilliant thinkers are subject to it (Tyson 2005).

Richard Dawkins is less charitable toward those who make God of the gaps arguments, accusing them of being willfully and culpably ignorant: “Creationists eagerly seek a gap in present-day knowledge or understanding. What worries thoughtful theologians such as Bonhoeffer is that the gaps shrink as science advances, and God is threatened with eventually having nothing to do and nowhere to hide” (Dawkins 2006). He goes on to describe an imaginary proponent of the argument:

You don’t understand how memories are laid down in the brain? Excellent! Is photosynthesis a bafflingly complex process? Wonderful! Please don’t go to work

on the problem, just give up, and appeal to God. Dear scientist, don't *work* on your mysteries, for we can use them. Don't squander precious ignorance by researching it away. We need those glorious gaps as a last refuge for God (Dawkins 2006).

These are broad strokes, obviously, and would certainly not depict Newton, who is our archetype of the modern scientist and whose faith in God did not originate from his inability to explain the stability of our solar system. Still, critics of the God of the gaps argument make a valid point. It is a classic *argumentum ad ignorantiam*, a fallacy of informal logic which Irving M. Copi's standard undergraduate text says "is committed whenever it is argued that a proposition is true simply on the basis that it has not been proven false or that it is false because it has not been proved true" (Copi 1986). The fallacy of such an argument stems from the fact that "our ignorance of how to prove or disprove a proposition clearly does not establish either the truth or falsehood of that proposition" (Copi 1986). A God of the gaps argument moves from ignorance of how to demonstrate that the proposition, "Non-divine causes produce effect X" is true to the unjustified conclusion that it is false and thence to infer that the causes must be divine. Of course, there is an identical problem in concluding that the proposition, "Non-divine causes produce effect X" is true from one's inability to demonstrate that the proposition "Divine causes produce effect X" is true. Therefore, we must come to one or the other the conclusion by different premises.

As a rule, in this paper I will be using the term "ultimate efficient cause" rather than "first cause" to emphasize the fact that the cause under consideration is ultimately responsible for the causal chain. (It is sequentially ultimate, of course, if one traces the causal chain from effect to cause.) With this in mind, I will argue the following points.

1. It is impossible to conceive of something mindless as the ultimate efficient cause of an effect because the concept is logically incoherent. Every ultimate efficient cause must, therefore, be a mind.
2. Every causal chain must originate in at least one ultimate efficient cause. In other words, no causal chain can regress infinitely.

As a consequence, I will argue that the modern concept of mindless forces as ultimate efficient causes of natural events is a wholly untenable one, that every force ultimately governing the universe must be divine, either by the polytheist's or the monotheist's generic definition, and that monotheism's eternal mind will always be the most complete and justifiable explanation even of the gods themselves.

1. The atheist's position: logically ultimate efficient causes as mindless things

Some modern thinkers see events (as distinct from things) as efficient causes. Still others go so far as to claim that only events can be efficient causes. For instance, Mario Bunge writes, "*The causal relation is a relation among events* – not among properties, or states, let alone among ideas. Strictly speaking causation is not even a relation among things. When we say that thing A caused thing B to do C, we mean that a certain event (or set of events) in A generated a change C in the state of B" (2009). J.P. Moreland provides a good example of the concept in the event of a brick's breaking some glass: "An event of kind K (the moving of the brick) in circumstances of

kind C (the glass being in a solid and not liquid state) occurring to an entity of kind E (the glass object itself) causes an event of kind Q (the breaking of the glass)” (1998).

But what does it mean to distinguish “events” from “things” as efficient causes? “Thing” is rather a general term and includes “things” like events. Is the distinction between abstract and concrete things? Moving and breaking are indeed abstractions drawn from what the rock and glass are actually doing, but what would one mean by an abstract thing in this case, since the typical distinction between abstract and concrete things is that abstract things have no causal power? Is the distinction between an event and an agent? If so, then we must conceive of an event (i.e., that sort of thing which causes some effect) as doing nothing, for an agent, by definition, is a thing which acts, which *does* something. But causing is a type of doing.

Such conceptual difficulties arise from that fact that labeling an event as an efficient cause is simply an indirect way of describing agent causation. Thus, the principle of causation that appears in this paper holds that any change in reality must be accounted for by reference to at least one real agent that is producing the change. In certain contexts, it may be, as Richard Swinburne suggests “less clumsy to talk of laws of nature as relating types of events,” but it is not entirely accurate (2013). Swinburne himself expresses a more accurate view when he speaks of intentional versus inanimate agent causation. “I have defended the view that all causation is by substances (and not by events)...,” he writes. “In one case the causation is by an agent who intends it, and in the other case by an agent who does not intend it...” (2013).

The principle of causation has both a temporal and a logical aspect. The temporal aspect describes the causal chain extending forward horizontally in time, placing the cause temporally before its effect. Thus, Newton exists before his *Principia*. However, the logical aspect describes the chain extending downward vertically, as it were, in a single moment of time in order to

emphasize the logical, as distinct from the temporal, priority of the cause. Thus, the planets orbit the sun because gravity is causing them to do so in the present moment. The effect (in this case, moving around the sun) occurs because something *is making* it occur. This logical aspect is essential to the whole notion of causation in a way that the temporal one is not, for if changes never occur (present tense), then quite literally nothing ever happens, and the whole concept of causation assumes that things happen. Atheists who subscribe to this logical aspect of causation must defend one of two propositions: Either the logically ultimate efficient cause(s) responsible for the origin and operation of the universe is (are) mindless, or there is no logically *ultimate* efficient cause of these effects. Both are tall orders. I will begin by examining the first proposition.

The logically ultimate cause of any change, the something that is ultimately making it occur in the present, is either a mind or not. More specifically, the cause either chooses to act or it does not. By choice here, I mean an act of free will in the libertarian sense. Where there is choosing in this sense there must be a mind. And when we say that an agent acts thus freely, we mean that it acts without being causally determined to act by anything beyond itself. Notice, however, that this is conceptually indistinguishable from the idea of an ultimate efficient cause. To say that an agent is the ultimate cause in a causal chain is, by definition, to say that it acts without being caused to act by anything beyond itself. It is the head of the causal chain. It is, therefore, a matter of conceptual necessity that ultimate causes be minds, a fact that we have been blind to for centuries on the bad analogy of machines (for reasons that I will discuss in more detail later). A machine, like a clock, may operate independent of its maker, and from this we have falsely inferred that machines cause their own actions. But machines act just as the forces of nature cause them to act. They never cause their own actions. They are never ultimate causes. A windmill may move independent of its maker, but it does not cause its own actions. Thus, causing one's own action,

choosing to act, being the ultimate efficient cause of the act, and being in control of the act are all logically equivalent.

If something chooses to act, it is, by definition, not being caused to act by something else and must, as a consequence, be the initiator and controller of the act. In other words, it must be the cause of its own act. On the other hand, if something acts but does not choose to act, it cannot be the cause of its own action in that particular scenario. And if we conceive of something as mindless, i.e., unable to make *any* choices, how could we conceive of it as the cause of its own actions in *any* scenario? Things that cannot choose to act are intrinsically passive, just as bachelors are intrinsically unmarried. Mindless things only act while and in the manner that something else causes them to act. An apple, having fallen to the ground, will do nothing more until something else causes it to do more. The same is not true of Newton, however, who contemplates the apple.

That is assuming, of course, that the apple is in fact mindless. It is at least conceivable (albeit comical) that apples are conscious and can cause some of their own actions in ways that we have not yet recognized. In other words, it is conceivable that we have misidentified apples as mindless things. However, it is inconceivable that a mindless thing can cause its own actions since the idea of a mindless thing that is the cause of its own actions is logically incoherent. Search the cosmos as we may, we are as likely to discover such a thing as we are to discover a married bachelor.

Thus, mindless things cannot be at the head (so to speak) of causal chains. A hammer may drive a nail into wood; it may even be described as the immediate efficient cause of the nail's action in as much as its actions produce the effect in question, but hammers do not drive nails into wood on their own. Every ultimate efficient cause must be a mind. One cannot get around this conclusion by asserting that the actions of certain mindless things are simply brute or inexplicable

facts, for this amounts either to a dismissal of the causal principle in these specific cases or to the claim that these mindless things simply act as a part of their essential nature. The former is an unnecessary and unjustifiable rejection of one of our most indispensable beliefs about reality. The latter is a confused assertion that an agent can be the cause of its own actions without choosing to act.

1.1 The strength of the causal principle

Concerning the particular change called “coming into being,” William Lane Craig writes that the proposition “[E]verything that begins to exist has a cause of its existence” is so “intuitively obvious...that probably no one in his right mind *really* believes it to be false” (1993). Of course, not everyone agrees that the idea is so robust as to be intuitively obvious. Wes Morriston, for example, disagrees with Craig’s position and argues for a view which has had some traction in the modern mind since Hume when he writes, “The more fully I understand and appreciate what is involved in the causal principle upon which Craig’s argument rests, the less obvious it is to me that this principle is a necessary truth” (2000). Nevertheless, in his rejoinder to Morriston, Craig astutely notes that Morriston “is not denying the truth of the causal principle, but merely that we have an *apriori* intuition of it,” and points out that the principle’s “value is not to be measured by its intuitive obviousness, but by its adequacy to the concept and its imperviousness to counter-examples” (2002).

However, the same standard should apply to the causal principle as it relates to changes in general, not simply to the specific change, “coming into being,” and Craig does not seem to go this far. He writes, “We can still, if we wish, support Bunge’s position, with which I find myself in sympathy, by holding that everything that begins to exist has a cause of its beginning...but allowing movements or changes in already existing things to occur without causes...” (2012).

Nonetheless, the idea that changes arise because at least one thing with the power to make them arise does so is, itself, so intuitively obvious that probably no one in his right mind *really* believes it to be false either. When we see leaves begin to move on a tree, we assume that some real thing (like the wind) is causing that to happen. Similarly, we assume that something is causing the wind to blow, and so on. Belief in the veracity of this principle, as I have defined it, is clearly our default position about changes in reality, and it is difficult to imagine a scenario in which its dismissal could be justified, for what argument or “counter-examples” could shift the burden of proof and lead us to the conclusion that a change has no cause at all?

Certainly no scientific argument could. Such arguments might eliminate a great number of specific, known agents as causes of a particular mysterious effect, but they could not eliminate all agents, known and unknown, as potential causes of the effect. Any claim to the contrary would be making the same sort of fallacious argument from ignorance that manifests itself in the God of the gaps argument. We would be moving from ignorance of how to prove the truth of the proposition “Change X has a cause,” to the conclusion that it has no cause, that the change is a brute fact. If the imprudence of such an inference is not immediately evident, it should be as soon as we imagine applying it to effects whose cause we believe we have already discovered. “What causes the tides to come in and go out?” we once asked. “What causes the planets to orbit the sun? What causes an apple to fall to the earth?” “Oh, they just do these things,” we might have concluded. “Their actions have no cause. Such changes are simply brute facts.”

And what *a priori* knowledge do we have access to that would ever justify concluding that a given change in reality has no cause? Even when a certain agent can, *a priori*, be ruled out as the cause of some of its own actions (as in the case of the agent’s coming into being) it is hardly justifiable to conclude that those actions are brute facts with no logically ultimate cause when one

might simply posit the existence of another agent to account for them. Such unnecessary and unjustifiable labeling of actions as brute facts erodes the scientific enterprise itself. As Alexander Pruss notes, “It would undercut the practice of science were things claimed to be brute facts where not implausible putative explanations, propositions that would be explanations were they true, can be formulated” (2006). And the logical aspect of causation (as distinct from the temporal aspect) presents no conceptual difficulty even in the case of the beginning of time itself. If it has ever been true of some moment to say, “Time begins to exist now,” then it has also been rational to say, “Something¹ causes time to begin to exist now.” If there has never been such a moment, then either time is eternal or it has never existed. In either case, the question of causation, as I have defined it, would not apply since I am only positing causes to account for changes in reality. Concluding that a given change never occurred is far different, obviously, than concluding that the change has no cause.

1.2 The impossible assertion that an agent can be the cause of its own actions without choosing to act

Still less justifiable is the rejection of causation in cases where the agent under consideration can be conceived of as the cause of its own actions. For instance, if we believe that a fundamental force of nature (say, gravity) comes into being at a certain moment in the past, then we must acknowledge that it cannot be the cause of that particular act. But what of other acts which might reasonably be attributed to it? It turns out that we do conceive of this force as the logically ultimate cause of certain effects, but we also conceive of it (either explicitly or implicitly)

¹ This being would necessarily transcend time.

as a mindless mechanism. In so doing, we make the impossible assertion that an agent can be the cause of its own actions without choosing to act. This, as I hope to demonstrate, makes as much sense as the assertion that a bachelor can have a wife without being married.

Our mechanistic conception of the forces of nature has its roots in the rich loam of the Scientific Revolution of the sixteenth and seventeenth centuries. Clocks seem to have been the favored analogy among scientists in this period. As Jacques Roger notes: “Most early modern scientists and philosophers viewed the universe as being similar to a giant clock put in motion by God and functioning according to the laws of mechanics” (1986). Of course, it is a short step to move from conceiving of the universe as a giant clock made by God to conceiving of it as a mindless automaton whose actions can be explained without reference to its creator. After all, we know that a clock is a mindless thing, and yet the hands on a clock move without being made to do so by the clockmaker. Hence, in the era following the Scientific Revolution, we get Laplace’s statement to Napoleon that he has no need of God in his hypothesis of how the solar system operates.

But a clock does not cause its own actions any more than a hammer does. Whenever a clock acts, it does so because the forces of nature cause it to act. If the forces of nature are, in fact, analogous to clocks, should we not seek the cause of their actions in something other than the forces themselves, just as we attribute the clock’s actions to the forces of nature? If they are not analogous to clocks in this respect (in other words, if the forces of nature *are* the ultimate causes of some of their own actions), then we must conceive of them as things which can choose to act. We must conceive of them as minds.

Unfortunately, the unsupportable belief that mindless things might simply act as a part of their essential nature (i.e., that they might be the cause of their own actions without choosing to

act) is deeply ingrained in our modern world view and appears as a common assumption not only in the work of scientists but also in that of philosophers, in the beliefs of atheists as well as those of theists. For example, Swinburne also seems to attribute ultimate causal powers to mindless agents when he writes that a mindless or inanimate agent causes an effect “because of a liability to cause an effect” (2013). He provides the example of a thrown ball that breaks a window. When the ball is flying through the air and crashing into the glass, it is acting. Swinburne eliminates the thrower (himself) as a cause of the ball’s actions when he rightly observes: “I discover that I cannot do anything after I have thrown the ball to affect what happens subsequently” (2013). The ball, he maintains, flies through the air not because it chooses to but because of a liability to do so. He cites no cause beyond the mindless ball itself to account for its actions. If, by this, he means to say that the ball’s actions are brute facts, then he is unjustifiably concluding that they have no cause. If, on the other hand, he means that the ball causes its own actions, then he puts the mindless agent in the logically incompatible category of an ultimate efficient cause and describes it as doing something which is conceptually indistinguishable from choosing to act. But mindless things are intrinsically passive. They cannot choose to act. They only act while and in the manner that something else causes them to act. Thus, if the thrower is not responsible for the effect of the ball’s motion through the air, and if the ball is mindless (i.e., unable to choose to act on its own) then we must posit at least one other agent to account for the ball’s motion, one that *does* choose to act in the libertarian sense, albeit with such regularity that the ball will always behave this way under these conditions.

And it is this predictability that has misled us into believing that the cause of the ball’s motion is mindless. For instance, in an essay entitled, “Is Everything Determined?” Stephen Hawking suggests a test for revealing whether or not a given being can choose in the libertarian

sense. He writes, “The ultimate objective test of free will would seem to be: Can one predict the behavior of the organism? If one can, then it clearly doesn’t have free will but is predetermined” (Hawking 1993). But is this a valid test? Is the predictability of regular behavior in an agent a sign that that agent is not freely choosing to act?

As I noted earlier, the entire universe began to seem like clockwork to the mathematicians of the Scientific Revolution. Concerning this era, Gary B. Deason expresses the common opinion of historians when he writes, “We are compelled to acknowledge the widespread application of mathematical methods to the physical world as the single most significant change made by the seventeenth century in the scientific tradition that it inherited” (1986). It is this period, which “progressively and successfully described the world using the tools of mathematics” that gives us the image of a mechanistic universe, one whose regular, clock-like actions could be noted and predicted with mathematical precision (1986). And it is this predictability, made possible by the regular behavior of the forces of nature, which has suggested to us that these forces do not choose to act as they do. From this we have inferred that they are mindless.

But regular, predictable behavior can never be a sign of mindlessness. We are minds. We can behave regularly. When we say, “She’s like clockwork,” we mean that the individual’s behavior is regular and predictable, not that she is mindless. We know that we can choose to behave in regular, predictable patterns, patterns which reflect rules that we have devised for ourselves and others to follow. A good parent, for instance, may make rules for her children to follow. Certain actions on the part of the children will result in certain actions on the part of the parent (in the form of rewards or punishments). If the parent believes the rules serve a good purpose and is conscientious about following and enforcing them, then her children will be able to predict her behavior, but this will not imply that she does not choose to behave as she does. Quite

the contrary. Her regular behavior is an effect of her purposeful choices. Thus, regularity of behavior, regardless of degree, cannot imply mindlessness in an agent, just as the presence of hair on an animal, regardless of degree, cannot be taken as a sign that the animal *is not* a mammal.

Ironically, it is this very regularity of action in nature which has suggested the presence of God to humanity since antiquity. Newton wrote that “it is not to be conceived that mere mechanical causes could give birth *to so many regular motions*”² (Tyson 2005). And centuries earlier, in his teleological argument, Thomas Aquinas argued that “things which lack knowledge, such as natural bodies, act for an end, and *this is evident from their acting always, or nearly always, in the same way*”³.... Now whatever lacks knowledge cannot move towards an end, unless it be directed by some being endowed with knowledge and intelligence; as the arrow is directed by the archer” (1948). Even critics of the teleological argument do not usually argue that regular behavior should be taken as a sign of mindlessness. They only disagree with the assumption that regular behavior must be the result of purpose and must, therefore, imply a mind.

But this paper is not a defense of the teleological argument. The claim of this paper is not that regular action implies a mind but rather that any action, whether we see a pattern in it or not, must originate in at least one mind, the logically ultimate cause of the action. It is a contradiction in terms to believe otherwise. Any ultimate cause must, *a priori*, be a mind, something that can choose to act. But are we justified in believing in ultimate causes? That is subject of the next section of the paper.

² This is the translation that Tyson uses in his article. The italics are mine.

³ The italics are mine.

2. The atheist's position: there are no logically ultimate efficient causes

As I noted earlier, atheists who subscribe to the logical aspect of causation must defend one of two propositions: Either the logically ultimate cause of any given effect is a mindless thing or there is no logically ultimate cause of the effect. In the previous section of this paper, I have attempted to show that the first proposition is incoherent. In this section, I will address the second proposition.

Let us begin by considering gravity again. Newton's apple acts. It falls. But it does not choose to fall. Its actions are determined by a second agent that is constantly acting on it: gravity. Thus, gravity acts, but is it the cause of its own actions or are its actions determined for it by something else just as those of the apple are? In other words, is there yet a third agent involved in the falling of the apple? All who hold to the idea that there is no logically ultimate cause of an effect must concede that there has to be a third agent acting on gravity acting on the apple. Indeed, they must posit not only a third but an infinite number of agents, all acting on each other in the same moment of time, to explain the action of the falling apple.

In a finite population of mindless agents, the actions of one might be explained by referring to a second, whose actions can be explained by referring to a third and so on, but eventually one will trace the causal chain up to an ultimate cause that is incapable doing anything on its own, a fact which would hopelessly undermine one's explanations of how all the logically subsequent agents in the chain could act. Positing an infinite number of agents might seem to allow one to escape this difficulty by pushing responsibility for an effect indefinitely upward, but how could we justify doing this? Such a multiplication of causes is the most egregious violation of Ockham's razor imaginable. As Ockham himself put it, "Plurality is not to be posited without necessity" (Spade 1999). Or as one postmedieval expression has it, "Beings are never to be multiplied beyond

necessity” (Spade 1999). Why prefer the machine that requires one hundred parts over the one that works equally well and differs from it only in the fact that it requires only two? Not only is the machine with one hundred parts unjustifiably complex, it has ninety eight more ways to break down. The same is true of explanations.

Thus, only an absolute rejection of the idea that anything could be the cause of its own actions would necessitate such an unparsimonious and extravagant plurality as this simply to explain a single effect. Are we, then, justified in rejecting the possibility that anything can be the cause of its own actions? Certainly not. The idea that a thing can be the cause of at least some of its own actions is easily imagined and thus not false *a priori*. In fact, it is the conclusion that we almost universally come to about ourselves. That this is our common position on the subject is granted even by those who claim that the position is false when they argue that belief in free will is an *illusion*. The difficulty of proving *a posteriori* that nothing causes its own actions lies in the fact that (if there are no ultimate causes) the number of agents one would have to observe would be infinite. Testing every agent in such a scenario in order to prove that none of them can cause its own actions would be as possible as counting to the last whole number. And when the population is believed to be infinite from the onset, when would the so-called inductive leap of faith not be a hasty conclusion?

But even multiplying the number of prior mindless causes to infinity cannot account for an effect because it is a conceptual necessity that no causal chain can regress infinitely. Aquinas briefly explained the reason for this in his Second Way: “[I]f there be no first cause among efficient causes, there will be no ultimate,⁴ nor any intermediate, cause” (1948). But his explanation has

⁴ Aquinas is obviously not using “ultimate” here in the sense that I do throughout this paper (i.e., as a synonym for “first” cause when tracing the causal chain from effect to cause).

been unconvincing to some. Graham Oppy, for instance, writes, “This argument is powerless to establish the conclusion that there cannot be an infinite regress of causes: for, if there were an infinite regress of causes, then it would be true that there is no first cause, and yet it could also be true that, if any of the earlier causes were ‘eliminated’, then the effect would be eliminated as well” (2006). However, Oppy, and others who make similar objections miss the point. Aquinas concedes that “to take away the cause is to take away the effect” whether the cause is a random intermediate one in the chain (as Oppy proposes) or a first cause (1948). His argument, however, is that without a first cause, not only can there be no final effect, but the causal chain itself cannot exist. Consider the following analogy. Imagine a group of flammable things. Multiply the number of these flammable things to infinity, but exclude from the group anything that can start a fire. No reasonable person would ever expect to find anything in this group burning. Similarly, if reality does not include at least one real thing capable of causing its own actions, of starting a causal chain, we should not expect to find anything happening, even if the group of real things is infinite in number. Since even an infinite number of merely potential agents (or rather an infinite number of patients) cannot account for a single act, we are forced to acknowledge the real existence of at least one mind which rationally grounds the causal process as a whole, and this one mind must necessarily control all of its own actions and be uncaused. For if something else controls some of its actions, or if its very existence is itself an effect of some prior cause, then we are still vainly trying to posit what is conceptually impossible: an infinitely regressing causal chain.

Thus, we cannot accept the principle of causation and rationally reject the idea that at least one thing is the cause of its own actions. There must be at least one such being. As a consequence, the atheist’s position that there are no logically ultimate causes is as untenable as the belief that

something mindless can be an ultimate cause. Therefore, atheism is conceptually incompatible with the principle of causation.

3. The polytheist's position

A survey of polytheistic religions, living and dead, will yield the generic conception of a god as a mind who has come into being at some point in the past and whose native powers, while finite, may tremendously exceed our own. The gods, so defined, typically use these powers to produce certain natural effects and so are considered to be the logically ultimate efficient causes of such natural phenomena as lightning, earthquakes, volcanoes, etc. The purpose of this section of the paper is to consider whether belief in such beings is warranted.

Let us return again to Newton's falling apple. Since the apple is mindless and cannot cause any of its own actions, we are forced to explain its actions by positing the existence of some number of additional agents whose actions are causing those of the apple. Ockham's razor dictates that, all other things being equal, that number should be one. It also requires this one agent to be a mind since to imagine that it is mindless is, arbitrarily, to require yet a third agent to account for the actions of this second one on the apple. Furthermore, if we conceive of this mind as having come into being at some point in the past, then we must also posit the existence of a third agent to account for the emergence into reality of the agent whose actions cause the apple to fall. Therefore, all other things being equal, the simplest, most explanatorily complete and justifiable conception of the agent that causes the apple to fall identifies it as a single, eternal mind, one which does not depend upon anything else for its existence or its actions.

But in this particular case, all other things may not be equal. Modern physicists have reasons for believing that the agent who is responsible for the apple's falling is not eternal. The

view among physicists is that this agent is one of four fundamental forces of nature and that it, as well as the other three, came into being very soon after the beginning of the universe. Paul Davies, expresses this orthodox view when he writes, “In the beginning the universe was a featureless ferment of quantum energy...,” which “expanded and cooled” until, “[o]ne by one the four fundamental forces separated out from the superforce” (1985). We know these forces as gravity, electromagnetism, the weak nuclear force, and the strong nuclear force. Concerning them, Davies says, “[C]areful study has shown that all of nature’s activity can be reduced to the operation of just four fundamental forces. These forces are ultimately responsible for all the activity of the world; they are the source of all change” (1985). The following descriptions of the four fundamental forces may provide a useful summary of the way scientists have presented these forces to the modern audience.

Michio Kaku, co-founder of String Field Theory, writes that gravity “prevents the earth and stars from disintegrating, and holds the solar system and galaxy together” (2008). Davies says that it is universal in the sense that “[n]othing in the cosmos escapes its grip” (1985). In other words, as Hawking notes, “every particle feels the force of gravity, according to its mass or energy” (1988). They continue. Electromagnetism “lights up our cities” (Kaku 2008). It is responsible for lightning and “can be seen at work during corona discharges and other luminous atmospheric phenomena” and is “responsible for the complex patterns observed in auroral displays” (Davies 1985). It also “causes the electrons to orbit the nucleus of the atom, just as gravitational attraction causes the earth to orbit the sun” (Hawking 1988). The third force, the weak nuclear force, “heats up the center of the Earth.... It is the force behind volcanoes, earthquakes and the continental drift” (Kaku 2008). It “is responsible for radioactivity and ... acts on all matter particles of spin $\frac{1}{2}$, but not on particles ... such as photons and gravitons” (Hawking 1988). Last is the strong

nuclear force. Davies notes that its name stems from the fact that it “is the strongest of the four forces” and goes on to point out interesting demonstrations of its power such as the fact that “[t]he cores of the sun and other stars are nuclear fusion reactors under the control of the strong force” (1985), and Kaku writes that this is the force that “holds the nucleus of the atom together” (2008).

The language of these writers, while at times metaphorical, refers to real agents, the literal efficient causes of real effects. When Davies says that nothing escapes the *grip* of gravity, he does not mean that gravity has hands, but he does mean that gravity is a real agent whose actions affect every particle. Compare the language above with that of Victor Stenger when he writes that DNA “assembled by a combination of chance and the laws of physics” (Stenger 1997). Here both “chance” and “the laws of physics” are wholly metaphorical agents, for neither literally causes anything to happen. One says that an event happens by chance when one cannot predict it or when one deems it to be unintentional. For example, when one tosses a coin, the toss itself is intentional, but the specific outcome is unpredictable and unintended. As a consequence, one says that it is due to chance, even though it is actually due to the agency of the forces of nature. No agent corresponding to the word “chance” actually contributes to the outcome. Similarly, if two friends meet unexpectedly at the mall, one might say that they meet by chance, but one does not mean that chance was a third party whose actions produced the effect of the meeting. Had they intended to meet (or had a real third party actually planned the meeting) it would not have happened “by chance.” Similarly, the laws of physics are not real agents. Such laws are merely descriptions, and descriptions are not efficient causes. For instance, one might accurately describe the actions of powerful weightlifter as he hoists a great weight above his head, but it is not the description that lifts the weight. Even prescriptive laws are not efficient causes. It is not the traffic law which literally causes a motorist to drive on one side of the road or the other. It is the motorist himself.

And it is a fundamental force of nature that literally causes an apple to drop or lightning to flash. (If it is not, then physicists have not discovered the actual ultimate efficient causes of such effects, and one must return to the initial hypothesis that a single, eternal mind is the ultimate cause.) Thus, physicists conclude that gravity and the other three fundamental forces of nature are real agents that have come into being at some point in the past, have power which, while finite, tremendously exceeds our own and, as Davis says, are *ultimately responsible*⁵ for natural phenomena. However, if one must conceive of these forces as being ultimately responsible for their own actions, then one must necessarily conceive of them as *choosing* to act as they do. In other words, they must be individual, finite minds, a fact which makes them indistinguishable from the polytheist's generic idea of a god (as I defined the term at the beginning of this section).

In a 2013 debate with William Lane Craig, Lawrence Krauss received scattered applause for the claim that science has buried the gods.⁶ How ironic that a theoretical physicist should make such a statement, for, while the burden of proof is certainly on the devotees of Zeus and Thor to prove that those specific personalities are real, modern physics has already shouldered some of the burden for them by involuntarily demonstrating that there is a god of lightning. Science, it seems, has not buried even the little gods of nature, much less the maximally great being of the monotheists.

4. The monotheist's position

Admittedly, conceiving of the fundamental forces as minds is a strange task for the modern person. It provokes a variety of questions which, while interesting in themselves, are impotent as

⁵ The italics are mine.

⁶ He says this a few minutes into his opening remarks in the first of their three debates hosted by City Bible Forum in Australia.

implied arguments against the claim that these forces are minds. For instance, one naturally wonders why, if the four fundamental forces choose to act as they do, they never choose to act against the rule. However, as noted earlier, this is the equivalent of asking why, if the animal before us is a mammal, it is so excessively hairy. Discovering why the animal is so hairy would be quite an interesting endeavor, no doubt, but the animal's high degree of hairiness does not constitute an argument against its being a mammal. Neither does extreme regularity of action constitute an argument against the fundamental forces' being minds. If the fundamental forces are ultimate efficient causes, they must be minds. The regularity of their actions is merely an extraneous confirmation of the fact. As for why they act with such regularity, a perfectly reasonable suggestion presents itself in the analogy of good parents which I mentioned earlier. Children of parents who set rules for the household and who enforce them consistently will have a better idea of the consequences of their actions within the household than children of parents who have no such rules or who only enforce them sporadically. If our own faculties for learning and making free choices are anything but an absurdity, we must exist in an environment which reacts to our decisions in predictable and regular ways. How could one learn to be a doctor when the drugs which heal today arbitrarily harm tomorrow?

Or perhaps one might wonder why such powerful beings as the gods of nature choose to spend their time in what seems to us an excessively boring and predictable monotony of action when they might choose something more stimulating. In answer to this, however, one should consider the possibility that we are unaware of other activities that they may be simultaneously engaged in, just as we may not perceive that the person who is speaking to us on a cell phone may also be painting a picture, wiping off a table, or surfing the internet. At any rate, subjective opinion about how entertaining their occupation is to them cannot be submitted as a serious argument

against their choosing to act as they do if we conceive of them as being ultimately responsible for their actions. Perhaps such creatures have been made for the sole purpose of ruling nature. In that case, they would achieve their good by voluntarily obeying their creator's command to govern the environment impartially.

For, of course, they must have a creator. Finite beings such as these fundamental forces have a beginning, and nothing can be responsible for its own beginning. How, then should we conceive of their creator? All things being equal, the simplest and most rational conception of that agent identifies it as a single, eternal mind. Monotheism and polytheism, as it turns out, are not mutually exclusive concepts. Logic does not require monotheists to deny the very existence of such beings as the polytheists worship. (Indeed, the basic conception of angels is substantially the same as the polytheist's idea of a god.) Monotheism is essentially distinct from polytheism in its claim that only the one truly *eternal* mind is worthy of worship and absolute devotion.

When one posits the existence of this eternal mind, one necessarily posits the existence of a concrete, conscious being, without beginning, which causes all of its own actions and is the source of all power. A mind like this, existing without beginning and needing nothing beyond itself to exist, must be all sufficient. That is to say, its existence must be complete in itself, unconditioned, perfect. It must be a mind than which no greater can be conceived. In pointing this out, of course, I am not arguing to the existence of such a mind from its concept. I am merely outlining what is implied by the concept. Immanuel Kant, even as he argues against the ontological argument, acknowledges that what is posited in the concept of God is "the highest reality" (2006).

It is self-evident that reason, in cogitating the necessary complete determination of things, does not presuppose the existence of a being corresponding to its ideal, but merely the idea of the ideal-for the purpose of deducing from the unconditioned

totality of complete determination, the conditioned, that is, the totality of limited things. The ideal is therefore the prototype of all things, which, as defective copies (*ectypa*), receive from it the material of their possibility, and approximate to it more or less, though it is impossible that they can ever attain to its perfection (2006).

What remains, then, is to elucidate some of the conceptual necessities of a perfect mind.

It is omniscient. Minds have knowledge. A perfect mind, the greatest one conceivable, knows all that can be known. Being eternal and the source of all knowledge, it does not learn. It simply knows. The knowledge possessed by an imperfect, contingent mind is limited and derivative since its very being, as well as its faculty to know, must ultimately come from the perfect, eternal mind.

It is omnipotent. Because one posits this uncaused mind as the absolute Ultimate Cause, one must conceive of it as controlling all of its own actions since, conceptually, one is not positing any cause that is logically prior to it. The perfect mind, therefore, is omnipotent in that it causes all of its own actions. As such, it is the source of all power, for a finite, contingent mind cannot cause all of its own actions. Fundamentally, it does not cause the act of its own coming into being, and thus all of its power to act (not to be confused with its free use of that that power) is ultimately derived from the perfect mind.

It is omnibenevolent. Here is the quality that makes this mind alone worthy of worship. Conceptually, the perfect mind must be all good. If one accepts that morality is objective, then one must see the perfect mind as one whose actions are all morally beautiful. Even those who do not believe such a mind actually exists often tacitly concede that absolute moral beauty is implied in the concept of a perfect mind. One simply cannot conceive of a mind that is at once perfect and “a petty, unjust, unforgiving control-freak” (Dawkins 2006).

Conclusions

There is a belief, held by some with joy and by others with anxiety, that the progress we make in the sciences will eventually eliminate the need for God as an explanation of the world around us, as if God were on an island that is slowly sinking beneath the inexorably rising sea of our knowledge. But the joy as well as the anxiety is unwarranted, for no discovery of science can ever alter the fact that God will always be, ultimately, the best explanation for the world that we experience. Science depends upon the principle of causation to be intelligible, and it is a conceptual necessity of causation that at least one mind be ultimately responsible for and logically prior to every effect. This rules out the possibility that mindless forces are ultimate efficient causes, and it requires the existence of an uncaused mind which rationally grounds the whole causal process. Furthermore, it is this Eternal Mind that provides the most complete and justifiable explanation for all effects not specially attributed to a finite mind. If we falsify the hypothesis that God is the ultimate cause of a particular effect by discovering that the effect originates from a mind that we know to be finite, then we must renounce the thought that God is the ultimate cause of that effect, but then (since the mind is finite) we must posit a cause for this finite mind's own coming into being. All other things being equal, the most direct, explanatorily complete, and rationally justifiable conception of this cause *will always* be that it is the single, eternal mind of monotheism. If, on the other hand, we falsify the hypothesis by discovering a link between the effect and what we have concluded to be a mindless agent, then we must posit a mind whose present actions upon the mindless agent can account for the present actions of that agent. And again, all other things being equal, the most justifiable conception of this mind *will always* be that it is the single, eternal mind of monotheism.

But will we make such discoveries? Many fear that conceiving of God as the cause of a mysterious effect will discourage further scientific investigation of that effect. This fear stems from two distinct convictions.

One is a justifiable reaction against the God of the gaps argument. The conviction here is that those who make the God of the gaps argument will intentionally frustrate scientific inquiry in order to preserve some gaps in our knowledge, some room for God in our explanation of the universe. However, such fears ought to be quieted simply by refusing to make the God of the gaps argument. One should argue that an eternal mind is the cause of a particular effect because an eternal mind is its best explanation, not because one is ignorant of how to attribute the effect to a less probable cause.

The other conviction is that there is simply nowhere else to go once one has identified God as the cause of an effect, but a moment's reflection should reveal the fallacy of this line of thought, for positing a cause, whether confidently or tentatively, does not imply that there are no further questions to be answered concerning the effect. To what end does this mind do what it does? In what patterns does it choose to act when it produces its effect? What rules might describe these patterns of action and allow us to anticipate the effect in the future? Dawkins unintentionally provides an excellent confirmation of the point in his Penn and Teller anecdote.

The celebrated conjuring duo Penn and Teller have a routine in which they simultaneously appear to shoot each other with pistols, and each appears to catch the bullet in his teeth.... I [Richard Dawkins] am utterly unable to think of any way in which this could be a trick.... But the still small voice of scientific education speaks a different message. There is a perfectly good explanation. It is just that I

am too naïve, or too unobservant, or too unimaginative to think of it (Dawkins 2006).

Here, of course, the ultimate efficient causes are given. They are Penn and Teller and the forces of nature, but knowing this does not herald the end of scientific investigation. Far from it. As Dawkins notes, the mystery in this case does not lie in who is producing the effect but in the steps and methods by which they do so. It is the same with the mysterious effects of any given efficient cause, including those of him who “*æternus est & infinitus, omnipotens & omnisciens*” (Newton 1726).

References

Aquinas, T. (1948). *Summa Theologica*, ed. Anton C. Pegis. New York: McGraw-Hill, Inc.

Bunge, M. (2009). *Causality and Modern Science: Fourth Revised Edition*. New Brunswick, New Jersey: Transaction Publishers.

Copi, I. (1986). *Introduction to Logic: Seventh Edition*. New York: Macmillan Publishing Company.

Craig, W.L. (2002). “Must the Beginning of the Universe Have a Personal Cause? A Rejoinder.”

Faith and Philosophy 19 (1), 94-105.

---. (2012). Question 265, "Q and A with William Lane Craig," Reasonable Faith with William Lane Craig. <http://www.reasonablefaith.org/the-causal-principle>. Accessed 2/24/16.

Craig, W.L. and Smith, Q. (1993). *Theism, Atheism, and Big Bang Cosmology*. New York: Oxford University Press.

Davies, P. (1985). *Superforce*. New York: Simon and Schuster.

Dawkins, R. (2006). *The God Delusion*. Boston: Houghton Mifflin Company.

Deason, G.B. (1986). "Reformation Theology and the Mechanistic Conception of Nature," in *God and Nature: Historical Essays on the Encounter between Christianity and Science (167-192)*. Berkeley: University of California Press.

Hawking, S. (1988). *A Brief History of Time*. Toronto: Bantam Books.

---. (1993). "Is Everything Determined?" in *Black Holes and Baby Universes and Other Essays (132-133)*. New York: Bantam Books.

Kaku, M. (2008). *Physics of the Impossible*. New York: Doubleday.

Kant, I. (2006). *Critique of Pure Reason*, trans. J. M. D. Meiklejohn. Amherst: Prometheus Books.

Moreland, J.P. (1998). "Libertarian Agency and the Craig/Grundbaum Debate about Theistic Explanation of the Initial Singularity," *American Catholic Philosophical Quarterly* LXXI, no. 4, 539-554.

Morrison, W. (2000). "Must the Beginning of the Universe Have a Personal Cause? A Critical Examination of the *Kalam* Cosmological Argument," *Faith and Philosophy* 17, 149-169.

Newton, I. (1726). *Scholium Generale to Principia Mathematica*

<https://newtonprojectca.files.wordpress.com/2013/06/newton-general-scholium-1726-latin-text>

letter-size1.pdf. Accessed 3/27/15.

---. (1995). "General Scholium" to *Mathematical Principles of Natural Philosophy* in

Newton: A Norton Critical Edition, eds. I. Bernard Cohen and Richard S. Westfall (New York:

W.W. Norton & Company.

Oppy, G. (2006). *Arguing about Gods*. New York: Cambridge University Press.

Pruss, A.R. (2006). *The Principle of Sufficient Reason: A Reassessment*. New York: Cambridge

University Press.

Roger, J. (1986). "The Mechanistic Conception of Life," in *God and Nature: Historical Essays on the Encounter between Christianity and Science (277-295)*. Berkeley: University of California Press.

Spade, P.V. (1999). "Ockham's Nominalist Metaphysics," in *The Cambridge Companion to Ockham*, ed. Paul Vincent Spade. New York: Cambridge University Press.

Stenger, V.J. (1997). "Intelligent Design: Humans, Cockroaches, and the Laws of Physics," <http://www.talkorigins.org/faqs/cosmo.html>. Accessed 3/27/15.

Swinburne, R. (2013). *Mind, Brain, and Free Will*. Oxford: Oxford University Press.

Tyson, N. (2005). "The Perimeters of Ignorance," *Natural History*, 114 (9), 28-34.