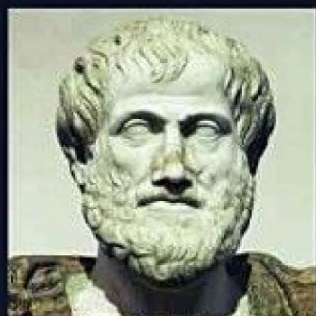
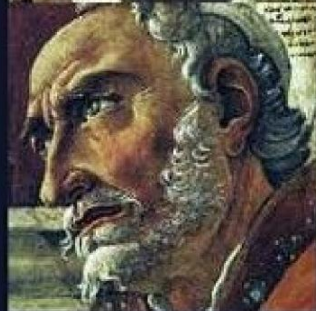
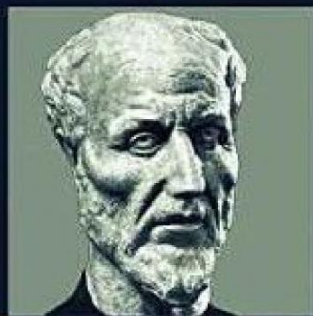


EDWARD FESER

FIVE
PROOFS
OF THE EXISTENCE
of GOD



ARISTOTLE
PLOTINUS
AUGUSTINE
AQUINAS
LEIBNIZ



IGNATIUS

Front cover images:

First row (left): *Aristotle*, bust, Roman copy after a Greek bronze,
original by Lysippos, 330 B.C.

National Museum of Rome, Ludovisi Collection

First row (right): *Plotinus*, marble bust, Ostia Antica Museo, Italy

Second row (left): *St. Augustine* by Sandro Botticelli (1444—1510),
in the church of Ognissanti, Florence, Italy

Second row (middle): *St. Thomas Aquinas* by Carlo Crivelli (ca.1430—1495),

National Gallery, London, England Second row (right): *Gottfried Wilhelm Leibniz* by Christoph
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(1660—1729), Herzog Anton Ulrich Museum, Braunschweig, Germany
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My friend Father Thomas Joseph White has been at the forefront of the revival of interest in natural theology among Catholic theologians, as evidenced by his fine book *Wisdom in the Face of Modernity: A Study in Thomistic Natural Theology*.¹ I have profited much from his work and from our conversations over the last few years. It is with gratitude and admiration that I dedicate this book to him.

INTRODUCTION

This is not a book about Saint Thomas Aquinas' Five Ways.¹ Some readers of my earlier books might have supposed otherwise, given that I have defended Aquinas' arguments elsewhere and that the title of this book is *Five Proofs of the Existence of God*. But though there is certainly some overlap with what Aquinas says and with what I have said in other places, this book stakes out somewhat different ground. It is not *new* ground, exactly, insofar as none of the proofs I will discuss is original with me. But it is different ground insofar as several of these proofs are arguments I have not previously defended at any length. It is also different in that most of these proofs have not received much attention in contemporary philosophy. This is remarkable, given that they have been very prominent historically, and given that they happen to be the most powerful arguments for God's existence on offer (or so I think). My longtime readers will not be surprised when I say that in my view this tells you nothing about the proofs themselves and everything about the state of contemporary academic philosophy, including philosophy of religion.

Though the arguments are not new in themselves, then, they will be new to most readers, as will much of what I have to say in defense of them. What is distinctive about this book will perhaps be most easily explained by saying something about its origins. In my earlier books *The Last Superstition* and *Aquinas*, and elsewhere, I approached questions of natural theology—that is to say, questions about what might be known via unaided human reason, apart from divine revelation, concerning the existence and nature of God and of his relationship to the world—by way of exposition and defense of what Aquinas had to say on the subject.² Since Aquinas is, in my estimation, the greatest of natural theologians, that approach has its advantages. But it has its limitations too. For one thing, it requires that the discussion be largely exegetical, a matter of explaining what Aquinas meant to say, or at most the direction in which his arguments could be taken (and have been taken by later Thomists), given what is actually to be found in his texts.³ That in turn requires setting out the background philosophical principles concerning the nature of change, causality, contingency, and so forth, that are deployed in his arguments; disentangling the essential ideas from the contingent and erroneous scientific assumptions in terms of which he sometimes expresses them; and so on. It is for that reason that, in both of the books mentioned, the reader has to work through seventy pages of sometimes

dense general metaphysics before questions of natural theology are addressed. For another thing, the approach requires confining oneself to the arguments that Aquinas himself happened to think are the most significant ones.

In the years since those books appeared, though, it has occurred to me that there is a place, indeed a need, for a book that approaches things differently. In particular, there is a need for an exposition and defense of certain important arguments for God's existence that Aquinas himself does not discuss and which have also received insufficient attention in recent work in natural theology. And there is a need for an exposition and defense of all of the most important arguments for God's existence that is neither burdened with complex and often tedious issues of textual exegesis, nor preceded by any detailed metaphysical prolegomenon, but which simply gets straight to the heart of the arguments and introduces any needed background metaphysical principles along the way.

That is exactly what the present book does. Two of the proofs I defend here can be found in Aquinas, but three of them are not arguments that Aquinas discusses, at least not at length or in the form presented here. Nor is there any exegesis in this book, of Aquinas' texts or those of any other great thinker of the past. To be sure, and as the table of contents suggests, the arguments are all certainly *inspired* by several great thinkers of the past—in particular, by Aristotle, Plotinus, Augustine, Aquinas, and Leibniz. Indeed, I think that the proofs that I defend here capture what is essential to the arguments of these thinkers. But I am not presenting an interpretation of any text to be found in the writings of any of these thinkers, and I am not claiming that any of these thinkers said or would agree with *everything* I have to say. I defend an *Aristotelian* proof of God's existence, but not *Aristotle's* own proof, exactly; an *Augustinian* proof, but not an exegesis of anything *Augustine himself* actually wrote; and so forth. And I do not set out any more in the way of background metaphysics than is absolutely necessary before getting into the proofs. As far I am able, I introduce the relevant background metaphysical principles along the way, in the course of their application to natural theology.

Each of the first five chapters of the book is devoted to one of the proofs, and each of these chapters has the following structure. First, I present what I characterize as an informal statement of the argument, in two stages. In stage 1, I argue for the existence of something fitting a certain key description, such as (for example) the description "an *uncaused cause of the existence of things*". In stage 2, I argue that anything fitting the description in question must have certain key divine attributes, such as unity, eternity, immateriality, omnipotence, omniscience, and perfect goodness. These presentations are "informal" in the sense that the arguments are not initially set out in the explicit step-by-step format beloved of contemporary analytic philosophers, but rather

in a more discursive and leisurely way. The reasons for this procedure are that I want to make it as easy as possible for readers unfamiliar with philosophy to get into and understand the arguments, and also that I need at various points temporarily to digress into more general issues of metaphysics so as to make clear exactly what is going on in the proofs and to forestall potential misunderstandings or irrelevant objections. To be sure, the discussion does at times get pretty technical. But the aim, in the earlier parts of each of these chapters, is to introduce the reader to these technicalities as gently as is feasible. I want the book to be of interest not only to academic philosophers, but also, as far as possible, to laymen who are willing and able to get into philosophical abstractions if they are given the chance to ease into them gradually. Though we end up, in every chapter, in the deepest part of the deep end of the pool, I always try to start at the shallowest part of the shallow end that I can. (As the reader will discover, this is easier to do with some arguments than with others.)

The next section of each of these chapters contains what I characterize as a more formal statement of the argument. Here I *do* set out the arguments in an explicit step-by-step manner, with the aim of making the logical structure of the reasoning as evident as possible, and of recapitulating in a crisp and clear way the line of thought that the reader will have worked through in a more informal and leisurely way in the preceding discussion. None of these more formal sections is meant to stand alone. The reader may not understand them properly if he has not first read the more informal sections that precede them, which slowly and carefully explain the significance of each of the key concepts deployed in the more formal statement. But the more formal statement should make it clear in each case how everything said in the more informal preceding discussion ties together. Finally, each of these chapters concludes with a long section addressing various objections which have been or might be raised against the argument developed in the chapter. These sections are in some cases where the most technical material appears.

More specifically, the content of each of these first five chapters is as follows. Chapter 1 defends what I call the *Aristotelian proof* of the existence of God. It begins with the fact that there is real change in the world, analyzes change as the actualization of potential, and argues that no potential could be actualized at all unless there is something which can actualize without itself being actualized—a “purely actual actualizer” or Unmoved Mover, as Aristotle characterized God. Aristotle developed an argument of this sort in book 8 of his *Physics* and book 12 of his *Metaphysics*. Later Aristotelians such as Maimonides and Aquinas developed their own versions—the first of Aquinas’ Five Ways being one statement of such an argument. These earlier writers expressed the argument in terms of archaic scientific notions such as the movement of the heavenly spheres, but as modern Aristotelians have shown, the

essential kernel of the argument in no way depends on this outdated husk. Chapter I aims to present the core idea of the argument as it might be developed by an Aristotle, Maimonides, or Aquinas were they writing today.

Chapter 2 defends what I call the *Neo-Platonic proof* of God's existence. It begins with the fact that the things of our experience are in various ways composite or made up of parts, and argues that the ultimate cause of such things can only be something which is absolutely simple or noncomposite, what Plotinus called "the One". The core idea of such an argument can be found in Plotinus' *Enneads*, and Aquinas gave expression to it as well. Indeed, the notion of divine simplicity is absolutely central to the classical theist conception of God, though strangely neglected by contemporary writers on natural theology, theists no less than atheists. Among the aims of this book is to help restore it to its proper place.

Chapter 3 defends an *Augustinian proof* of God's existence. It begins by arguing that universals (redness, humanness, triangularity, etc.), propositions, possibilities, and other abstract objects are in some sense real, but rejects Plato's conception of such objects as existing in a "third realm" distinct from any mind and distinct from the world of particular things. The only possible ultimate ground of these objects, the argument concludes, is a divine intellect—the mind of God. This idea too has its roots in Neo-Platonic thought, was central to Saint Augustine's understanding of God, and was defended by Leibniz as well. This book puts forward a more detailed and systematic statement of the argument than (as far as I know) has been attempted before.

Chapter 4 defends the *Thomistic proof* of God's existence. It begins by arguing that for any of the contingent things of our experience, there is a real distinction between its *essence* (*what* the thing is) and its *existence* (the fact *that* it is). It then argues that nothing in which there *is* such a real distinction could exist even for an instant unless caused to exist by something in which there *is no* such distinction, something the very essence of which *just is* existence, and which can therefore impart existence without having to receive it—an uncaused cause of the existence of things. Aquinas presented an argument of this sort in his little book *On Being and Essence*, and many Thomists have regarded it as *the* paradigmatically Thomistic argument for God's existence.

Chapter 5 defends a *rationalist proof* of the existence of God. The proof begins with a defense of the *principle of sufficient reason* (PSR), according to which everything is intelligible or has an explanation for why it exists and has the attributes it has. It then argues that there cannot be an explanation of the existence of any of the contingent things of our experience unless there is a necessary being, the existence of which is explained by its own nature. This sort of argument is famously associated with Leibniz, but the version of it I defend departs from Leibniz in

several ways and interprets the key ideas in an Aristotelian-Thomistic way. (Hence, while it is definitely “rationalist” insofar as it is committed to a version of PSR and to the thesis that the world is intelligible through and through, it is *not* “rationalist” in other common senses of that term. For example, it is in no way committed to the doctrine of innate ideas or other aspects of the epistemology associated with continental rationalist philosophers like Descartes, Spinoza, and Leibniz. And its interpretation of PSR differs in key respects from theirs.)

Having presented these five proofs of God’s existence, I move on in chapter 6 to examine God’s nature and the nature of his relationship to the world of which he is the cause. These issues will already have been addressed to a considerable extent in the preceding chapters, but chapter 6 examines them in greater depth and more systematically. It begins with exposition and defense of three key background principles: the *principle of proportionate causality*, according to which whatever is in an effect must in some sense preexist in its total cause; the principle *agere sequitur esse*, according to which the way a thing behaves or operates follows from what it is; and the Thomist account of the *analogical* use of language. It then deploys these principles, first, in deriving the various divine attributes and addressing philosophical questions and objections that have been raised vis-à-vis these attributes. The chapter shows, to start with, that it is *one and the same God* at which each of the five proofs arrives, and that there can in principle only be one God. Having thereby established God’s unity, the chapter goes on to show that to God we must also attribute simplicity, immutability, immateriality, incorporeality, eternity, necessity, omnipotence, omniscience, perfect goodness, will, love, and incomprehensibility.

The chapter then expounds and defends the *doctrine of divine conservation*, according to which the world could not exist even for an instant if God were not continually sustaining it in being; and the *doctrine of divine concurrence*, according to which no created thing could have any causal efficacy if God were not imparting causal power to it at any moment at which it acts. Along the way it is shown that these and other arguments rule out conceptions of God’s relationship to the world such as pantheism, panentheism, occasionalism, and deism. Chapter 6 ends with a discussion of what a miracle is and the sense in which God might cause miracles. (Those issues, as the reader will see, are crucial to determining whether there could be a source of knowledge about God outside of natural theology, in some special divine revelation—though whether any such revelation has occurred is a question beyond the scope of this book.)

Finally, chapter 7 addresses various criticisms of natural theology. These too will already have been dealt with to a considerable extent in the preceding chapters, but the aim of chapter 7 is both to address some objections not considered in earlier chapters, and to examine in even greater depth some of the objections that were considered in the earlier

chapters. By the end of the chapter, and thus the end of the book, it will be clear that none of the objections against arguments of the sort defended in this book succeeds, and indeed that the most common objections are staggeringly feeble and overrated.

That is a confident claim, I realize. But natural theology, historically, was a confident discipline. A long line of thinkers from the beginnings of Western thought down to the present day—Aristotelians, Neo-Platonists, Thomists and other Scholastics, early modern rationalists, and philosophers of some other schools too, whether pagans, Jews, Christians, Muslims, or philosophical theists—have affirmed that God’s existence can be rationally demonstrated by purely philosophical arguments. The aim of this book is to show that they were right, that what long was the mainstream position in Western thought ought to be the mainstream position again. The real debate is not between atheism and theism. The real debate is between theists of different stripes—Jews, Christians, Muslims, Hindus, purely philosophical theists, and so forth—and begins where natural theology leaves off. This book does not enter into, much less settle, that latter debate. I will be satisfied if it contributes to getting us back to the point from which the deepest questions can be addressed.

1

The Aristotelian Proof

Informal statement of the argument: Stage 1

Change occurs. Examples are all around us. The coffee in your cup grows cooler. A leaf on the tree outside your window falls to the ground. A puddle grows larger as the rain continues. You swat a fly and it dies.

These examples illustrate four kinds of change: *qualitative* change (the coffee cools down); change with respect to *location* (the leaf falls from the tree); *quantitative* change (the puddle increases in size); and *substantial* change (a living thing gives way to dead matter). That changes of these sorts occur is evident from our sensory experience of the world outside our minds.

But suppose our senses are deceiving us. Suppose your entire life has been one long dream or hallucination, of the sort Descartes described in his *Meditations* and which has been dramatized in science fiction films like *The Matrix*. Still, there would be no doubt even in this farfetched scenario that change occurs. You have one experience, then another. You consider whether you are dreaming or hallucinating, then dismiss the idea as too silly to bother with, and then find that you are still troubled by the arguments you read in Descartes and wonder whether there might be something to them after all. *That* is a kind of change—change with respect to your thoughts and experiences.

Yet, might even those changes be a kind of illusion? After all, the Greek philosopher Parmenides notoriously argued that when we carefully analyze what change of any sort would have to involve, we will see that it is *impossible*. Consider once again your coffee, which starts out hot and after sitting on the desk for a while grows cold. You might say that the coldness of the coffee, which does not exist while the coffee is hot, comes into existence. But now we have a problem, says Parmenides. For if the coldness of the coffee was initially nonexistent, then at that point it was *nothing*; and when it later comes into existence, it is then *something*. But something can't come from nothing. So, the coldness of the coffee cannot come into existence, and thus, the coffee cannot grow cold. Something similar could be said for any purported case of change—all of them would have to involve something coming from nothing, which is impossible. Hence, concludes Parmenides, change cannot ever really occur.

Perhaps you suspect there is something fishy about this argument, and

if so, you would be right. One problem is that no one could possibly coherently accept it. Suppose you try to convince someone, even if only yourself, that change is an illusion—whether via Parmenides’ argument or some other argument. You work your way through each step until you or your listener is convinced. Yet that your mind entertains one premise after the other and finally reaches the conclusion is *itself an instance* of the change the argument denies. The very act of casting doubt on whether change occurs *presupposes* that it occurs.

There is another problem with Parmenides’ argument. As the later Greek philosopher Aristotle pointed out, it is a mistake to think that change would have to involve something coming from nothing. Go back to the coffee. It is true that while the coffee is hot, the coldness is not *actually* present. Still, it is there *potentially* in a way other qualities are not. The coffee does not, after all, have the potential to fuel a gasoline engine, or to turn itself into chicken soup, or for that matter to morph into a live chicken and begin squawking. But it does have the potential to grow cold, and it has various other potentials too—to make you more alert if you drink it, to stain the floor if you spill it, and so forth. That it has the potential to become cold while lacking certain other potentials shows that the coldness is not exactly *nothing*, even if it is not yet actual either.

What change involves, then, is for Aristotle the *actualization of a potential*. The coffee has the potential to become cold, and after sitting out for a while that potential is made actual. This is not a case of something coming from nothing—which, Aristotle agrees, is impossible—because, again, a potential is not nothing.

So, change occurs. Everyday experience shows that it does, and a little philosophical reflection not only reinforces this judgment but explains what change involves. But *how* does change occur? That depends on the change, of course. The coffee’s getting cold is not the same kind of process as the falling of the leaf, the puddle’s growing large, or the fly’s being swatted. Still, whatever sort of change is in question, there will be *something* or other that brings it about.

Change requires a changer. We find examples all around us in everyday experience. The cool air in the room brings the temperature of the coffee down. A flick of your wrist brings the flyswatter down on the fly. But the thesis that change requires a changer is not merely a generalization from instances like these. It follows from *what change is*: the actualization of a potential. We saw that while the coffee is still hot, the coldness of the coffee is not exactly nothing, since it is there potentially in the coffee in a way other qualities are not. But it is still there *merely* potentially and not actually, otherwise the coffee would be cold already, even while it is hot, which of course it isn’t. Now *potential* coldness can hardly do anything, precisely because it is merely potential. Only what is *actual* can do anything. In particular, the potential coldness

of the coffee cannot make itself actual. Only something already actual can do that—the coolness in the surrounding air, or perhaps some ice cubes you might drop into the coffee. In general, any mere potential can only be actualized by something that is already actual. In that sense, any change requires a changer of some sort or other.

So, change occurs, and any change requires a cause; or to put it less colloquially but more precisely, some potentials are actualized, and when they are, there must be something already actual which actualizes them. Now, notice that often what is true of the thing being changed is also true of the thing changing it. The coolness of the air in the room makes the coffee cold. But the coolness of the air was itself merely potential until the air conditioner actualized it. The flick of your wrist causes the flyswatter to come down hard, and its impact in turn kills the fly. But the flick of your wrist was itself merely potential until the firing of certain motor neurons actualized it. So, when something causes a change, that is sometimes because it is undergoing a change itself; and when that is the case, that change too requires a changer. Or, once again to put things less colloquially but more precisely, sometimes when a potential is being actualized, what actualizes it is itself something which has gone from potential to actual; and when that is the case, there must have been some further thing which made that happen.

Notice that I did not say that *everything* which causes a change must be undergoing change itself. That does not follow from anything said so far, and as we will see, it is not true. The point is rather that *if* something which causes a change is undergoing change itself, *then* that change requires a changer of its own. So, we sometimes have a *series* of changers and things changed. The coldness of the coffee was caused by the coolness in the surrounding air, which was caused by the air conditioner, which was caused to switch on when you pressed the appropriate button. The fly was killed by the impact of the flyswatter, which was caused by the flick of your wrist, which was caused by the firing of certain motor neurons, which was caused by your annoyance at the fly's buzzing around the room. One potential was actualized by another, which was in turn actualized by another, which was actualized by yet another.

So far this has all been common sense supplemented with some semitechnical jargon. But the jargon will help us to move beyond common sense—not to *contradict* it, but rather to follow out its implications. Consider next that series of changes of the sort we've described typically extend backward in time, in what we might think of as a *linear* fashion. The coffee is cold because the air in the room cooled it, the air was cold because of the air conditioner, the air conditioner went on because you pressed a certain button, and so forth. Now let's suppose for the sake of argument that this series extends backward into the past to infinity, without a beginning. You pressed the button, your desire to cool down the room caused you to do that, the effect of the room's heat on

your skin brought about that desire, the sun generated that heat, and so on and on and on without there being any temporally first member of this series of changes and changers. The material world, we are supposing, has always been here, and has always been changing. That, as it happens, is what Aristotle himself thought.

Now these days it is often supposed that the Big Bang theory shows that he was wrong. On the other hand, some scientists have suggested that the Big Bang was itself the result of an earlier universe imploding, or perhaps involved our universe branching off from some other, parallel universe. It is also sometimes suggested that the series of such preexisting universes is infinite, so that even if our particular universe had a beginning, the series as a whole did not. This is all very dubious, but whether it is true or not simply doesn't matter for our purposes. Again, let us grant for the sake of argument that the universe, or a "multiverse" comprising our universe together with other universes, has no beginning but has always existed.

Even *if* such linear series of changes and changers might in theory extend backward to infinity, with no first member, there is another kind of series—let us call it the *hierarchical* kind—which *must* have a first member. Remember that we were thinking of a linear series as extending backward in time—the coffee got cold because the room was cool, the room was cool because the air conditioner had made it so, you had switched on the air conditioner because you didn't like the heat, the heat had been generated by the sun, and so forth. To understand what a hierarchical series is, it will be useful, by contrast, to think instead of what might exist at a single *moment* of time. This is not in fact essential to a hierarchical series, but it is a useful way to introduce the idea.

So, consider, once again, the coffee cup as it sits on your desk. It is, we may suppose, three feet above the floor. Why? Because the desk is holding it up, naturally. But what holds the desk up? The floor, of course. The floor, in turn, is held up by the foundation of the house, and the foundation of the house by the earth. Now, unlike the coffee being cooled by the surrounding air, which is in turn cooled by the air conditioner, and so forth, this is not a series which need be thought of as extending backward in time. Of course, the cup may in fact have been sitting there on the desk for hours. But the point is that even if we consider the cup as it sits there at some particular moment, it is sitting there at that moment only because the desk is holding it up at that moment, and the desk is holding it up at that moment only because it is in turn being held up, at that same moment, by the floor. Or consider the lamp above your head, which is held up by a chain, which is in turn held up by the fixture screwed into the ceiling, all at the same moment. In both cases we have what I have called a hierarchical series of causes, in the first case tracing downward to the ground and in the other case upward to the ceiling.

Now since we are considering each of these hierarchical series as

existing at a particular moment of time rather than over the course of minutes or hours, it might seem odd to think of them as involving *change*. But our consideration of the nature of change led us to introduce the idea of actualizing a potential, and each of these series does involve that. The potential of the cup to be three feet off the ground is actualized by the desk, the potential of the desk to hold the cup aloft is actualized by the floor, and so forth. Similarly, the potential of the lamp to be seven feet from the ground is actualized by the chain, and the potential of the chain to hold the lamp aloft is actualized by the fixture screwed into the ceiling.

What makes these series *hierarchical* in the relevant sense, though, is not that they are simultaneous, but that there is a certain sort of *dependence* of the later members on the earlier ones. The cup has no capacity on its own to be three feet from the ground; it will be there only if something else, such as the desk, holds it up. But the desk in turn has no power on *its* own to hold the cup there. The desk too would fall to the earth unless the floor held it aloft, and the floor, for that matter, can hold up the desk only because it is itself being held up by the house's foundation, and the foundation by the earth. Similarly, the lamp can hang there at seven feet off the ground only because the chain is holding it there, while the chain can hold it there only because it is in turn being held up by the fixture and the fixture by the ceiling. The ceiling, however, can hold up the fixture only because it is itself being held up by the walls, which are also held up by the foundation, which is held up by the earth. So, you might say that it is really the earth that is holding up both the cup and the lamp, and that it is doing so *through* these intermediaries. The desk, chain, walls, and floor have no power to hold anything up except insofar as they *derive* that power from the earth. They are in that sense like *instruments*. Just as it is not a brush which paints a picture but rather the painter who uses the brush as an instrument who paints it, so too is it the earth which holds up the cup and the lamp, with the floor, walls, desk, chain, and so forth serving, as it were, as *its* instruments.

What makes a hierarchical series of causes hierarchical, then, is this instrumental or derivative character of the later members of the series. The desk will hold the cup aloft only so long as it is itself being held up by the floor. If the floor collapses, the desk will go with it and the cup will fall as a result. The members of a linear series are not like that. The air conditioner is on because you turned it on. Still, once you've done so, the air conditioner will keep cooling the room even if you left the house or dropped dead.

Now, it is because of this difference that a hierarchical series of causes has to have a first member while a linear series does not. But it is crucial to understand what "first" means in this context. As has already been indicated, the idea of a hierarchical series is best introduced by thinking in terms of a sequence whose members exist all together at a single moment of time, such as the cup which is held up by the desk which is

held up by the floor. So, when it is said that such a series must have a first member, the claim is *not* that the series has to be traced back to some beginning point in the past (at the Big Bang, say).

The idea is rather this. Since the desk, the floor, and the foundation have no power of their own to hold the cup aloft, the series could not exist in the first place unless there were something that *did* have the power to hold up these intermediaries, and the cup through them, *without* having to be held up *itself*. You might say that if the desk, floor, walls, and so forth are acting like instruments of a sort, then there must, as it were, be something whose instruments they are. Or to put the point another way, if they have only derivative power to hold things up, then there must be something from which they derive it, something which does not have to derive it from anything else in turn but just has it “built in”. The sort of “first” cause that a hierarchical series must have, then, is a cause that has the power to produce its effects in a *nonderivative* and *noninstrumental* way. In the case of the cup, where the desk holds it up only because it derives its power to do so from the floor, and the floor from the foundation, none of these things could hold up anything at all unless there were something which holds them up without having to be held up itself.

Now it was suggested above that we could think of the earth as the “first” cause in this series, since there is an obvious sense in which it holds up the floor, walls, desk, cup, and lamp, while nothing is holding the earth itself up. In fact even the earth is *not* a “first” cause in the strict sense, but we’ll come back to that. The point to emphasize for now is that it is being the sort of thing that has *nonderived* causal power—being the sort of thing that can actualize a potential without itself having to be actualized—that makes something a “first” cause in the sense relevant to understanding a hierarchical series of causes. As I have already said, being “first” in a temporal sense, in the sense of coming at some beginning point in time, is not what is at issue. But even the idea of a series of causes that is only finitely rather than infinitely long is not essential to the notion of a hierarchical causal series. To take an example sometimes used to illustrate the point, a paintbrush has no power to move itself, and it would remain powerless to move itself even if its handle were infinitely long. Hence, even if there could be an infinitely long brush handle, if it is actually going to move, there will still have to be something outside it which *does* have the “built-in” power to cause it to move. Or to return to our own example, a desk has no power all on its own to hold up the cup, and thus an infinite series of desks, if there could be such a thing, would be as powerless to hold it up as a single desk would be. Hence, even if such a series existed, there would have to be something outside it which could impart to it the power to hold up the cup. When we say that a hierarchical series of causes has to have a first member, then, we don’t mean “first” in the sense of being the one that

comes before the second, third, fourth, fifth, and so on. We mean it is the first cause in the sense that it has *inherent* or *built-in* causal power while the others have only *derived* causal power. It is their having only derivative causal power that makes the other members secondary rather than first or primary.

Let us pause to take stock, because things have gotten a bit abstract. We started out by noting that there can be no doubt that change occurs, and that change can occur only if things have *potentials* which can be *actualized*. We also saw that any change requires a changer in the sense that whenever a potential is actualized, there must be something already actual that actualizes it. Having introduced this distinction between what is potential and what is actual, we went on to make a further distinction between two kinds of series in which one potential is actualized by another, which is actualized by another. The first sort, which we called a *linear* series, is the sort we usually imagine when we think of change. It was illustrated by the coffee being cooled by the surrounding air in the room, which was itself cooled by the air conditioner, which was turned as a result of your having pressed a certain button, and so forth. In this sort of series, the members have their own causal power. After you have turned it on, the air conditioner can continue to cool the room even after you are no longer present. Even the air will remain cool for some time after the air conditioner is turned off, and will therefore retain the power to cool down the coffee.

What we called a *hierarchical* series of causes is very different. Here every cause other than the first has its causal power only in a derivative way. Thus the desk, floor, and foundation have no power to hold aloft the coffee cup except insofar as they derive it from the earth this whole series rests on. This takes us beyond what we would ordinarily think of as change, because we would ordinarily think of the sequence of the cup, desk, floor, foundation, and earth as simultaneous. But what matters is that we do still have the actualization of potentials, the notion of which was introduced as a way of making sense of change. The potential of the cup to be three feet off the ground is actualized by the desk, the desk's potential to hold the cup aloft is actualized by the floor, and so forth.

Now it is this second, hierarchical sort of series that ultimately concerns us here, for it is more fundamental to reality than the other linear sort of series is.¹ To be sure, it is at first easier for us to recognize and understand the linear sort of series, because the kinds of change it involves are familiar to us from everyday experience. By contrast, introducing the notion of a hierarchical series required us first to abstract from this everyday experience the notion of actualizing a potential, and then to apply that notion to a context to which the passage of time is not essential. But once we have done that, we can see that every series of the linear sort presupposes series of the hierarchical sort. We can see that to understand the changes we observe all around us in everyday life—coffee

getting cold, the fly being swatted, and so on—we need to understand how hierarchical series trace down to first causes. To a *single* first cause, in fact.

How so? Go back to the coffee in the cup. To state the obvious, it can only get cold, or be held up by the desk, if it exists; nonexistent coffee cannot do either, or anything else for that matter. Now, what makes it the case that the coffee exists? Obviously someone made it by pouring hot water through coffee grounds, but that's not what I'm asking about. I mean, what makes it true that the coffee exists *here and now*, and at any particular moment that it exists? What *keeps* it in existence?

For one thing, the coffee will exist only insofar as the water that makes up the bulk of it exists, so to simplify things somewhat let's consider that. What keeps the water in existence at any particular moment? After all, given the chemistry of the water, the matter that makes it up also has the *potential* to exist instead as distinct quantities of oxygen and hydrogen. But that is not the potential that is being actualized right *now*; instead, it is that matter's potential to exist as *water* that is being actualized right now. Why? It is no good to answer that such-and-such a process occurred at some time in the past so as to combine the hydrogen and oxygen in just the right way. That tells us how the water *got* here, but that is not what we are asking about. It is also no good to point out that nothing has yet come along to separate out the hydrogen and oxygen. That tells us how the water might someday go out of existence, but that isn't what we're asking about either. What we're asking about, again, is what *keeps* the water in existence at any instant at which it does in fact exist.

You might say that it has to do with chemical bonding between atoms, but that merely rephrases rather than answers the question. For the atoms have the potential to be bonded in other ways, and yet they are not so bonded. It is their potential to be bonded in such a way that *water* results that is in fact being actualized. Again, why? Appealing to the structure of the atom won't answer the question either, but merely pushes it back a stage. For why are the subatomic particles combined in just the specific way they are, here and now, rather than some other way? What is it that actualizes *that* potential rather than another?

What we have here, as you may have noticed, is something like the cup which is held up by the desk which is held up by the floor. Only in this case it is the very *existence* of a thing that is at issue rather than merely its particular location. The potential of the coffee to exist here and now is actualized, in part, by the existence of the water, which in turn exists only because a certain potential of the atoms is being actualized, where these atoms themselves exist only because a certain potential of the subatomic particles is being actualized. This is a *hierarchical* series—one which, as we have seen, must have a first member. We have also seen that what it means for such a series to have a first member is that there is something which can impart causal power to the other members of the series without

having to have that power imparted to it—something that has its causal power in a “built-in” or nonderivative way. Now since what is being explained in this case is the actualization of a thing’s potential for *existence*, the sort of “first” cause we are talking about is one which can actualize the potential for other things to exist without having to have its own existence actualized by anything.

What this entails is that this cause doesn’t have any *potential* for existence that needs to be actualized in the first place. It just *is* actual, always and already actual, as it were. Indeed, you might say that it doesn’t merely *have* actuality, the way the things it actualizes do, but that it just *is pure actuality* itself. It doesn’t merely *happen* not to have a cause of its own, but *could not in principle* have had or needed one. For being devoid of potentiality, there is nothing in it that could have needed any actualizing, the way other things do. It is in this sense that it is an uncaused cause, or to use Aristotle’s famous expression, an Unmoved Mover. More precisely, we might call it an *unactualized actualizer*.

Notice that we reached this result by beginning with ordinary individual objects and processes, such as a coffee cup and the cooling down of the coffee within it. We didn’t start by asking where the universe as a whole came from, and we *need not* start with any claim about the universe as a whole in order to get to an unactualized actualizer. But what we have said has *implications* for the universe as a whole. For what is true of the water in the coffee is true of every other material thing—the leaf that fell from the tree, the fly you swatted, and so on and on. *Every* material thing is such that it can exist at any moment only if certain potentials are actualized. Hence, it is ultimately such that, like the water in the coffee, it can exist at any moment only insofar as it is caused to exist by an unactualized actualizer.

As I have said, we reached this result from a consideration of everyday phenomena, but things have gotten even more abstract, so let’s briefly retrace our steps. We started with the observation that change occurs and saw that this cannot coherently be denied. We then saw that change can occur only if the things that change have potentials which can be actualized—the potential to be cooled down, the potential to grow in size, or what have you—since change is just the actualization of a potential. And we saw that change requires a changer insofar as a potential can be actualized only by something already actual. Now, we then noted that there are, on the one hand, series of changes of what we called a *linear* sort, the kind illustrated by the coffee which was cooled by the air which was cooled by the air conditioner which was switched on when you pressed a button. That kind of series does not require a first member. But we also saw that there is another kind of series in which one potential is actualized by another which is in turn actualized by another, in which there *must* be a first member. In this *hierarchical* sort of series, the first member is “first” in the sense that it can cause other things without being

caused itself. It has its causal power in a primary, inherent, or “built-in” way, whereas the other members of the series have their causal power in only a secondary, derivative way.

We saw next that linear series of changes are less fundamental than the hierarchical sort of series. For things can change only because they exist—the coffee, for example, cannot grow cold unless it exists—and for a thing to exist at any particular moment requires that it be actualized at that moment, at least if it is the sort of thing which has the potential either to exist or not to exist. This, in turn, is possible only if there is a cause of the existence of a thing which can actualize its potential for existence without having to be actualized itself—a purely actual actualizer of the thing’s existence.² And we saw that this conclusion can be generalized, insofar as what is true of the coffee in our example is going to be true of any other material thing as well. So, from the fact that change occurs we are led to conclude that there is an unactualized actualizer or Unmoved Mover.

Informal statement of the argument: Stage 2

In other words, the undeniable reality of change entails *the existence of God*. Why call the unactualized actualizer or Unmoved Mover “God”? For one thing, this cause is, among other things, the ultimate cause of the existence of things, in the most intimate sense of being that which keeps them in existence at any moment at which they exist at all. And whatever else God is supposed to be, he is the ultimate cause of things.

For another thing, various further attributes definitive of God as traditionally conceived follow from what has already been said. We will in a later chapter see how in some detail, but for the moment a brief sketch will suffice to convey the general idea. First of all, since the cause of things is pure actuality and therefore devoid of potentiality, it cannot go from potentiality to actuality and is thus *immutable* or unchanging. Since existing within time entails changeability, an immutable cause must also be *eternal* in the sense of existing outside of time altogether. It neither comes to be nor passes away but simply *is*, timelessly, without beginning or end. Since to be material entails being changeable and existing within time, an immutable and eternal cause must be *immaterial* and thus *incorporeal* or without any sort of body.

Consider now what it is for a thing to be in some respect or other imperfect or flawed. An injured animal or damaged plant is imperfect insofar as it is no longer capable of realizing fully the ends its nature has set for it. For instance, a squirrel which has been hit by a car may be unable to run away from predators as swiftly as it needs to; and a tree whose roots have been damaged may be unstable or unable to take in all the water and nutrients it needs in order to remain healthy. A defect of

this sort is (to use some traditional philosophical jargon) a *privation*, the absence of some feature a thing would naturally require so as to be complete. It involves the failure to realize some *potential* inherent in a thing. Something is perfect, then, to the extent that it has actualized such potentials and is without privations. But then a purely actual cause of things, precisely since it is purely actual and thus devoid of unrealized potentiality or privation, possesses maximal *perfection*.

Could there be more than one such cause? There could not, not even in principle. For there can be two or more of a kind only if there is something to differentiate them, something that one instance has that the others lack. And there can be no such differentiating feature where something purely actual is concerned. Thus, we typically distinguish the things of our experience by their material or temporal features—by one thing being larger or smaller than another, say, or taller or shorter than another, or existing at a time before or after another. But since what is purely actual is immaterial and eternal, one purely actual thing could not be differentiated from another in terms of such features. More generally, two or more things of a kind are to be differentiated in terms of some perfection or privation that one has and the other lacks. We might say, for instance, that this tree's roots are more sturdy than that one's, or that this squirrel is lacking its tail while the other has its tail. But as we have seen, what is purely actual is completely devoid of any privation and is maximal in perfection. Hence, there can be no way in principle to differentiate one purely actual cause from another in terms of their respective perfections or privations. But then such a cause possesses the attribute of *unity*—that is to say, there *cannot be*, even in principle, more than one purely actual cause. Hence, it is the *same* one unactualized actualizer to which all things owe their existence.

Consider now that to have power is just to be able to make something happen, to *actualize* some potential. But then, since the cause of the existence of all things is *pure actuality itself* rather than merely one actual thing among others, and it is the *source* of all the actualizing power anything else has, it has all possible power. It is *omnipotent*. Consider further that a thing is good, in a general sense, to the extent that it realizes the potentials inherent in it as the kind of thing it is, and bad to the extent that it fails to realize them. A good painter, for example, is good to the extent that he has realized his potential for mastery of the various aspects of painting—craftsmanship, composition, and so forth—while a bad painter is bad to the extent that he has failed to acquire the relevant skills. But a purely actual cause of the world, devoid as it is of potentiality, cannot be said to be bad or deficient in any way, but on the contrary (as we have seen) to be perfect. In that sense such a cause must be *fully good*.

So far, then, we have seen that the purely actual actualizer or Unmoved Mover must be *one, immutable, eternal, immaterial, incorporeal, perfect, omnipotent, and fully good* cause of the existence of things, in the sense

of being that which keeps all things in being from moment to moment. Can we attribute attributes of a more personal nature to this cause? For instance, can we attribute to it something like intelligence? We can. But to see how, we must first say something about the nature of intelligence, and also something more about the nature of cause and effect.

Intelligence, as traditionally understood, involves three basic capacities. First, there is the capacity to grasp abstract concepts, such as the concept *man*, which is what you have when you not only know this or that particular man or this or that particular subset of men, but *what it is to be a man in general*. To have the concept *man* is to have a universal idea that applies to all possible men, not only those that do exist or have existed, but also all those that could exist. Second, there is the capacity to put these ideas together into complete thoughts, as when you combine the concept *man* and the concept *mortal* in the thought that *all men are mortal*. Third, there is the capacity to infer one thought from others, as when you reason from the premises that *all men are mortal* and *Socrates is a man* to the conclusion that *Socrates is mortal*. Obviously the capacity to grasp abstract or universal concepts is the most fundamental of these three. You couldn't form complete thoughts or reason from one thought to another if you didn't have the concepts that are the constituents of the thoughts.

Now to have such a concept is to have a kind of *form or pattern* in the mind, and the same form or pattern that exists in the things you might think about. There is a form or pattern that all men have that makes them all the same thing—namely, men; there is a form or pattern that all triangles have that makes *them* all the same thing—namely, triangles; and so forth. Now when these forms or patterns come to exist in material things, the results are the various individual objects—individual men, individual triangles, and so forth—that we find in the world around us. When we think about men or triangles in general, though, we abstract away from all the different particular men and triangles, and focus on what is common or universal to them. And that is really the essence of strictly intellectual activity—the capacity to have the universal or abstract form or pattern of a thing without *being* that kind of thing. A material object that has the form or pattern of a triangle just *is* a triangle. When you contemplate what it is to be a triangle, you have that form or pattern of being a triangle as well, but without being a triangle.

We'll come back to the notion of intelligence in a moment. Let's now say a little more about cause and effect. We've noted that when something is either changed or caused to exist, a potential is actualized, and that something already actual must be what actualizes it. This is sometimes called the *principle of causality*. A further point to make about cause and effect is that whatever is in some effect must in *some* way or other be in the cause, even if not always in the same way. For a cause cannot give what it does not have to give. This is sometimes called the

principle of proportionate causality.

Suppose, for example, that I give you \$20. The effect in this case is your having the \$20, and I am the cause of this effect. But the only way I can cause that effect is if I have the \$20 to give you in the first place. Now there are several ways in which I might have it. I might have a \$20 bill in my wallet, or two \$10 bills, or four \$5 bills. Or I may have no money in my wallet, but do have \$20 in my bank account and write you a check. Or I may not have even that, but I am able to borrow the \$20 from someone else, or work for it, so that I can go on to give it to you. Or perhaps I have a friend who has a key to the U.S. Treasury printing press and I get him to run off an official \$20 bill for me to give to you. Or to take an even more farfetched scenario, suppose that in order to guarantee that you get that \$20 I somehow convince Congress to pass a law which permits me personally to manufacture my own \$20 bills. These are all various ways in which I might in theory give you \$20. But if *none* of these ways are available to me, then I can't do it.

Again, these are *different* ways in which the cause may have what is in the effect. When I myself have a \$20 bill ready to hand and I cause you to have it, what is in the effect was in the cause *formally*, to use some traditional jargon. That is to say, I myself was an instance of the form or pattern of having a \$20 bill, and I caused you to become another instance of that form or pattern. When I don't have the \$20 bill ready to hand but I do have at least \$20 credit in my bank account, you might say that what was in the effect was in that case in the cause *virtually*. For though I didn't actually have the \$20 on hand, I did have the power to get hold of it. And when I get Congress to grant me the power to manufacture \$20 bills, you might say (once again to use some traditional jargon) that I had the \$20 *eminently*. Because in that case, I not only have the power to *acquire* already-existing \$20 bills, but the more "eminent" power of causing them to exist in the first place. When it is said, then, that what is in an effect must in some way be in its cause, what is meant is that it must be in the cause at least "virtually" or "eminently" even if not "formally".

Now, consider once again the purely actual actualizer of the existence of things. We have seen that the existence of *anything* that might exist is going to trace to this one cause. It is the cause of every possible thing that might exist. Now to cause a thing to exist is precisely to cause something of a particular *sort*—a stone rather than a tree, say, or a tree rather than a cat. That is to say, to cause something to exist is just to cause something having a certain *form* or fitting a certain *pattern*. But as we have just said, the purely actual cause of things is the cause of every possible thing—every possible cat, every possible tree, every possible stone. It is for that reason the cause of every possible form or pattern a thing might have. We have also noted that whatever is in an effect must in some way or other be in its cause.

Put these points together and what follows is that the forms or patterns

of things must exist in the purely actual cause of things; and they must exist in it in a completely universal or abstract way, because this cause is the cause of every possible thing fitting a certain form or pattern. But to have forms or patterns in this universal or abstract way is just to have that capacity which is fundamental to intelligence. Add to this consideration the fact that this cause of things is not just the cause of things themselves, but of their being related in any way they might be related. That is to say, it is not only the cause of *men* but of the fact that *all men are mortal*; not just the cause of *this cat*, but of *this cat's being on this mat*; and so forth. So, there must be some sense in which these effects too exist in their purely actual cause, and it must be in a way that has to do with the combination of the forms or patterns that exist in that cause. That is to say, the effects must exist in the cause in something like the way *thoughts* exist in us.

So, what exists in the things that the purely actual cause is the cause of *preexists* in that cause in something like the way the things we make preexist as ideas or plans in our minds before we make them. These things thereby exist in that purely actual cause *eminently* and *virtually* even if not *formally*. For the cause of things is not itself a cat or a tree (and cannot be, given that it is immaterial), but it can cause a cat or a tree, or anything else that might exist. But it is not merely intelligence that we can therefore attribute to the cause of things. Consider that as the intelligent cause of everything that exists or could exist, there is nothing that exists or could exist that is not in the range of this cause's thoughts. It is in that sense all-knowing or *omniscient*.

Now, much more could be said. The topic of the divine attributes deserves a chapter of its own, and we will devote a chapter to it later on. But this sketch should make it clear enough that we can say a great deal about the nature of the cause of things, and in particular a great deal to show that this cause really does fit the description of God as traditionally conceived.

A more formal statement of the argument

Let's briefly summarize. We have seen that it cannot coherently be denied that change occurs, and we have noted that change can occur only if things have potentials which are actualized by something already actual. Hence, the hot coffee has the potential to be cooled, and that potential is actualized by the coolness in the surrounding air. We have also argued that while a *linear* series of changes and changers might in principle extend backward in time without beginning, the members of these series must depend at any moment at which they exist on a *hierarchical* series of actualizers, and that such a series must terminate in a purely actual cause or actualizer of their existence. And it has now been

argued that any such cause must be *one, immutable, eternal, immaterial, incorporeal, perfect, omnipotent, fully good, intelligent, and omniscient*—that is to say, it must have the key divine attributes. In short, the things of our experience can exist at any moment only if sustained in existence by God.

So far, I have stated the argument in an informal and unhurried way so as to facilitate understanding, especially among readers not used to the technicalities of academic philosophy. But now that the overall thrust of the reasoning is clear, it will be useful to have a summary presented in a somewhat more formal way. It might be stated as follows:

1. Change is a real feature of the world.
2. But change is the actualization of a potential.
3. So, the actualization of potential is a real feature of the world.
 4. No potential can be actualized unless something already actual actualizes it (the principle of causality).
5. So, any change is caused by something already actual.
 6. The occurrence of any change C presupposes some thing or substance S which changes.
 7. The existence of S at any given moment itself presupposes the concurrent actualization of S's potential for existence.
8. So, any substance S has at any moment some actualizer A of its existence.
9. A's own existence at the moment it actualizes S itself presupposes either (a) the concurrent actualization of its own potential for existence or (b) A's being purely actual.
10. If A's existence at the moment it actualizes S presupposes the concurrent actualization of its own potential for existence, then there exists a regress of concurrent actualizers that is either infinite or terminates in a purely actual actualizer.
11. But such a regress of concurrent actualizers would constitute a hierarchical causal series, and such a series cannot regress infinitely.
12. So, either A itself is a purely actual actualizer or there is a purely actual actualizer which terminates the regress that begins with the actualization of A.
13. So, the occurrence of C and thus the existence of S at any given moment presupposes the existence of a purely actual actualizer.
14. So, there is a purely actual actualizer.
 15. In order for there to be more than one purely actual actualizer, there would have to be some differentiating feature that one such actualizer has that the others lack.
 16. But there could be such a differentiating feature only if a purely actual actualizer had some unactualized potential, which,

- being purely actual, it does not have.
17. So, there can be no such differentiating feature, and thus no way for there to be more than one purely actual actualizer.
 18. So, there is only one purely actual actualizer.
 19. In order for this purely actual actualizer to be capable of change, it would have to have potentials capable of actualization.
 20. But being purely actual, it lacks any such potentials.
 21. So, it is immutable or incapable of change.
 22. If this purely actual actualizer existed in time, then it would be capable of change, which it is not.
 23. So, this purely actual actualizer is eternal, existing outside of time.
 24. If the purely actual actualizer were material, then it would be changeable and exist in time, which it does not.
 25. So, the purely actual actualizer is immaterial.
 26. If the purely actual actualizer were corporeal, then it would be material, which it is not.
 27. So, the purely actual actualizer is incorporeal.
 28. If the purely actual actualizer were imperfect in any way, it would have some unactualized potential, which, being purely actual, it does not have.
 29. So, the purely actual actualizer is perfect.
 30. For something to be less than fully good is for it to have a privation—that is, to fail to actualize some feature proper to it.
 31. A purely actual actualizer, being purely actual, can have no such privation.
 32. So, the purely actual actualizer is fully good.
 33. To have power entails being able to actualize potentials.
 34. Any potential that is actualized is either actualized by the purely actual actualizer or by a series of actualizers which terminates in the purely actual actualizer.
 35. So, all power derives from the purely actual actualizer.
 36. But to be that from which all power derives is to be omnipotent.
 37. So, the purely actual actualizer is omnipotent.
 38. Whatever is in an effect is in its cause in some way, whether formally, virtually, or eminently (the principle of proportionate causality).
 39. The purely actual actualizer is the cause of all things.
 40. So, the forms or patterns manifest in all the things it causes must in some way be in the purely actual actualizer.
 41. These forms or patterns can exist either in the concrete way in which they exist in individual particular things, or in the abstract way in which they exist in the thoughts of an intellect.
 42. They cannot exist in the purely actual actualizer in the same way

- they exist in individual particular things.
43. So, they must exist in the purely actual actualizer in the abstract way in which they exist in the thoughts of an intellect.
 44. So, the purely actual actualizer has intellect or intelligence.
 45. Since it is the forms or patterns of all things that are in the thoughts of this intellect, there is nothing that is outside the range of those thoughts.
 46. For there to be nothing outside the range of something's thoughts is for that thing to be omniscient.
 47. So, the purely actual actualizer is omniscient.
 48. So, there exists a purely actual cause of the existence of things, which is one, immutable, eternal, immaterial, incorporeal, perfect, fully good, omnipotent, intelligent, and omniscient.
 49. But for there to be such a cause of things is just what it is for God to exist.
 50. So, God exists.

Some objections rebutted

Naturally all sorts of objections are bound to be raised against this argument. For example, the derivation of the divine attributes presupposes a number of philosophical assumptions which are bound to be controversial. Again, I am going to address the question of the divine attributes at much greater length in a later chapter, and answer therein the various objections which might be raised. The point of what has been said so far is merely to give the reader a sense of how the Aristotelian argument for the existence of God takes us well beyond a mere cause of the existence of change. A common but entirely ungrounded objection to first cause arguments for God's existence is that even if they could get you to a cause of the world, they couldn't tell you enough about the nature of that cause to justify identifying it with God as traditionally conceived. What has been said so far suffices to show how problematic this objection is, and by the end of the book it will be clear that it has no force at all.

There are other objections raised against first cause arguments in general, which will be addressed in another later chapter devoted to answering such objections. But some objections should be addressed immediately, especially those pertaining to the distinctively Aristotelian aspects of the argument given above.

Common misunderstandings

Let's begin with a response to some further common objections, which

are bound to seem to some readers obvious and even fatal, but which in fact rest on egregious misunderstandings of the argument and have no force at all. For example, some readers are bound to think that I have been arguing that if we trace the series of causes of things back in time, we'll get to a beginning of the universe, and that God was the cause of that beginning. I tried to make it clear that that is *not* what I am saying, but people are so used to thinking of an argument for God's existence in those terms that they will read this idea even into an argument that explicitly denies it. And then they are bound to go on to ask how we can be so sure that the universe really did have a beginning. But what I said, remember, is that even if a given series of changes has *no* beginning in time, even if the universe or series of universes extends *forever* into the past, that would be irrelevant to the argument. For the argument is rather that for things to exist *here and now*, and at any moment at which they exist, they must be *here and now* sustained in existence by God.

Similarly, some might suppose that the argument proceeds from the assumption that the entire universe has to have some cause. And then they will go on to object that even if this or that part of the universe has a cause, it doesn't follow that the whole universe has one. But in fact the claim that the universe as a whole has a cause is *not* a premise of the argument I've just given. What I argued was that for any particular thing to exist at any moment, God must be causing it to exist at that moment. To argue for the existence of God, you don't need to start from the claim that the universe had a beginning, and you don't need to start with any other claim about the universe as a whole either. You can start with any old trivial object existing here and now—a stone, a cup of coffee, whatever—because even for that one thing to exist, even for a moment, there must be a purely actual cause actualizing it at that moment. Now, it is true that I also went on to claim that this applied to everything that exists, and so I did make a claim about the universe as a whole. But that claim was a *consequence* of the argument, not a *premise* of the argument.

Another stock objection raised against arguments like the one just presented goes like this: If everything has a cause, then what caused God? If we say that God does not have a cause, then maybe other things don't have a cause either. The argument, so the critic claims, commits the fallacy of special pleading, making an arbitrary exception in God's case to the rule it applies to everything else. But in fact this objection is no good, and the argument I have been developing does not commit any fallacy of special pleading. First of all, the argument does *not* rest in the first place on the premise that "*everything* has a cause." What it says is that any *change* requires a cause; more precisely, it says that *whatever goes from potential to actual* has a cause. That is very different from saying that *everything whatsoever* has a cause. Secondly, the argument is by no means arbitrary in claiming that God does not have a cause of his own. For the *reason* other things require a cause is precisely because they

have *potentialities* that need to be actualized. By contrast, what is purely actual has no potentialities, and so there is nothing in it that needs to be, or indeed could be, actualized. Naturally, then, it is the one thing that need not have, and indeed could not have, a cause of its own.

The importance of these points cannot be overemphasized. Some critics of first cause arguments are so invested in the “If everything has a cause, then what caused God?” objection that they are reluctant to give it up even when it is exposed as being directed at a straw man. They might try to suggest, for example, that there is no significant difference between saying that *whatever goes from potential to actual has a cause* and saying that *everything has a cause*. But that is as silly as claiming that there is no significant difference between saying that *all triangles have three sides* and saying that *all geometrical figures have three sides*.

They might also suggest that the argument refrains from saying that *everything* has a cause merely as an ad hoc way of avoiding the “What caused God?” objection. But there are three problems with this suggestion. First, even if the suggestion were true, that wouldn’t show that the claim that *whatever goes from potential to actual has a cause* is false or that the Aristotelian argument for God’s existence is unsound. To assume that a person’s motivations for making a claim or giving an argument by themselves cast doubt on the claim or the argument is to commit an ad hominem fallacy.

But second, the suggestion in question is, as a matter of historical fact, simply false. For more than twenty-three hundred years, from Aristotle to Aquinas to the present day, proponents of different versions of the Aristotelian argument have claimed, not that everything has a cause, but rather that what goes from potential to actual has a cause. They did not invent the latter claim as a way of trying to get around the objection in question. That was *always* the claim from the start.

Third, there is nothing in any way ad hoc about the claim. It follows quite naturally from Aristotle’s analysis of change, independently of any application to arguments for the existence of God. And one hardly needs to believe in God in order to find it implausible to suppose that something that is merely potential could actualize itself. In fact, the only thing that is ad hoc here is some critics’ desperate attempt to salvage the “What caused God?” objection in the face of the overwhelming evidence that it is directed at a straw man and has no force.

Hume and Kant on causation

Still, the critic may insist, following the empiricist philosopher David Hume, that in theory even coffee cups, stones, and the like might exist without a cause. I have said that any potentiality that is actualized must be actualized by something already actual. But didn’t Hume show that it is at

least conceivable that something could pop into existence uncaused? And in that case couldn't something go from potential to actual without being caused to do so by something already actual?

But in fact Hume showed no such thing. What Hume had in mind was the sort of case where we imagine an empty space in which something suddenly appears—a stone, or a coffee cup, or whatever. Of course, that is imaginable. But that is hardly the same thing as conceiving of the stone or coffee cup coming into being without a cause. At the very most it is conceiving of it without at the same time conceiving of its cause, and that is completely unremarkable. We can conceive of something being a trilateral—a closed plane figure with three straight sides—without at the same time thinking of it as a triangle. But it doesn't follow that any trilateral could ever exist in reality without being at the same time a triangle. We can conceive of some man without conceiving of how tall he is, but it doesn't follow that any man could exist without some specific height. In general, to conceive of A without at the same time conceiving of B is not the same thing as conceiving of A existing without B. But then, even if I can conceive of a stone or a coffee cup suddenly appearing without at the same time conceiving of its cause, it doesn't follow that I have conceived of it as having no cause, and it doesn't follow that it could exist in reality without a cause.

For another thing, and as the philosopher Elizabeth Anscombe pointed out, for Hume to make his case he has to tell us why a coffee cup suddenly appearing in a previously empty space counts as an instance of *coming into existence* in the first place, whether with a cause or otherwise. For why shouldn't we suppose instead that the cup has merely been transported from somewhere else? So, Hume would need to add something to his scenario in order to distinguish the cup's coming into existence from its merely being transported. But now Hume has a problem. For the only way to distinguish a cup's *coming into existence* from its *being transported* is by reference to the *causes* of these different sorts of event. A cup's coming into existence involves one sort of cause (molding a bit of porcelain or plastic, say), while a cup's being transported involves another sort of cause (someone's picking it up and moving it). Hume's scenario was supposed to eliminate the notion of a cause, but to spell it out in the detail he needs ends up bringing back in the notion of a cause.³

It is also ironic that an empiricist would question the principle of causality, given that it is as well supported by experience as any claim could be. For in general, we do in fact find causes when we look for them, and when we don't find them (e.g., when investigating an unsolved murder) we have reason to think they are nevertheless there and would be found if only we had all the pertinent evidence and the time and resources for a more thorough investigation. Not only is this just what we would expect if the principle of causality is true, but it is not at all what we

should expect if it were false. As W. Norris Clarke points out, if the principle were false, “then nothing at all would be required to produce anything at all: an elephant, or a hotel could appear suddenly on your front lawn out of nowhere”, and “it should be the easiest thing in the world for them to be popping up all the time.”⁴ But of course this is not the way the world actually works.

The best explanation of why the world works in just the way it does is that there is something in the very nature of potentiality that requires actualization by something already actual—that is, the best explanation is that the principle of causality is true. The fact that we tend to find causes for things that come into being, and that things do not regularly pop into existence without any evident cause, would be miraculous if the principle were false.

An alternative criticism might look to Immanuel Kant rather than David Hume. We learn that things have causes from our observation of the empirical world. The surrounding air cools down the coffee, the air conditioner cools the air, you turn on the air conditioner, and so forth. But even if we acknowledge that the principle of causality applies within the world of our experience, why should we suppose that we can extend it beyond the empirical world, to a purely actual actualizer of things—to something which, because it is immaterial, outside of time and space, is unobservable?

But this objection is not difficult to answer. It is true that we learn the principle of causality from our experience of the world, but it doesn't follow that we cannot apply it beyond the world of experience. For the reason we conclude that the things of our experience require causes is not *because* we experience them, but rather because they are merely potential until made actual. And the principle that no potential can actualize itself is completely general. Once we learn it we can apply it beyond the things we have actually experienced, and there is no reason to doubt that we can apply it as well beyond what we could experience. (Compare: We learn Euclidean geometry by looking at drawings of various geometrical figures, usually in black ink. But what we learn applies to geometrical figures of any color and indeed of no color at all. To think that the principle of causality applies only to things we can experience is like thinking that Euclidean geometry applies only to figures we can see.)

Russell on causation

But now the critic might appeal to science instead of philosophy. There are several ways in which it might seem that science has undermined the principle that what goes from potential to actual has a cause. For example, in his essay “On the Notion of Cause”, Bertrand Russell argued that “the law of causality. . . is a relic of a bygone age.”⁵ Physics, in

Russell's view, shows that there is no such thing as causation. For physics describes the world in terms of differential equations describing relations between events, and these equations make no reference to causes. "In the motions of mutually gravitating bodies, there is nothing that can be called a cause, and nothing that can be called an effect; there is merely a formula."⁶

But there are a number of problems with this argument. For one thing, it would prove too much. If a thing's absence from the equations of physics suffices to show that it does not exist, then we will have to eliminate not only causation, but all sorts of other fundamental notions as well—including notions essential to our understanding of science, which Russell needs in order to get his argument off the ground. As Jonathan Schaffer writes:

In this respect, "event," "law," "cause," and "explanation" are in the same boat. These. . . terms serve to allow a systematic understanding of science; they do not themselves appear in the equations. From this perspective, Russell's argument might seem akin to the foolish claim that math has eliminated the variable, because the term "variable" does not appear in the equations!⁷

For another thing, it is not clear that physics really is free of causal notions. As the philosopher C. B. Martin has argued, the fundamental particles described by nuclear physics clearly have *dispositional* properties—that is, tendencies to produce certain effects when they interact in certain ways.⁸

Third, whether or not causal notions are present in physics, they are certainly present in other sciences. And that the other sciences cannot be reduced to physics is now fairly widely acknowledged in contemporary philosophy. This is true not only of the social sciences, but also of biology,⁹ and even, some have argued, of chemistry.¹⁰ But if the other sciences give us genuine knowledge of the world and they make reference to causation, then causation must be a real feature of the world. A related point is that the philosophical naturalism which provides the intellectual foundation of modern atheism is in contemporary philosophy typically articulated and defended in terms of causal notions. Naturalists routinely defend causal theories of knowledge, causal theories of perception, causal theories of meaning, and so forth. If causation is central to the articulation and defense of naturalism, though, then naturalists themselves must affirm its existence whether or not physics makes reference to it.

The most basic problem with Russell's argument, however, is that there is simply no reason to suppose that physics gives us anything close to an exhaustive description of reality in the first place. Indeed, there is ample reason to think that it does not. Ironically, Russell himself would in his later work give eloquent expression to the point:

It is not always realised how exceedingly abstract is the information that theoretical physics has to give. It lays down certain fundamental equations which enable it to deal with the logical structure of events, while leaving it completely unknown what is the intrinsic character of the events that have the structure. . . . All that physics gives us is certain equations giving abstract properties of their changes. But as to what it is that changes, and what it changes from and to—as to this, physics is silent.¹¹

Modern physics focuses its attention on those aspects of nature which can be described in the language of mathematics, abstracting away everything else. Its “mathematicizations”, as Martin has called them, entail taking what Martin calls only a “partial consideration” of the phenomena studied.¹² That is why physics has achieved such breathtaking precision and predictive success. It simply does not allow into its characterizations of physical phenomena any features that would not be *susceptible* of mathematically precise description and prediction. If there are features of the world that can be captured by this method, then physics has a good shot at finding them. But by the same token, if there are features that cannot be captured by this method, physics is guaranteed *not* to find them. To reason from the predictive success of physics to the conclusion that physics gives us an exhaustive description of reality is therefore to commit a very crude fallacy. It is like reasoning from the success of metal detectors to the conclusion that there are no nonmetallic features of reality; or it is like a student’s reasoning from the fact that he has taken only classes he knew he would do well in and gotten A’s in each, to the conclusion that there is nothing of importance to be learned in other classes; or like a drunk’s reasoning from his success in finding things in the light under the lamppost to the conclusion that his lost car keys cannot possibly be anywhere else.

Since the equations of physics are, by themselves, *mere* equations, *mere* abstractions, we know that there must be something more to the world than what they describe. There must be something that makes it the case that the world actually operates in accordance with the equations, rather than some other equations or no equations at all. There must be what the later Russell called an “intrinsic character” to the things related in the ways the equations describe. There must, as he put it, be *something* “that changes” and something “it changes from and to”, something about which, as Russell admitted, “physics is silent.” Now if what the equations describe really is *change*, then as I have argued, this change entails the actualization of a potential. But to actualize a potential just is to be a cause. That means that causality must be among the intrinsic features of the things physics describes.

Note that even if someone wanted to resist attributing real change and causality to mind-independent physical reality, he will still have to attribute them to our *experience* of physical reality, through which we acquire the observational and experimental evidence on which physics is

based. One experience gives way to another; for example, the experience of setting up an experiment is followed by the experience of observing the results. That entails (for all Russell has shown) the actualization of a potential, and thus causation. Moreover, the later Russell himself acknowledged that we know the world described by physics only by virtue of the fact that our experiences are *causally related* to that world. It is only because the physical world has the *effects* on our sense organs that it does that we can know that there is something out there for us to study scientifically in the first place.

Thus, contra the early Russell, there is simply no way coherently to appeal to physics in support of the claim that causation is not a real feature of the world.

Newton on inertia

It is sometimes suggested that Newton's law of inertia—according to which a body in motion will remain in motion unless acted upon by outside forces—shows that change could occur without a cause. There's a lot that could be said in response to this objection, and I've addressed it in detail elsewhere.¹³ But for present purposes the following points will suffice. First of all, what Newton's law describes are events ordered in time—for example, the motion of molecules as coffee swirls around in a cup. But as I have emphasized, the argument for the existence of God that we have been examining is ultimately concerned with the question of what actualizes a thing's potential to exist *at any particular moment* of time. It is concerned, for example, with what makes it the case at any moment that the components of a water molecule actually constitute a water molecule, specifically, in the first place, rather than some other kind of thing. Since Newton's law presupposes the existence of things like water molecules, it can hardly explain their existence.

Furthermore, as several philosophers have argued (and as I will argue in a later chapter), for something to follow any physical law—such as the law of inertia—is just for it to be the *kind of thing* that behaves in accordance with that law. That is to say, talk of a “law of nature” is really just a kind of shorthand for a description of the way a thing will tend to operate given its nature—given the form or pattern it possesses, which distinguishes it from other kinds of thing (to make use of some terminology introduced earlier). Thus, Newton's law is simply a shorthand description for the way a thing will behave given the nature or form it possesses. But what makes it the case that there actually are things that have that sort of nature or form rather than another? What makes it true that things are governed by the law of inertia rather than some alternative law? What actualizes that potential, specifically? Newtonian mechanics can hardly answer these sorts of questions. Again, it makes no

sense to appeal to Newton's laws in order to explain why the things *presupposed* by Newton's laws exist.

Finally, there is the point made above that physics simply does not give anything like an exhaustive description of nature in the first place, but abstracts from it everything that cannot be "mathematicized" (to use Martin's expression). This includes the notions of actuality and potentiality, and thus causation as the Aristotelian understands it. Newton's laws of motion reflect this tendency, insofar as they provide a mathematical description of motion suitable for predictive purposes without bothering about the origins of motion or the intrinsic nature of that which moves. Indeed, that is arguably the whole point of the principle of inertia. As James Weisheipl writes:

Rather than proving the principle, the mechanical and mathematical science of nature *assumes* it. . . [and] the mathematical sciences must assume it, if they are to remain mathematical. . .

The basis for the principle of inertia lies. . . in the nature of mathematical abstraction. The mathematician must equate: a single quantity is of no use to him. In order to equate quantities he must assume the basic irrelevance or nullity of other factors, otherwise there can be no certainty in his equation. The factors which the mathematician considers irrelevant are. . . motion, rest, constancy, and unaltered directivity; it is only the *change* of these factors which has quantitative value. Thus for the physicist it is not motion and its continuation which need to be explained but change and cessation of motion—*Jor* only these have equational value. . . .

In the early part of the seventeenth century physicists tried to find a physical cause to explain the movement [of the heavenly bodies]; Newton merely disregarded the question and looked for two quantities which could be equated. In Newtonian physics there is no question of a cause, but only of differential equations which are consistent and useful in describing phenomena. . . .

The nature of mathematical abstraction. . . must leave out of consideration the qualitative and causal content of nature. . . . Since mathematical physics abstracts from all these factors, it can say nothing about them; it can neither affirm nor deny their reality.¹⁴

Hence, it is not merely that Newtonian mechanics *does* not refute the principle of causality, but that it *could* not—any more than (to make use once again of analogies appealed to earlier) the drunk who stays under the lamppost can say anything one way or another about what lies elsewhere, or any more than the student who takes only courses he knows he will do well in can say anything one way or the other about the subject matter of other courses, or any more than metal detectors can tell us anything one way or the other about the existence of wood, stone, and water. Objections to the principle of causality based on Newton's First Law of

Motion therefore do not even rise to the level of being well-formulated, and the Aristotelian is within his rights to insist that however inertia is interpreted, it must be made compatible with the principle of causality, which captures deeper levels of reality than physics does or can.

Einstein and change

It is sometimes claimed that change has been shown to be illusory by Einstein, or at least by the construction Hermann Minkowski famously put on relativity theory. On this four-dimensional block universe model, time is analogous to space, so that just as distant places are as actual as nearby places, so too are past and future moments as actual as the present moment. Hence, there is (so the argument goes) no actualization of potential. Our conscious experience of the world presents it *as if* it were changing—as if the present moment receded into the past and gave way to the future—but in reality there is no change. *Objectively* speaking, the past and the future exist in just the same way that the present does.

Now, such claims are controversial, even among physicists, but this is a controversy that need not be settled for present purposes.¹⁵ For even if we supposed for the sake of argument that change does not occur in the objective physical world, it would not follow that the principle that *whatever goes from potential to actual has a cause* has no application, for two reasons.

First, physics, including relativity theory, rests on the empirical evidence of observation and experiment, which involves scientists having certain experiences. This is in turn a matter of an event of formulating a prediction being followed by the event of performing an observation to test the prediction; of moving from a state of ignorance to a state of knowledge; and so forth. But all of this involves change. Hence, if there is no change, then there is no such thing as having the experiences which provide the empirical evidence for any scientific theory in the name of which someone might take the position that there is no such thing as change. Thus, as philosopher of science Richard Healey has pointed out, the view that physics shows that all change is an illusion is incoherent.¹⁶ The most that could coherently be claimed is that change exists only in the mind but not in mind-independent reality. What *cannot* be coherently claimed is that there is no change *at all*. But if change exists at least in the mind, then there is at least some actualization of potential, and that is all that is needed for the Aristotelian argument for God's existence to get off the ground.

Second, even if change *didn't* exist in the physical world, in the mind, or anywhere else, it still wouldn't follow that the *actualization of potential* didn't exist anywhere. For as I have argued, it is not just a thing's undergoing *change* that involves the actualization of potential, but

its very existence at any moment that involves the actualization of potential. Hence, even if there is no real change or actualization of potential *within* an Einsteinian four-dimensional block universe, the sheer existence of that universe as a whole—in a single, timeless moment, as it were—*would* involve the actualization of potential and thus an actualizer distinct from the world itself. There would need to be a cause of *that* sort of world's being actual rather than some other sort of world's being actual. Similarly, even if there were no change even within the human mind, there would still need to be a cause of the mind's being actual at all.

So, like Newton's law of inertia, relativity in no way undermines the principle that *whatever goes from potential to actual has a cause*. The most it does is to affect *how* we apply this principle, but not *whether* we need to apply it.¹⁷

Quantum mechanics and causality

The same must be said in response to objections to the principle of causality that appeal to quantum mechanics. There are at least three objections of this sort. The first is that the nondeterministic character of quantum systems is incompatible with the principle of causality. The second is that the Bell inequalities show that there are correlations without a causal explanation.¹⁸ The third is that quantum field theories show that particles can come into existence and go out of existence at random.

As to the objection from indeterminism, it is sometimes pointed out in response that the de Broglie-Bohm hidden variable interpretation provides a way of seeing quantum systems as deterministic.¹⁹ But from an Aristotelian point of view it is a mistake to suppose in the first place that causality entails determinism. For a cause to be sufficient to explain its effect, it is not necessary that it cause it in a deterministic way. It need only make the effect intelligible. And that condition is satisfied on a nondeterministic interpretation of quantum mechanics. As Robert Koons writes:

According to the Copenhagen version of quantum mechanics, every transition of a system has causal antecedents: the preceding quantum wave state, in the case of Schrödinger evolution, or the preceding quantum wave state plus the observation, in the case of wave packet collapse.²⁰

As to the objection from the Bell inequalities, it is sometimes suggested that one could respond to it by denying that causal influences never travel faster than light,²¹ or by allowing for either backward causation, or an

absolute reference frame, or positing a law to the effect that the correlations in question take place.²² As to the objection that particles can come into or go out of existence at random in a quantum vacuum, Alexander Pruss suggests that here too one might propose a hidden variable theory, or, alternatively, propose that the system described by the laws of quantum field theory is what causes the events in question, albeit indeterministically.²³

Of course, all such proposals raise questions, though the interpretation of quantum mechanics is a notoriously vexed issue in any event. But that brings us to the deeper point, which is the one made above in response to the objection from Newton's law of inertia. As Weisheipl wrote, "The nature of mathematical abstraction. . . must leave out of consideration the qualitative and causal content of nature. . . . Since mathematical physics abstracts from all these factors, it can say nothing about them; it can neither affirm nor deny their reality."²⁴ This is as true of quantum mechanics as it is of Newtonian mechanics. What we have is what Martin calls a "partial consideration" of material reality by way of "mathematicization". As Russell acknowledges, physics leaves "the intrinsic character" of what it describes in terms of mathematical structure "completely unknown".²⁵

Hence, that quantum theory fails to assign a cause to a phenomenon simply does not entail that there isn't one, since *even a completed* physical theory could not capture every aspect of the phenomena it describes in the first place. The absence of something in a representation of nature is not the same thing as a representation of its absence from nature. Its absence from the representation does not even make it *likely* that it is absent from nature, if we already know independently that the representation would leave it out even if it is there. Hence, if an artist represents a scene he is looking at in a black-and-white line drawing, the fact that there is no color in the drawing does not show that there is no color in the scene itself. The colorlessness of the image is an artifact of the artist's method, not of the phenomenon represented. Similarly, the "mathematicization" to which physics confines itself *already* by its nature leaves out potentiality and other notions essential to causality as the Aristotelian understands it. It is the *method* that drains causality out of the world, with quantum mechanics being something like a limiting case. The four-dimensional block universe interpretation of relativity is another limiting case, entailing as it does a picture of the world from which change and thus potentiality are absent. In both cases we have physical theories which tell us, not whether causality exists in the world itself, but what sort of representation of the world we get when we consistently abstract from causal notions. To draw philosophical conclusions about causality from such theories is to mistake abstractions for concrete realities. As with the objection to the principle of causality from inertia,

then, the objection from quantum mechanics is not even well-formulated.

It is worth adding that there is even a sense in which quantum mechanics, if it has any implications for causality at all, if anything points *toward* rather than away from the Aristotelian position. To see how, consider once more the analogy of the artist's black-and-white line drawing. Again, the drawing by itself does not give us evidence that there is no color in the scene represented, since we know that the artist's exclusive use of black-and-white materials would never capture the color even if it is there. However, his use of those materials could indicate that there *is* color in the scene represented, in the following way. We are familiar with line drawings which represent a contour by depicting it in black ink. The contour of a face, for example, might be portrayed by a set of black lines, as in a comic book. In what is called a "color hold", however, some contours in a finished piece of artwork are not represented in black ink, but only in the color that will be added to the black-and-white line drawing. The black-and-white line art might leave off the contour of one side of an object, for example, with the contour of that side being represented by the color that will be added to the line art. If one sees only the unfinished line art itself, from which the color is absent, one will not see this particular contour. He will accordingly not see that part of the object represented. He might, however, be able to infer from the contours that have been rendered in black that the rest of the object—the part that the colored artwork will portray—must be present in the scene represented. For instance, he might infer from the presence in the line art of several straight lines and shadows that what is being represented is a cube, and deduce where the edges of the cube that are not drawn in black ink would go. The viewer could mentally "fill in" what is missing from the artwork, and what the finished, colored artwork would have represented.

Now I have suggested that quantum mechanics and physical theories in general are like the black-and-white artwork, and physical theory together with Aristotelian metaphysical principles like the principle of causality is like the black-and-white artwork once it is colored. And there is a sense in which quantum theory might be understood as analogous to a piece of black-and-white artwork to which a "color hold" is going to be added—a piece of artwork whose lines do not represent, but nevertheless suggest, at least partially, the presence of causality in the reality that is being represented. In particular, as Werner Heisenberg suggested, quantum theory points to something like the Aristotelian notion of potentiality. Regarding the "statistical expectations" that quantum theory associates with the behavior of an atom, Heisenberg wrote:

One might perhaps call it an objective tendency or possibility, a "potentia" in the sense of Aristotelian philosophy. In fact, I believe that the language actually used by physicists when they speak about atomic events produces in their minds similar notions as the concept

“potentia.” So the physicists have gradually become accustomed to considering the electronic orbits, etc., not as reality but rather as a kind of “potentia.”²⁶

We might say that insofar as quantum theory—in its indeterminism, in the Bell inequalities, and in the notion of particles popping into existence in a quantum vacuum—portrays the actualization of potential without portraying something doing the actualizing, it approximates the notion of potentiality without actuality.²⁷ The four-dimensional block universe interpretation of relativity theory, meanwhile, approximates the notion of actuality without potentiality. Now, since causation involves the actualization of potential, any description which leaves out one or the other is going to leave out causation. In the case of the four-dimensional block universe, what is left out is any potential needing to be actualized; in the case of quantum theory, what is left out is anything to actualize the potential. In both cases what is missing is missing, not because it is absent from reality, but because it is bound to be absent from a consistently mathematicized description of reality.

Finally, as with objections to the principle of causality which appeal to inertia, objections which appeal to quantum mechanics are, ultimately, appeals to laws of physics. And as has been pointed out already, a law of physics is (the Aristotelian argues) a shorthand description for the way a thing will behave given the nature or form it possesses. Thus, to explain something in terms of the laws of physics is hardly an *alternative* to explaining it in terms of the actualization of a potential. For what makes it the case that there actually are things that have the sort of nature or form in question rather than another? What makes it true that things are governed by the laws of quantum mechanics rather than some alternative laws? What actualizes that potential, specifically?

Hence, consider radioactive decay, which is usually regarded as indeterministic, and thus often claimed to pose a challenge to the principle of causality. Specifically, consider an example given by philosopher of science Phil Dowe:

Suppose that we have an unstable lead atom, say Pb^{210} . Such an atom may decay, without outside interference, by α -decay into the mercury atom Hg^{206} . Suppose the probability that the atom will decay in the next minute is x . Then

$$P(E|C) = x$$

where C is the existence of the lead atom at a certain time and E is the production of the mercury atom within the minute immediately following t_1 .²⁸

Now, from an Aristotelian point of view, what is going on here is that Pb^{210} simply behaves, like all other natural objects do, according to its

defending rest on outdated science. Sometimes this sort of objection takes the form of a sweeping assertion to the effect that Aristotelianism as a general worldview was refuted by modern science. Hence (it is concluded), an Aristotelian argument for God's existence is no more relevant today than Aristotelian astronomy is. The trouble with this sort of objection is that it is intellectually sloppy, running together issues that need to be kept distinct. "Aristotelianism", as a label for the system of thought that the early modern philosophers and scientists rebelled against, covers an enormous variety of philosophical, scientific, theological, and political ideas and arguments. It is true that certain specifically scientific theses associated with medieval Aristotelianism—such as geocentrism, the ancient theory of the elements, and the notion that objects have specific places toward which they naturally move—have been refuted by modern science. But it simply doesn't follow that *every* idea which might be characterized as "Aristotelian" has been refuted by modern science. For example, the thesis that change entails the actualization of a potential—which is a philosophical or metaphysical thesis rather than a scientific thesis—has in no way been refuted by modern science. On the contrary, since, as has already been pointed out, the very enterprise of science presupposes the existence of change (insofar as, for example, observation and experiment presuppose the transition from one perceptual experience to another), the Aristotelian would argue that any possible scientific theory thereby presupposes the actualization of potential. In a later chapter I will discuss in more detail the ways in which science rests on philosophical or metaphysical foundations which only the philosopher, and not the scientist, can rationally justify. It is upon these deeper and rationally more secure metaphysical foundations that the arguments for God's existence defended in this book rest, rather than on any claims that might in principle be upended by natural science.

Sometimes the objection in question instead takes the form of the claim that specific examples of the sort used in arguments like the one I have given rest on mistaken scientific assumptions. For example, I spoke in my informal presentation of the Aristotelian argument for God's existence of a desk holding up a coffee cup, where the desk can do so only because it is itself being held up by the floor. But someone familiar with physicist Arthur Eddington's book *The Nature of the Physical World* might conclude that the example is faulty. Eddington famously begins the book by contrasting the way a table is understood by common sense with the way it is described by science.³² Common sense regards the table as a single extended, substantial object. Physics describes it as a cloud of particles in mostly empty space. When an object rests on the table, the reason it does not fall through this cloud of particles is that the particles continuously hit against the underside of the object and thereby maintain it at a steady level. But the object itself is also essentially a cloud of particles, which hit against the table. Hence (the objection might go), the

we fell into a black hole or rode on a beam of light, no one thinks it clever to respond that photons are too small to sit on or that we would be ripped apart by gravity before we made it into the black hole. Everyone knows that such objections would be pedantic and would entirely miss the point the physicist is trying to make. But to object to examples like the cup holding up the table on the grounds that this ignores the way the situation looks from the point of view of particle physics is no less pedantic or point-missing, and would remain so even if there *were* a conflict on this issue between physics and common sense.

Are hierarchical causal series real?

A critic might still try to raise one further objection from science. I have said that any stage in a linear series of causes and effects that extends through time presupposes a more fundamental hierarchical causal series whose members all exist at that particular moment of time. But are there really any causes and effects that exist simultaneously in this way? To be sure, in everyday contexts we often speak as if there were. We might say, for example, that when one pushes a stone with a stick, the motion of the stick and that of the stone are simultaneous. But isn't this true only in a loose sense? Wouldn't measurement with precision instruments reveal a slight time lag between the movement of the stick and that of the stone? Or to take the example I used earlier, wouldn't there also be a slight time lag between the motion of the particles that make up the desk and the motion of the cup the desk holds up, so that the cup's being held at a certain level isn't exactly simultaneous with what is going on in the desk? Moreover, doesn't relativity theory cast doubt on the whole idea of simultaneity anyway?

The first of several points to make in response to all of this is that it is simply a mistake to think that being *simultaneous* entails being *instantaneous*. An event like someone's using a stick to move a stone is of course spread out through time rather than occurring in a single instant. But to say that the motion of the stick and that of the stone are simultaneous is not in the first place to say that they occur in a single instant. It is rather to say that the stick's moving the stone and the stone's being moved by the stick are part of the same one event, however long this event lasts. As Clarke (citing a different example) points out, "It indeed takes me time to push a chair across the room; but there is no time at all between my pushing the chair and the chair being pushed."³⁴

Hume took the view that a cause and its effect are always separated in time, but as Stephen Mumford and Rani Lill Anjum argue, the standard examples used to support this claim are not convincing.³⁵ For instance, to say (as a follower of Hume would) that the motion of billiard ball A caused the later motion of billiard ball B is not quite right, for A's motion

could have been stopped before A had any causal influence on B, and B's motion may or may not continue regardless of the continued presence of A. It is only at the point of impact that there is really any causation going on vis-à-vis A and B. But ball A's impacting B and B's being impacted by A are not temporally separated. They are just the same event. Neither is it quite right to speak (as a Humean would) of *the throwing of a brick* causing *the breaking of glass*. It is rather the brick's pushing into the glass that is the immediate cause and the glass' giving way that is the effect, and these (unlike *the throwing of the brick* and *the breaking of the glass*) are not temporally separated but rather parts of one and the same event. Of course, the motion of billiard ball A and the throwing of the brick are causally relevant, and there is a perfectly legitimate sense in which we can speak of them as causes of the effects in question. But what they are not are the *immediate* causes of these effects, and *immediate* causes are always simultaneous with their effects.

But (it might be objected) would this not make all the causes and effects in a causal chain simultaneous, which would have the absurd implication that there are no causal chains extended through time? No. For one thing, remember that "simultaneous" does not entail "instantaneous". The single event in which a cause generates its effect can take place over the course of seconds, minutes, even hours or much longer. (Think of a potter molding a vase, a cube of sugar dissolving in water, or a heater warming a room.) For another, as Mumford and Anjum note, we must "[distinguish] causal episodes that are a part of a single process from causal processes that are enabled by powers instantiated in earlier causal processes".³⁶ Consider, to borrow their example: a cube of sugar being dissolved in tea, followed ten minutes later by the tea being drunk, which is then followed in turn by the tea's being converted into energy after it reaches the stomach. Each of these three events is a causal process, but they are not themselves related causally *in the sense* in which causation occurs *within* each event. That is to say, the sugar dissolving in the tea is one causal process, but it does not in turn cause the drinking of the tea. Rather, it results in a set of conditions, which ten minutes later play a role in the separate causal process of the tea's being drunk. Nor does the drinking of the tea cause the conversion of the tea into energy. Rather, it is one causal process which sets up the conditions for the other (even if in this case there is a partial temporal overlap between the two processes). What we don't have is one process causing another which causes another *in the sense* in which (say) the water and molecular structure of the sugar cube cause dissolution. In that latter process the cause and effect are simultaneous. But since the tea's dissolving is not in the same sense a cause of the drinking of the tea, there is no question of simultaneity and thus no question of this long series of events (sugar dissolving, tea being drunk, tea converted to energy) collapsing into one big simultaneous causal event.

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The Neo-Platonic Proof

Informal statement of the argument: Stage 1

The things of our experience are made up of parts. Suppose you are sitting in a chair as you read this book. The chair is made up of parts, such as the chair legs, the screws that hold the legs to the frame of the chair, the seat and back of the chair, and a cushion and the fabric that covers it. The book itself is made up of parts, such as the cover, the pages, the glue that secures the pages to the cover, and the ink on the pages. You are yourself made up of parts, such as your arms and legs, eyeballs and ears, bones and muscles, and all the rest.

There is a sense in which, in each of these cases, the parts are less fundamental than the whole. After all, we understand what a leg or an eyeball is by reference to the whole organism whose leg or eyeball it is. A leg is something which helps an organism to move about, and an eyeball is something which allows the organism to have visual experiences of objects in its surrounding environment. The parts of the book and the chair are also to be understood by reference to the whole. A book cover is something that protects the pages of the book and indicates, via the words written on it, the author of the book and something of the book's contents. A chair leg is something which holds the chair up, a cushion something that functions to make the chair comfortable for the person sitting in it, and so forth.

Still, there is obviously also another sense in which each of these wholes is less fundamental than its parts. For the whole cannot exist unless the parts exist and are combined in the right way. For example, if there were no chair legs, no frame, or no seat, the chair would not exist. Neither would it exist if these parts were simply thrown in a pile or put together in the form of a table (say), rather than assembled into a chair, specifically. Similarly, the book would not exist if the pages, cover, glue, and so forth did not exist, or if they existed but were scattered across a field. Your body would not exist if your arms, legs, eyes, ears, bones, muscles, and so forth were similarly scattered across the field or lumped together into a big pile, instead of being configured in the normal way.

So, the things of our experience are *composite*, or composed of parts. And a composite is less fundamental than its parts in the sense that its existence presupposes that its parts exist and are put together in the right way. You might think that this has essentially to do with there being some

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“third realm” of Forms. How do they exist, then? Consider, once again, the example of the universal *animality*. In the world outside the mind, *animality* exists only in actual animals, and always inseparably tied to either rationality or nonrationality. Hence, there is animality in Socrates, but it is there inseparably tied to his rationality, and specifically to his humanness. And there is animality in Fido, but it is there inseparably tied to nonrationality, and specifically to “dog-ness”. *Animality* considered in *abstraction* from these things exists only in the mind. The senses observe this or that individual man, this or that individual dog; the intellect goes on to abstract away the particular, individualizing and differentiating features of each of these, and considers the *animality* in isolation, as a universal. This Aristotelian realist position is not nominalist, because it holds that universals exist. But neither is it conceptualist, because while it holds that universals *considered in abstraction from other features* exist only in the mind, it also holds that universals exist in the extramental things themselves (albeit always tied there to other features). The universals are abstracted *from these extramental things* by the mind, rather than being the free creations of the mind.

Aristotelian realists emphasize that abstraction is essentially a mental process, so that abstract objects are essentially tied to the mind. Hence, though *animality*, *triangularity*, *redness*, *humanness*, and so forth do exist in mind-independent reality, they do not exist there *as abstract objects*, but only as tied to concrete particular individuals. And though *animality*, *triangularity*, *redness*, *humanness*, and so forth can nevertheless exist as abstract objects, they do not so exist *in mind-independent reality*. There is no third Platonic alternative way for universals to exist—namely, as *both* abstract *and* mind-independent at the same time. As David Oderberg sums up the view:

Consider what all squares have in common: there is something they literally share, namely squareness. But one might complain, “We never encounter squareness, only square things.” To which the [Aristotelian] realist replies that we *do* encounter squareness all the time—in the square things. “But I mean we never encounter squareness *in the abstract*.” To which the reply is that this is correct: we do never encounter squareness in the abstract, because squareness in the abstract is not something we ever *could* encounter—what would such an encounter be like? Rather, we do not encounter squareness in the abstract because squareness is something that we abstract—*from the square things*. In short, nothing abstract exists without abstraction. And abstraction is an *intellectual* process by which we recognize what is literally shared by a multiplicity of particular things.²

An Aristotelian realist analysis can also be given of at least some possible and necessary truths. For the Aristotelian, what is possible or necessary vis-à-vis a thing is determined by its essence, and its essence is (apart from the mind’s abstraction of it) something that exists in the thing itself rather than in some Platonic “third realm”. Hence, it is possible, for

example, for the average man easily to hold his breath for ten seconds, but impossible for him to hold it for ten hours, and it is necessarily the case that if he dies, he cannot be brought back to life by natural means. These possibilities, impossibilities, and necessities are grounded in human nature, and when the mind abstracts the universal *humanness* from the individual men it encounters, it can deduce from consideration of it these and other possibilities, impossibilities, and necessities. It is also impossible for two men and two further men together to add up to twenty men, and necessary that they add up instead to four men. These truths are grounded in the natures not only of men but of every other thing too, and when the mind abstracts even more general mathematical features of things, it can deduce from them further mathematical truths.

However, there are universals, propositions, mathematical objects, necessities, and possibilities that the Aristotelian realist is bound to have a more difficult time dealing with. For example, suppose no material world or human minds had existed at all. This is surely possible. But it also would still have been possible in that circumstance for a material world and human minds to *come into* existence. What would ground *that* possibility? It cannot be grounded in the essence or nature of any material object, since by hypothesis there would in that case have been no material objects. Nor could it be grounded in the essence or nature of material objects at least as abstracted and grasped by a human mind, since by hypothesis there would in that case be no human minds either.

Or consider things which not only could have failed to exist, but in fact fail ever to exist—unicorns, centaurs, mermaids, and the like. It is at least possible for such things to exist, and *unicornity*, *centaur-ness*, *mermaid-ness*, and so forth are universals, even if they are uninstantiated. Now what grounds their possibility cannot be the essences or natures of actual unicorns, centaurs, and mermaids, since there have never been such things. Nor can their possibility be grounded in the human minds which entertain the ideas of these things, for these things were all possible even before human minds entertained the ideas. But what, then, can ground the possibility of these “pure possibles” (as they are sometimes called)?

Consider also, and again, that there are propositions that would be true whether or not the material world or any human mind existed. For example, the proposition that *there is no material world nor any human mind in existence* would be true if the material world and human minds all went out of existence tomorrow, and would have been true if neither had come into existence in the first place. The proposition that *Caesar was assassinated on the Ides of March*—and every other proposition about historical events—would also remain true even if the material world and human minds all went out of existence tomorrow.

Then there are the necessary truths of mathematics and logic. These too would have been true whether or not any material world or human minds had ever existed, and these too would remain true even if the entire

material world and all human minds went out of existence tomorrow. So, what grounds this necessity?

This brings us, at last, to *Scholastic* realism, which is essentially Aristotelian in spirit, but gives at least a nod to Platonic realism.⁸ Like Aristotelian realism, Scholastic realism affirms that universals exist only either in the things that instantiate them, or in intellects which entertain them. It agrees that there is no Platonic “third realm” independent both of the material world and of all intellects. However, the Scholastic realist agrees with the Platonist that there must be some realm distinct both from the material world and from *human* and other finite intellects. In particular—and endorsing a thesis famously associated with Saint Augustine—it holds that universals, propositions, mathematical and logical truths, and necessities and possibilities exist in an *infinite, eternal, divine* intellect. If some form of realism must be true, then, but Platonic realism and Aristotelian realism are in various ways inadequate, then the only remaining version, Scholastic realism, must be correct. And since Scholastic realism entails that there is an infinite divine intellect, then there really must be such an intellect. In other words, God exists.

Informal statement of the argument: Stage 2

That, anyway, is the basic thrust of what is sometimes called the “argument from eternal truths” for the existence of God, historically associated with Augustinian philosophy and defended also by thinkers like G. W. Leibniz. Let’s make the reasoning of the argument more explicit.

We have seen why, contra nominalism and conceptualism, some form of realism vis-à-vis abstract objects like universals, propositions, numbers and other mathematical objects, and possible worlds must be true. Now, one implication of the arguments was that, whatever mode of existence these objects have, they do not (or at least a great many of them do not) depend on the material world. Material things are always particular. There’s this particular triangle and that one, this particular red object and that one, and so on. But *triangularity* and *redness* are universal. At least some propositions would be true whether or not the material world exists, and this is true especially of logical and mathematical propositions. The material world is contingent, whereas some propositions, including propositions of mathematics and logic, are true necessarily. There are possibilities that would remain possibilities whether or not the material world existed. And so forth. So, these abstract objects must exist in one of the two other possible ways, either in some intellect or collection of intellects, or in a Platonic “third realm”. But the notion of a “third realm” faces insuperable problems of its own, which means that these abstract objects must exist in an intellect or collection of intellects.