

If we assume that everything there is or could be is subject to the flow of time—almost certainly not a wise assumption—we could say that a possible world is a complete history-and-future that the World might have (or might have had), one whose completeness extends to every detail.

In order to make full use of the concept of a possible world, we need the idea of *truth* in a given possible world and we need the idea of *existence* in a given possible world. While various technical accounts of these ideas are available, we shall be content with an intuitive or impressionistic account of them. A few examples should suffice. If in a given world x there are no dogs—if that is how x specifies things: that there are no dogs—then in x dogs do not exist, and it is true in x that there are no dogs, and the proposition (assertion, statement, thesis) that there are no dogs is true in x . If in a given possible world y Napoleon won the battle of Waterloo, then it is true in y that Napoleon won the battle of Waterloo, and the proposition that Napoleon won the battle of Waterloo is true in y . And, of course, Napoleon must *exist* in y , for one cannot win a battle if one does not exist. But there are possible worlds in which Napoleon was never born (or even conceived) and in those possible worlds he does not exist.

Once we have the notion of a proposition's being true in a possible world, we can say what it is for a proposition to be *possibly true* and for a proposition to be *necessarily true*. A proposition is possibly true if it is true in *at least one* possible world, and necessarily true if it is true in *all* possible worlds.

The possible world that specifies the way the World really *is* is called *the actual world*. A more formal definition is this: a possible world w is the actual world just in the case that something is true in w if and only if it is—without qualification—true.⁵ It is important not to confuse the actual world with the World. The actual world is a mere specification, a description of a way for things to be. It has only the kind of abstract reality that belongs to a story or a scenario or a computer program. The World, however, is not a description of a way for things to be: it is, so to speak, the things themselves. If it is an individual thing, it has you and me and every other individual thing as parts. If it is not an individual thing but a mere collection, it is at least the collection of all individual things. It is the features of the World that make one of the possible worlds the one that is actual, just as it is the geographical features of the earth that make some maps accurate or correct and other maps inaccurate or incorrect. It is the features of the World that confer on exactly one among all the ways things could be the status "the way things *are*."

It is not necessary to make use of the concept of a possible world in presenting the "modal ontological argument," but it is advisable, since the English grammatical constructions used in formulating modal reasoning are sources of much ambiguity, and this ambiguity can cause logically invalid arguments to look as if they were valid.⁶ The easiest and most elegant way to avoid these ambiguities is to carry on discussions that involve modal reasoning in terms of possible worlds.

In order to state the modal ontological argument, we need two notions: the notion of a necessary being and the notion of something's having a property (feature, attribute, characteristic) essentially.

We have already met the notion of necessary existence in our discussion of Descartes's ontological argument. A necessary *being* is simply a being that possesses necessary existence. But we may define this concept very simply in terms of the concept of a possible world: a necessary being is a being that exists in all possible worlds

(and necessary existence is the property of existing in all possible worlds). Beings that are not necessary are called *contingent*. That is, a contingent being is simply a being that exists in some but not all possible worlds. You and I and every object of our experience are, no doubt, contingent beings. You, for example, do not exist in any possible world in which you were never conceived (and this would certainly seem to be a possible state of affairs).

The concept of the essential possession of a property is this: a thing has a property essentially just in the case that that property is a part of the thing's nature, so inextricably entwined with the thing's being that it could not exist if it did not have that property. We may explain this notion in possible-worlds language as follows: for a thing x to have a given property essentially is for x to have that property in every possible world in which x exists. It should be emphasized that this is a definition, not a recipe. It tells us what the essential possession of a property is, but it does not give us a method for determining whether a particular property is in fact possessed essentially by a particular thing.

Consider you, for example, and the property humanity, or being human. Obviously you *have* this property—you *are* human—but do you have it *essentially*? Is being human so "inextricably entwined with your being" that you could not exist without being human? Are you a human being in every possible world in which you so much as exist? This is a metaphysical question, and a very controversial one. Philosophers disagree about how to answer this question because they disagree about what you *are*, and, as a consequence, they disagree about what you *could have been*. But for our present purposes it will not be necessary to have any uncontroversial examples of the essential possession of a property (which is fortunate, for few if any examples of "essential properties" are uncontroversial); it is enough that we understand what is meant by the essential possession of a property. It will sometimes be useful to have a term to oppose to "essentially" in discussions of the possession of a property by a thing. If a thing has a property but does not have it essentially, we say it has that property *accidentally*.

The ontological argument is, or claims to be, a proof of the existence of a perfect being. And what is a perfect being? A perfect being, Descartes tells us, is a being possessing all perfections. But now let us raise a question this formula does not answer. When we say that a perfect being possesses all perfections, do we mean that a perfect being possesses all perfections essentially or could a being be a perfect being if, although it indeed had every perfection, it had some or all of its perfections only accidentally? In order to see more clearly what is at stake in this question, let us look at a particular perfection. We may not be sure exactly which properties are perfections, but it seems reasonable to suppose that wisdom is among them. If this is not right, however, it will make no difference to our argument, which—with one exception, as we shall see—does not make any assumptions about which properties are perfections. We choose wisdom only to have something to use as a reasonably plausible example of a perfection.

Let us consider two (equally) wise beings, one of which has its wisdom essentially and the other of which has its wisdom only accidentally. This means that while one of the two beings would have been wise no matter what (as long as it managed to exist at all), the other might have been unwise. The nature of the former being is incompatible with un wisdom, and the nature of the latter is compatible both with wisdom and with un wisdom. Although it is a matter of necessity that the former is wise, given that it exists, it is, speaking metaphorically, not a matter of necessity that the latter is wise, given that

wisdom is, so to speak, a gift of the circumstances in which that being happens to exist, and that gift would not have been conferred by other sets of circumstances, circumstances in which that being might have found itself. (This is certainly the way most of us look at the wisdom of human beings. If Alice is, as we all agree, wise, we do not suppose that it follows from the undisputed fact of her wisdom that she would have been wise if she had been raised among people who provided her with no examples of wisdom or if she had been raised in grinding poverty that left her with no leisure for reflection. And we should probably agree that she would definitely *not* have been wise if she had, as a small child, suffered brain damage that had left her with severely diminished mental capacities.)

Now—we continue to assume for the sake of the illustration that wisdom is a perfection—which of our two beings is a better candidate for the office “perfect being”? The example seems to offer fairly strong support for the thesis that the essential possession of a perfection brings a being closer to the status “perfect” than does the merely accidental possession of that same perfection. Let us therefore say that a perfect being is a being that possesses all perfections and, moreover, possesses those perfections essentially and not merely accidentally—of its own nature, and not merely as a gift of circumstance.

And what properties are perfections? As I said, we shall make only one assumption about this. We shall assume that *necessary existence* is a perfection. And this does not seem to be an implausible assumption. As we said in our discussion of Descartes’s ontological argument, if a being exists necessarily, its existence does not depend on the vagaries of chance, for its existence is absolutely inevitable. Is not “just happening to exist” a disqualification for the office “perfect being”? Must we not, therefore, count necessary existence as a perfection?


That necessary existence is a perfection is one of the premises of the modal ontological argument. The argument has only one other premise: that a perfect being is possible—or, equivalently, that a perfect being is not *impossible*. And such a premise must in some sense be required by any argument for the existence of anything, since an impossible being—a round square, say, or a liquid wine bottle—by definition cannot exist. Here, then, is the modal ontological argument:

- A perfect being (that is, a being that possesses all perfections essentially) is not impossible.
 - Necessary existence is a perfection.⁷
- Hence, A perfect being exists.

Our first task will be to show that this argument is logically valid—that is, that its conclusion (that a perfect being exists) follows logically if its two premises are granted. Our next task will be to see whether the two premises *should* be granted. And this will come down to the task of seeing whether the first premise (that a perfect being is not impossible) should be granted, for we have already said about as much as there is to be said on the question whether necessary existence is a perfection.

We proceed to show that this argument is valid. It will be easiest to display the reasoning behind the modal ontological argument diagrammatically. Let us suppose (just to keep the diagram manageable; our argument in no way depends on how many pos-

sible worlds there are) that there are exactly four possible worlds, which we shall call One, Two, Three, and Four. We shall represent each possible world by a circle. And let us represent the assertion that, in a given possible world, there exists something having a given property, by placing inside the circle representing that possible world a symbol representing that property. For example, if ‘W’ represents wisdom, then the figure

Four 

represents the assertion that in Possible World Four there exists something wise. An let us represent the assertion that a given possible world is actual by placing the symbol ‘<’ to the right of the circle representing that possible world. (We shall call this symbol the ‘actuality cursor’, since it will be useful to think of it as a movable ‘pointer.’) Thus, the figure

Two 












represents the assertion that Possible World Two is the actual world, and the figure

One 

represents the assertion that Possible World One is actual and contains something wise. By a *world-diagram* we mean a diagram satisfying two conditions: first, the diagram must contain labeled circles representing each of the possible worlds, and, secondly, the diagram must contain the actuality cursor (the symbol ‘<’), placed to the right of exactly one of the circles. (The second condition corresponds to the fact that exactly one possible world is actual.)

In addition to these two “required” features, a world-diagram may also have the following “optional” feature: it may contain any number of symbols representing properties, these symbols being placed inside any or all of the circles. If a symbol representing a certain property occurs anywhere in a world-diagram, its absence from a circle in that diagram represents the assertion that in the world that circle represents nothing has that property.

The following figure satisfies the defining conditions of a world-diagram and therefore is a world-diagram:

One    
 Two   
 Three   
 Four 

A world-diagram is to be understood as telling us which possible worlds there are and which of them is the actual world; it may also tell us whether, in various of those possible worlds, there are things having certain specified properties. The above dia-

gram represents the assertions that there are exactly four possible worlds, One, Two, Three, and Four, that Three is the actual world, that in worlds One and Four something is wise, and that in worlds Two and Three nothing is wise.

A world-diagram is said to be "correct in" a given possible world if (and only if) every assertion represented in the diagram is true in that possible world. The above diagram is correct in Possible World Three if it is true in Three that there exist exactly the four possible worlds displayed in the diagram, that Possible World Three is the one that is actual, that in worlds One and Four something is wise, and that in worlds Two and Three nothing is wise.

Let us now see how world-diagrams can help us with the question whether the conclusion of the modal ontological argument follows from its two premises. Let us assume for the sake of argument that the premises of the modal ontological argument are both true and see whether we can deduce its conclusion from this assumption. The first premise tells us that a perfect being, a being having all perfections essentially, is possible. That is to say: in at least one possible world there exists a being who has all perfections essentially. Let us arbitrarily assume that such a being exists in Possible World Two—that Two is the possible world, or one of the possible worlds, in which there is a perfect being. Our arbitrary choice of Possible World Two as a "starting point" can do no harm since, according to the premise whose truth we have assumed, a perfect being must exist either in One or in Two or in Three or in Four (or else in more than one of these four possible worlds), and we shall see that the reasoning we are about to examine would lead to the same conclusion no matter which possible world we took as our starting point.

Let us use the symbol 'P' to stand for the property of being a perfect being (that is, the property of having all perfections essentially), and let us suppose that a certain inhabitant of Possible World Two, William, is set the task of drawing a world-diagram showing how the property P is, as we might say, distributed among the possible worlds. William, let us suppose, knows there is a perfect being in Two, and he therefore begins drawing his diagram as follows:

Two (P) <

Why does William place the actuality cursor to the right of the circle representing Possible World Two? Well, we are imagining William's constructing his diagram in Possible World Two, and it is true in Possible World Two that Possible World Two is the actual world. (In general, it is true in any given possible world that *that* possible world is the actual world—just as it is true in any story that everything in that story is true.)

Can William fill in the rest of the world-diagram he has begun? He can, for he may reason as follows. "Let's see. . . I know a perfect being exists. Suppose I call that being—or one of them if there's more than one—'X'. X has all perfections, and one perfection is necessary existence. Therefore, X exists in all possible worlds. Moreover, I know that X has all perfections essentially. That is, I know that X has all perfections in every possible world in which X exists. I can infer that, in every possible world, something—X—has the property P. Therefore, the following world-diagram

One (P)
Two (P) <
Three (P)
Four (P)

correctly represents the distribution of the property P among the various possible worlds."

Let us assume for the moment that the reasoning we have attributed to William is correct. Then—given the truth of our two premises—it follows that the world-diagram William has drawn is correct in Possible World Two. Can we infer from this anything about which world-diagrams are correct in the other three possible worlds? We certainly cannot infer that *this* world-diagram is correct in any other possible world, for this diagram tells us that Possible World Two is the actual world, and that proposition is, as we have seen, true only in Two. But let us make just one change in William's diagram; let us take the actuality cursor and "slide it down a notch," so that it is placed beside the circle representing Possible World Three:

One (P)
Two (P)
Three (P) <
Four (P)

The revised diagram says that Possible World Three is the actual world. This assertion is true in Possible World Three. Does it follow from the assumption that William's diagram is correct in Two that the revised diagram is correct in Three? The following general principle of modal reasoning would justify this conclusion:

If a world-diagram is correct in the possible world x , then the diagram obtained from it by moving the actuality cursor until it is beside the circle representing the possible world y is correct in the possible world y .

This principle seems intuitively very plausible. All it really says is (i) that the same possible worlds exist from the perspective of every possible world, and (ii) that the "inner" or intrinsic features of a given possible world are features that world has from the perspective of every possible world. It could be summed up in the following slogan: the only thing that changes from possible world to possible world is which possible world is actual. But this slogan is ambiguous, for there is a sense in which lots of other things "change from possible world to possible world": who won the battle of Waterloo, the population of Russia, whether I exist—in fact, everything that could be different. A more cautious way to put the thought the slogan is intended to convey is

that there were just four possible worlds. And neither did it depend on our arbitrary choice of Possible World Two as our "starting point": if we had begun by assuming that a perfect being existed in One or in Three or in Four, we should have got the same result.)

Have we therefore proved the existence of a perfect being? If we have, then we have answered the question, Why should there be anything at all? If there has to be a perfect being—and the modal ontological argument claims to show not only that there is a perfect being, but that there *has to be* one—then it is impossible for there to be nothing at all. But the modal ontological argument rests on two premises and a general principle of modal reasoning. And at least one of these three things is far from evident: that a perfect being is not impossible. Our argument perhaps shows that the concept of a perfect being is in an important way unlike the concept of a lion or a unicorn. It is not impossible for there to be unicorns,⁸ but there are none. If there were no lions, it would nevertheless be possible for there to be lions, and lions, despite their possibility, would not exist. (A perfect being, however, is not like that: if a perfect being is so much as intrinsically possible—like a unicorn, and unlike a liquid wine bottle—then a perfect being really does exist.) But is a perfect being possible?

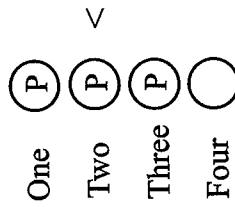
This is a question we cannot evade, for there can be no presumption in favor of possibility. It may be that in many areas of thought and inquiry one is entitled to assume that a certain concept is possible—not self-contradictory, not intrinsically impossible—in the absence of an argument for its impossibility, rather as, under Common Law, a person is to be presumed innocent of a charge till proved guilty. But this cannot be a presumption in any area of inquiry in which modal reasoning like that which we have been considering is employed. This contention is easily demonstrated by the fact that such a presumption of possibility would lead to contradictory results.

To see that this is a fact, consider the concept of a "known": the concept of a being who knows that there is no perfect being. There would seem to be no reason, on the face of it, to suppose that there being a knowno is an intrinsically impossible state of affairs, like there being a liquid wine bottle. But consider. If a knowno is not intrinsically impossible, there is a knowno in some possible world. But then there is a possible world in which there is no perfect being, since, if someone knows something, then what that person knows is true. And, as we have seen, if a perfect being is possible, then there exists a perfect being in every possible world. It follows that if a knowno is possible, a perfect being is impossible—and that if a perfect being is possible, a knowno is impossible. (The two statements 'If a knowno is possible, a perfect being is impossible' and 'If a perfect being is possible, a knowno is impossible' are logically equivalent.)

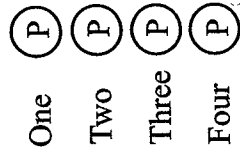
We have, therefore, a pair of concepts—the concept of a perfect being and the concept of a knowno—such that either of them is possible only if the other is impossible. And we have no argument for the impossibility of either concept. If we adopted the general rule "A concept is to be assumed to be possible in the absence of an argument for its impossibility," we should have to assume both these concepts to be possible, and we know that it is false that they are both possible. (It is interesting to note that we cannot consistently adopt the Common Law principle "A person is to be presumed innocent of a charge till proved guilty" if we know that either Alice or Bertram murdered Clara but have no proof that Alice murdered her and no proof that Bertram

It seems very plausible to suppose that although what is conditionally impossible may be different in different possible worlds, what is intrinsically impossible (and intrinsically possible) is the same in all possible worlds. A round square is intrinsically impossible, and it would have been intrinsically impossible no matter what: not only is there no possible world in which there are round squares, but there is no possible world in which it is true that there *could be* round squares. A sixty-meter-high marzipan statue of Lassie is intrinsically possible, and it would have been intrinsically possible no matter what: not only is there a possible world in which there is a sixty-meter-high marzipan statue of Lassie, but there is no possible world in which it is true that there *couldn't be* a sixty-meter-high marzipan statue of Lassie.

The lesson of our reply to the carping critic is this: the validity of the modal ontological argument depends on the assumption that what is intrinsically possible has that status as a matter of necessity. But that is no defect in the argument, for that assumption is very plausible indeed. Our "general principle of modal reasoning" in fact embodies this very plausible assumption. If we accept this principle, we immediately see that if the above world-diagram were indeed correct in Possible World Four, as suggested, then the "three world" diagram would not be correct in Two; instead—the principle says—the following diagram would be correct in Two:



Let us assume that the proposed general principle of modal reasoning is indeed correct. Then a world-diagram obtained from the figure



by an appropriate placement of the actuality cursor will be correct in every possible world. (The world-diagram obtained by placing the actuality cursor on the top line of the figure will be correct in Possible World One, the world-diagram obtained by placing the actuality cursor on the second line of the figure will be correct in Possible World Two, and so on.) Therefore, no matter which of the four possible worlds the actual world is, a perfect being exists in the actual world. (It should now be evident that our argument did not depend on our simplifying assumption, the assumption

murdered her. The best we can do in such a case if we want to be logically consistent is not to assume that Alice is guilty and not to assume that Bertram is guilty.

If we wish to evaluate the modal ontological argument, therefore, there is no alternative to attempting to find some argument for the conclusion that the concept of a perfect being is possible or else some argument for the conclusion that a perfect being is impossible.

How might we do this? Well, how, in general, do we go about finding out whether a concept is possible? The most reliable way of showing a concept to be possible is to show that it has *instances*: the most reliable way of showing the concept of a dog to be possible is to show that there are dogs; the most reliable way of showing the concept of a unicorn to be possible is to show that there are unicorns—and so on. But this method will not help us to find out whether the concept of a perfect being is possible, since we do not know whether there are any perfect beings. (Or, if some among us do know that there is a perfect being, or do know that there is no perfect being, this knowledge is certainly not *common* knowledge, and it is not, therefore, knowledge that we can appeal to in presenting a metaphysical argument that is not addressed to any particular group of people.)

What other methods are there? There is always the method of abstract metaphysical argument. The seventeenth-century metaphysician G. W. Leibniz claimed to have discovered a metaphysical argument demonstrating the possibility of a perfect being. (Leibniz, a very acute modal reasoner, saw that any successful version of the ontological argument must include a proof of the possibility of a perfect being.) His reasoning was as follows. A perfect being is a being possessing all perfections; a perfect being is therefore possible if all perfections are consistent with one another. And every perfection is a "simple, positive property." (A property is a "simple" property if it is not a complex that includes simpler properties, as *being both red and round* is a complex that includes both *being red* and *being round*. A property is a "positive" property if it is not a negative property: *being red* and *being round* are positive properties, and *not being red* and *being non-round* are negative properties.) And all simple, positive properties are consistent with one another, since the only way for two properties to be inconsistent is for one to be the negation of the other (example: *not being red* is the negation of *being red*) or for one to be a complex that includes the negation of the other or the negation of a property included in the other (example: *being round and not red* is inconsistent with both *being red* and *being hard and red*).

Leibniz held that most of our everyday adjectives stood for elaborate complexes of simple, positive properties and their negations. This is what makes it possible for, say, 'hard' and 'soft' to denote incompatible properties; a complete analysis of hardness and softness would bring to light at least one simple, positive property F such that one of the two includes F and the other includes the negation of F. It obviously follows from this analysis of inconsistency that no simple, positive property is inconsistent with any other simple, positive property. And, if every perfection is indeed a simple, positive property, it follows that a being who has all perfections is possible. (It does not, however, follow that a perfect being, in our sense of the term, is possible, for we have defined a perfect being as a being who has all perfections *essentially*. To reach the further conclusion that a perfect being in our sense was possible, we should need some further premise, such as 'If a property is a perfection, then the property of having *that*

property essentially is also a perfection'. An instance of this general thesis would be: If wisdom is a perfection, then *having wisdom essentially* is also a perfection. One might, of course, wonder whether *both* wisdom and *having wisdom essentially* could be simple, positive properties.)

There are a great many problems with Leibniz's argument. I will mention only one of them. It is not at all clear whether the idea of a simple, positive property makes any sense. Let us look just at the idea of a positive property (remarks similar to those that follow apply to the idea of a simple property). Consider the property *not having parts*. This would seem to be a pretty good example of a negative property, being obviously the negation of the property *having parts*. But suppose we call the property of not having parts 'simplicity', as Leibniz himself did. (He in fact regarded it as one of the perfections, and thus as a simple, positive property.) Then we can call the property of having parts 'non-simplicity', and, if we do our thinking in this terminology, it looks as if non-simplicity is the negative property, being the negation of simplicity. This case suggests that properties are not negative or positive *in themselves* and that the belief that they are is a mistaken inference from the fact that properties can have names that have negative or positive forms. There is a good deal more to this issue, however, and Leibniz would have a lot to say in reply to what I have said. In this brief passage I have tried only to give a rough idea of why I regard Leibniz's argument for the possibility of a perfect being as unsatisfactory.

If we find it difficult to show that the concept of a perfect being is possible, this could be because that concept is in fact impossible. If this were true, is there any way in which it might be demonstrated? A concept can sometimes be shown to be impossible by the deduction of a known impossibility (such as a formal contradiction) from the proposition that that concept applies to something. For example, the following argument shows that "round square" is an impossible concept: if there were a round square it would have corners (since it is square) and would also not have corners (since it is round).

The Anglo-American philosopher J. N. Findlay once claimed to be able to show that an impossibility could be derived from the concept of a perfect being. His argument was that a perfect being must be a necessary being, and that an impossibility follows from the concept of a necessary being. An impossibility follows from the concept of a necessary being, because if there were a necessary being, there would have to be at least one necessarily true existential proposition, and necessarily true existential propositions are impossible. (An existential proposition is a proposition asserting the existence of something, a proposition of the form "There is an *x*" or "There exists an *x*" or "An *x* exists.") Necessarily true existential propositions are impossible because necessary truths are just those truths that owe their status as truths to the meanings of words. (For example, it is necessarily true that all nuns are female; but the necessity of all nuns' being female is due simply to the fact that "female" is a part of the meaning of the word 'nun': the word 'nun' is inapplicable to males—even members of religious orders—, for 'nun' means 'woman belonging to a religious order, membership in which implies vows of poverty, chastity, and obedience'.)

Now it is obviously impossible (the argument continues) for a true existential proposition to owe its truth to the meanings of words. It may be a consequence of the meanings of the word A and the word B that whatever A applies to, B also applies

to—as with ‘nun’ and ‘female’. But it can never be a consequence simply of the meaning of the word *A* that *A* applies to anything. We may give to ‘nun’ or ‘aardvark’ or ‘molybdenum’ whatever meanings we like, but these meanings will never guarantee that there is anything to which these words apply. But for there to be a necessary existential proposition, there would have to be a word or words whose meaning guaranteed that they applied to something, and this, as we have seen is impossible.

To retrace the steps of the argument: there can be no such thing as a necessary existential proposition, so there can be no such thing as a necessary being, so there can be no such thing as a perfect being. And, therefore, the modal ontological argument has a false premise: that a perfect being is not impossible. And, therefore, the modal ontological argument is a failure, and we are still without an answer to the question, Why should there be anything at all?

The main problem with Findlay's argument lies in the theory of necessary truth to which it appeals. Findlay tells us that there can be no necessary existential propositions. And he tells us that there can be no necessary existential propositions because, for every necessary true proposition, the fact that that proposition is true is a consequence of the meanings of words. This theory of necessary truth was almost universally accepted by English-speaking philosophers at the time at which Findlay wrote (1948).⁹ It was widely, if not universally, regarded as a theory that philosophical investigation had shown to be true. As of the time of this writing, however, it has become merely a part of the history of philosophy. Let us consider an example, the proposition that the atomic number of iron is 26. A great many philosophers of logic and language currently working maintain that this proposition is necessarily true and that its truth is not due to the meanings of words. They would argue that this proposition is necessarily true because the atomic structure of an element is of its very essence and that no matter how much some possible metal might superficially resemble iron, unless the nuclei of the atoms that composed it contained twenty-six protons, it would simply not be iron. And yet (their argument continues) it is not a part of the meaning of the word ‘iron’ that it apply only to a stuff that is a chemical element having the atomic number 26—for something can be a part of the meaning of a word only if a person who knows the meaning of that word knows it is (as, for example, a person who knows the meaning of the word ‘nun’ knows that ‘female’ is a part of the meaning of ‘nun’). That this is so is evident from such facts as the following: lots of people who have no idea that there is such a concept as ‘atomic number’ know the meaning of the word ‘iron’ perfectly well; Queen Elizabeth I meant by the word ‘iron’ just what you and I mean by it, even though she died long before the advent of modern chemistry (lots of English words have changed their meanings since the sixteenth century, but ‘iron’ is not one of them); the Latin word ‘ferrum’ means exactly what the English word ‘iron’ means, even though Latin ceased to be a living language a thousand years before the advent of modern chemistry.

We should note, however, that even if these philosophers are right, it does not follow that there can be necessary existential propositions, for ‘The atomic number of iron is 26’ is not an existential proposition: if the currently popular theory I have sketched is right, this proposition states one of the essential characteristics of iron; it does not say that there is any iron. But it does follow from this theory that the account of necessary truth on which Findlay bases his premise (that there can be no necessary

existential propositions) is mistaken. And there are propositions many philosophers would say were necessary existential propositions. Mathematics provides many plausible examples of necessary existential propositions, such as ‘There exists a number that can be expressed in more than one way as the sum of two cubes’. It is true that mathematical examples provide only cases of necessary propositions that assert the existence of universals, such as numbers. Still, they tend to undermine Findlay's position, since his argument and its conclusion are very general. His argument proceeds from premises about the nature of language, and its conclusion should hold for any proposition, regardless of its subject-matter. His conclusion would therefore appear to be refuted by any example of a necessary existential proposition, no matter what its subject-matter was. If his argument were sound, it would show that there could be no necessary existential propositions, even in mathematics.

If this much is correct, however, it does not show that there could be a necessarily existent *individual thing*. Perhaps only universals like numbers can be necessarily existent. And a perfect being would certainly have to be an individual thing. Findlay's argument may be refuted by the observation that it proves too much (that there could not be necessarily existent universals), but even if this is granted, it has no tendency to show that his stated conclusion—the impossibility of a perfect being—is wrong. I know of no argument that purports to show that there could not be a necessarily existent individual thing, with the exception of Findlay-style arguments for the conclusion that there could not be a necessarily existent *anything*. Such an argument would have to show that the two properties *being necessarily existent* and *being an individual thing* were inconsistent with each other, and I can see no way of constructing even a plausible candidate for such an argument.

It is interesting to note that if these two properties are *not* inconsistent, then there is in fact a necessarily existent individual thing. This can be shown by a simplified version of the reasoning we used to show the validity of the modal ontological argument:

If a necessarily existent individual thing is possible, then there is a necessarily existent individual thing in some possible world. Since that individual thing is necessarily existent in that possible world, it is true in that possible world that it, that very individual thing, exists in all possible worlds. It follows that it is true in every possible world that that thing exists in all possible worlds, since ‘nothing changes from possible world to possible world but which possible world is actual.’ Moreover, it seems evident that the property *being an individual thing* is essential to whatever has it; if something is an individual thing, it could not have been a universal or a mere collection or a stuff or any other kind of non-individual thing. Therefore, this being not only exists in every possible world but is also an individual thing in every possible world. And there is thus a necessarily existent individual thing in every possible world, including, of course, whichever world is the actual world. Therefore, there actually is a necessarily existent individual thing.

This argument, which we may call the *minimal* modal ontological argument, shows that the reasoning underlying the modal ontological argument does not really have anything to do with the concept of a perfect being. What this reasoning really shows is that, for any set of properties whatever, if it is possible for there to be a thing that is necessarily existent and has all these properties essentially, then there actually is some-

thing that is necessarily existent and has all these properties essentially. (A perfect being is a being that has all perfections and has them essentially; a perfect being is thus a being that is necessarily existent—necessary existence being a perfection—and has a certain set of properties essentially.)

This result has an important consequence: the minimal modal ontological argument will serve our purposes as well as the modal ontological argument itself. (Our question is, Why is there something rather than nothing? and any individual thing is a "something.") It is free from logical error if the modal ontological argument itself is free from logical error, and its controversial premise—a necessarily existent individual thing is possible—is true if the corresponding premise of the modal ontological argument is true. I say 'if' and not 'only if' because the proposition that a perfect being is possible entails that a necessarily existent individual thing is possible, but the reverse entailment does not hold, or at least does not obviously hold. A perfect being has to be a necessarily existent individual thing, but a necessarily existent individual thing does not have to be a perfect being, or does not obviously have to be a perfect being. It may, therefore, be possible to find out whether the premise of the minimal modal ontological argument is true even if it is impossible to find out whether the corresponding premise of the modal ontological argument ('A perfect being is not impossible') is true. Let us then turn our attention to the minimal modal ontological argument and ask whether its premise is true; that is, whether a necessarily existent individual thing is possible; that is, whether the properties *existing necessarily* and *being an individual thing* are compatible. It does not seem possible to deduce any formal contradiction from the assumption that there is a necessarily existent individual thing. Nevertheless, these two properties may well be incompatible. It is hard to believe that the two properties *being a solid sheet of iron* and *being as transparent as glass* are compatible, but there is no way of deriving a formal contradiction from the proposition "There is a sheet of solid iron as transparent as glass". Still, the two properties *may* be compatible. How could one know? I am at a loss to answer this question. In general, there are only two "foolproof" ways to discover whether two properties are compatible. One knows that two properties are compatible if one knows that there is in fact something that has both of them. And one knows that two properties are incompatible if one can deduce an impossibility (such as a formal contradiction) from the assumption that something has both of them. As I have said, I know of no way to apply the latter method in the case of necessary existence and individuality. And as to the former method, if I knew how to prove the existence of a necessarily existent individual thing, I should have no need of the minimal modal ontological argument, since I should know that its conclusion—that a necessarily existent individual thing exists—was true independently of the minimal modal ontological argument.

If we cannot demonstrate the possibility of a necessarily existent individual thing, we certainly cannot demonstrate the possibility of a perfect being, since a perfect being is a being that is a necessarily existent individual thing *and* has various other properties—such as wisdom and goodness and unlimited power (or whatever the perfections other than necessary existence may be). And although there might in theory be a proof of the impossibility of a perfect being that was not a proof of the impossibility of a necessarily existent individual thing—a proof, say, that wisdom was a perfection, together with a proof that wisdom was incompatible with necessary existence—no one has in fact proposed such a proof and no such proof suggests itself. All the proofs of the impossibility

of a perfect being anyone has ever proposed are (supposed) proofs of the impossibility of necessary existence. It would seem, therefore, that the long history of the ontological argument, from Saint Anselm to the present day, is at best inconclusive. Every version of the argument either contains some logical error or other or else depends upon a premise whose claim to truth we are unable to adjudicate. And, therefore, we have not found an answer to the question, Why should there be anything at all?

There is, nevertheless, one valuable lesson we have learned from our study of the ontological argument. If we could show that there was a necessary being, a necessarily existing individual thing, we should have an answer to our question. For if there were a necessary being, it would be impossible for there to be nothing. And if we could show that it was impossible for there to be nothing, that, surely, would count as an answer to our question.

Is there any approach to the question whether there is a necessary being other than *via* the ontological argument? There is indeed. It has often been suggested that if there were no necessary being there could not be any beings at all. If this "if" statement could be shown to be true, we could combine it with the obvious truth that there is something to show that there is a necessary being. We shall discuss this possibility in the next chapter.

Suggestions for Further Reading

Plantinga's *The Ontological Argument* is an excellent collection. See especially the selections from Anselm, Gaunilo, Aquinas, Descartes (including Descartes's replies to the objections of various philosophers), Leibniz, Kant, Findlay, Malcolm, and Hartshorne. Plantinga's *God, Freedom, and Evil* contains a powerful and sophisticated discussion of the ontological argument in various versions, including the "modal" version (pp. 85–111).

Hume's seminal argument for the conclusion that there can be no necessary existential propositions occurs in *Dialogues Concerning Natural Religion*, Part IX. Current "anti-Humean" views on the nature of necessary truth are contained in Kripke's *Naming and Necessity* and Putnam's "The Meaning of 'Meaning'." These are difficult works for those without formal philosophical training, but are, at least in large part, accessible to the highly motivated reader. Schwartz's *Naming, Necessity, and Natural Kinds* is a useful collection of essays on the issues raised by Kripke and Putnam. Kripke's important essay "Identity and Necessity" is particularly recommended.

Notes

1. The label 'ontological argument' seems first to have been applied to Anselm's and Descartes's arguments by Kant in the eighteenth century. The word 'ontological' is derived from the Greek word for 'being' or 'existence'.
2. What Kant actually says is that existence is "a logical but not a real predicate (*Prädikat*). I believe the idea he intended to express by this formula is more or less the idea I have expressed in the text by the words 'Existence is not a property.'
3. The refutation of Descartes's argument attributed to Kant in the text contains only one of the points Kant makes against the argument. For two hundred years, philosophers discussing the ontological argument represented this "refutation" as decisive and neglected another, more

effective point that Kant makes against the argument. This point could be put as follows: Granted, a non-existent perfect being is a contradiction in terms; but a non-existent golden mountain is just as much a contradiction in terms, and for the same reason: to say *there is a non-existent golden mountain* is to contradict oneself; a non-existent *anything* is, for this reason, and this reason alone, a contradiction in terms; hence, from 'A non-existent X is a contradiction in terms', one cannot validly deduce 'An X exists.'

4. Or perhaps it would be better to say, 'a complete specification of a way a World might have been,' for it may be that the World is a full-fledged individual thing, as opposed to a mere collection, and that if things had been sufficiently different, that individual thing would not have existed at all, and some other individual thing—either a part of the World or some individual thing that does not exist at all—would have been the referent of the description 'the World.'

5. What allows us to speak of *the* actual world here? Why can't *two* possible worlds specify the way things really are? Well, those two possible worlds, being, by definition, completely specific, would have to agree in every detail—otherwise at least one of them would get the way things really are wrong. If, according to one of the two possible worlds, the number of Douglas fir trees in Canada is odd and according to the other it is even, then it can't be that both possible worlds get the way things really are right, for, as things really are, the number of Douglas fir trees in Canada is either odd or even. But if the two possible worlds agree about *everything*, in what sense are they *two* possible worlds, two *different* specifications of how things are? Does it make sense to speak of two specifications of the features of, say, a house that are the same in every detail and yet are two different specifications? At any rate, I am going to make this true by definition: if *x* and *y* are possible worlds, and if *x* and *y* agree in every detail, then *x* and *y* are one and the same possible world.

6. Here is an example of an invalid modal argument that, on first blush, could appear to be valid: It is impossible for a hippopotamus to be an elephant; The largest animal in the local zoo is a hippopotamus; Therefore, it is impossible for the largest animal in the local zoo to be an elephant. It is easy to see that something must be wrong with this argument because it is easy to see that its premises might be true and its conclusion false. But metaphysical arguments turning on just the modal fallacy this argument illustrates have been accepted by philosophers.

7. The logically sophisticated will be aware that this premise must be read as saying not only that the property of existing necessarily is in fact a perfection but that it would exist and would be a perfection no matter what. But few would want to deny that *if* there is such a property as necessary existence, and *if* this property is a perfection, then it would exist no matter what and would be a perfection no matter what.

8. At any rate, it is possible for there to be animals shaped the way the unicorns of legend are supposed to be shaped. The American philosopher Saul Kripke has, however, presented interesting and plausible arguments for the conclusion that no possible animal would really count as a *unicorn* and that unicorns are therefore impossible.

9. But it was by no means a recent invention. Hume, for example, wrote, "Whatever we conceive as existent, we can also conceive as non-existent. There is no being, therefore, whose non-existence implies a contradiction." (*Dialogues Concerning Natural Religion*, IX. The *Dialogues* were first published in 1779, three years after Hume's death.)

7 NECESSARY BEING: THE COSMOLOGICAL ARGUMENT

The argument we shall be mainly concerned with in this chapter is based on the so-called Principle of Sufficient Reason: for every truth, for everything that is so, there is a sufficient reason for its being true or being so.¹ What the Principle of Sufficient Reason tells us can best be appreciated by looking at the way it applies in the case of a particular fact and then generalizing what we see. Consider the fact that my car wouldn't start last Tuesday. What the Principle of Sufficient Reason tells us is that if someone asked, "Why wouldn't van Inwagen's car start last Tuesday?", that person's question has an answer, a correct answer, an informative answer, a fully satisfying answer. And, in general, for anything that is so, the question why that thing is so has an answer: this is the Principle of Sufficient Reason.

Before we go on, it may be advisable to clear up a possible confusion. The words 'why' and 'reason' and many related words are used in various senses. Suppose someone were to ask why Adrian, who was hit by a truck whose brakes had failed, died. Here are two answers to this question:

- There was no reason at all for his death; he just happened to be at the wrong place at the wrong time.
- He died of massive trauma, which was due to his having been struck by a large, heavy, rapidly moving vehicle.

The first of these answers presupposes that the question was a request for something that would display the *meaning* or *purpose* of Adrian's death. But the Principle of Sufficient Reason does not tell us that everything that happens has a meaning or a purpose. And that is certainly to the credit of the Principle, for not everything has a meaning or purpose. (If I knock over a bottle of wine while gesturing expansively at dinner, it is as evident as anything could be that the shape of the resulting stain on the carpet has no meaning or purpose.) What the Principle tells us is that an answer of the *second* kind is available to every "why" question. (An answer of the second kind

need not be at all interesting. Shakespeare and Cervantes died on the same day, and if someone asks why they died on the same day, the Principle asserts that that person's question has an answer. But it is consistent with the Principle that the answer be nothing more interesting than an explanation of the fact that Shakespeare died on 23 April 1616, together with a wholly unrelated explanation of the fact that Cervantes died on 23 April 1616.)

There is certainly a lot to be said for the Principle of Sufficient Reason. Some philosophers have maintained that it is the basis of modern science. The ancient astronomers were content carefully to describe the motions of the planets and the stars. If you had asked them *why* the lights in the sky moved according to the enormously complicated set of rules they had extracted from their observations, you would not have awakened much interest. A Babylonian astronomer might have said, "Well, they're gods. Obviously, gods move as they like. It would be impious to enquire further." A Greek might have said, "Well, the philosopher Aristotle said that the planets move in circles because circular motion is the most perfect motion. But that's too deep for me. I'm just a simple astronomer. All I can do is tell you how they actually do move." But modern science takes an entirely different attitude toward "why" questions about observed phenomena. According to modern science, for example, the rules describing the motion of the planets can actually be explained (by, roughly speaking, deducing those rules from Newton's laws of motion and his law of universal gravitation). And—so some would argue—modern science is never content to say that something just *is*, and that's all there is to say about it. No scientist would be content to say that mountains were just *there*, and that that was all there was to say about the existence of mountains. Modern science—so some would argue—therefore presupposes the Principle, and so do all of us who live in a scientific age and a scientific culture. Whether the Principle is a presupposition of modern science or not, it does seem very plausible. Let us, for the moment, accept the Principle and see what follows from it.

We can begin by taking a look round us and noting that the World contains individual things—or "beings" as we shall call individual things in the present chapter. Whatever features these beings may have, it is obvious that there *are* beings. (Even if the Monist is right, there is *one* being.) All the beings we observe seem to be contingent beings; *some* of them certainly are. It seems reasonable, therefore, to suppose that the following statement is true:

↘ There are some contingent beings.

Now if the Principle is correct, there is some explanation of the truth of this statement, some answer to the question "Why are there contingent beings?" But what would an explanation of the existence of contingent beings look like? One possible explanation of this state of affairs is the following:

↘ Something necessarily existent, some necessary being, is in some way responsible for the fact that there are contingent things.

This is not, of course, a very detailed explanation, but it seems to be a perfectly satisfactory explanation as far as it goes. It is conceivable that someone might object to it on the ground that it "merely pushes the problem of the existence of things back a step." The worry here is something like this: "All right, the necessary being explains

the existence of the contingent beings, but what explains *its* existence? Why does it exist?" But to say this is to neglect the fact that a necessary being is a being who non-existence is impossible. Thus, for any necessary being, there is by definition a sufficient reason for its existence: there could hardly be a more satisfying explanation of the existence of a thing than that its non-existence was impossible.

As to the fact that the explanation is almost wholly lacking in specifics, we should note that there are few if any explanations that could not be given in greater detail. The explanation could be "filled in" in various ways, some of them inconsistent with one another. Here, for example, are two inconsistent explanations of the existence of contingent beings that come from filling in the details of the above explanation in different ways:

- God is necessarily existent and is the source of the existence of all other beings; although He was under no compulsion to create anything, of His own free will He made beings other than Himself; His purpose in bringing other beings into existence surpasses human understanding.
- A formless, necessarily existent Chaos is the source of the existence of all contingent beings; swirls and local condensations occur by chance within Chaos and it is these that give rise to contingent beings.

We are interested only in the question whether *some* version of the explanation is correct. The possible ways in which such an explanation might be filled in and made more nearly complete, although they are interesting and important, need not detain us. But *is* some version of this explanation correct? Is there any way to explain the existence of contingent beings other than by an appeal to the existence of a necessary being that is in some manner responsible for their existence? Let us see whether we can conceive of an alternative explanation of the existence of contingent beings, an explanation of the existence of contingent beings that does not involve the existence of a necessary being. There seem to be grave problems with the idea of such an explanation.

Suppose the *only* beings were contingent beings. (Some or all universals may be necessarily existent, but universals by themselves cannot explain the existence of individual things—or of "beings," as we are now calling individual things. For example, the existence of properties and numbers does not explain the fact that there are beings having those properties and numbered by those numbers. Only beings can explain the existence of beings.) If the only beings were contingent beings, could there be an explanation of the fact that there were contingent beings? Could there be an answer to the question "Why are there contingent beings?"

It is hard to see how there could be. Any statement that was true in a world in which there were only contingent beings—and whatever else a correct explanation may involve, the statements made in the course of giving the explanation must all be true—would derive its truth from the way those contingent beings were arranged (that is, from the number of them and their individual intrinsic properties and the relations they bore to one another). And all such statements would appear to presuppose the existence of contingent beings. It seems wholly implausible to suppose that a series of statements all of which presuppose the existence of contingent beings could

add up to an explanation of the existence of contingent beings. One might as well suppose that one could explain the existence of human beings by setting out a series of statements about the properties of human beings and the relations human beings bear to one another.

In general, to explain the existence of the members of any class of contingent beings, one must cite facts about the properties and relations of beings outside that class. For example, to explain the existence of the human species, one must cite some facts about God or about the evolutionary process or about *something* besides human beings. And doesn't this rule apply to the whole class of contingent beings? To explain the fact that contingent beings exist "at all," one must cite some facts about non-contingent beings. And non-contingent beings are just necessary beings: any explanation of the existence of contingent beings must involve facts about one or more necessary beings. (But is it obvious that any sufficient reason for the existence of contingent beings must involve a necessary being? Suppose it is a *necessary truth* that there are contingent beings. Then the non-existence of contingent beings is an impossibility, and this impossibility is a sufficient reason for their existence.) And this sufficient reason does not involve any appeal to the existence of a necessary being. We can take account of this worry in the following way. Those who take seriously the idea that it is a necessary truth that there are contingent beings—I shall later discuss some difficulties with this idea—may look at the argument we are considering, the argument that appeals to the Principle of Sufficient Reason, as one part of a larger argument. In rough outline: That there are contingent beings is either a necessary truth or a contingent truth; If it is a necessary truth, it is impossible for there to be nothing; If it is a contingent truth, then—given the Principle of Sufficient Reason—there exists a necessary being, and it is impossible for there to be nothing; In either case, it is impossible for there to be nothing.)

If this reasoning is correct, then, given that there are contingent beings, and given the Principle of Sufficient Reason, there is at least one necessary being. (This reasoning is a version of the "cosmological argument." The name comes from the Greek word *kosmos*, which means 'the universe' or 'the totality of contingent beings'.²) And if there is a necessary being, we have our answer to the question, Why should there be anything at all? (For if there is a necessary being, then "There being nothing" is an impossible state of affairs.) We could, in fact, have started from a weaker premise than the premise that there are contingent beings. The premise that there are *beings* would have sufficed. For every being is either necessary or contingent; therefore, if there are beings, there are either necessary beings or contingent beings (or both); if there are necessary beings, there are, of course, necessary beings; if there are contingent beings, then (as the cosmological argument shows) there is at least one necessary being; hence, there is at least one necessary being. Indeed, we do not even require the premise that there *are* beings. The premise that there *could be* beings would suffice. For if there could be beings, then in some possible world there are beings. And the Principle of Sufficient Reason, if it is true, must be true in that possible world, for the Principle could not be a merely contingent truth. And the above reasoning, carried out in that possible world, would show that in that possible world there was a necessary being. (The cosmological argument, together with the premise that it is possible for there to be beings, individual things of any sort, thus establishes the doubtful premise

of the minimal modal ontological argument: that it is possible for there to be a necessary being.) And, as we saw in our discussion of the modal ontological argument, if there is a necessary being in some possible world, there is a necessary being in the actual world. The cosmological argument therefore in effect shows that if there *can* be something (can be beings), there *has to* be something: if it is *not* impossible for there to be *something*, it is impossible for there to be *nothing*. And we could hardly be asked to do better with the question, Why should there be anything at all? than to deduce the impossibility of there being nothing from the mere possibility of there being something.

Unfortunately we have not deduced this impressive conclusion from the single premise that it is possible for there to be something. Our argument has a second premise: the Principle of Sufficient Reason (in fact, the necessary truth of the Principle of Sufficient Reason). It is time to ask how plausible this premise is. It turns out that this premise is not very plausible at all.

In the first place there are scientific difficulties. According to quantum mechanics, nature is filled with events whose occurrence has no explanation whatever. If, for example, the nucleus of a certain radium atom decays at a certain time, there is no explanation whatever of its decaying at that time rather than some other time. Or, at least, this is true according to the standard interpretation of quantum mechanics, the so-called Copenhagen Interpretation. It is possible to construct "hidden variable" interpretations of quantum mechanics, according to which there *is* an explanation of the fact that a particular radium nucleus decays at such-and-such a moment. But hidden-variable interpretations of quantum mechanics have various unattractive features, and most physicists do not find them of much interest. Whether or not the standard interpretation of quantum mechanics constitutes a metaphysically correct picture of subatomic events, these facts at least cast considerable doubt on the Principle.

In the second place, a careful examination of the Principle shows that it has a consequence most people would have a very hard time accepting: that all true propositions are necessarily true. In broad outline, the argument is this: if there are any contingent propositions (that is, contingently true propositions), then there is a set of all contingent propositions; but an explanation of any set of contingent propositions must appeal to some contingent propositions outside that set; hence, the whole set of contingent propositions can have no explanation; hence, if every set of true propositions is such that there is an explanation for the fact that it contains only truths (as the Principle implies), there can be only necessary truths.

But this "broad outline" is too compressed to be of much use. It is intended only to give the reader some sense of where the following rather lengthy piece of reasoning is going. Here is our plan: we shall assume for the sake of argument that there are contingent propositions, and we shall deduce from this assumption the conclusion that the Principle of Sufficient Reason is false.

Suppose, then, that there are some contingent propositions. It follows that there are propositions that are true in some possible worlds and false in others. But then there is more than one possible world. Our argument will not depend on how many there are, not so long as we assume that there is more than one. Let us suppose there are four—the same four that figured in our discussion of the modal ontological argument. Exactly one of these four possible worlds must be actual. Our argument will not de-

pend, on *which*, so let us arbitrarily suppose that Possible World Two is the actual world.

If the Principle of Sufficient Reason is correct, there is a sufficient reason for the fact that Possible World Two is the actual world; that is, this fact has an explanation; that is, the question 'Why is Possible World Two the actual world?' has an answer. Let us use 'S' to stand for the series of statements one would make if one were giving this explanation or this answer. We know that S must be true in Possible World Two (that is, we know that each statement in the series of statements S must be true in Possible World Two), for every statement made in the course of giving a correct explanation must be true, and Possible World Two is the actual world, and any true statement is true in the actual world.

Could S also be true in one or more of the other possible worlds? No, for if a set of statements is true in, say, Possible World Three, that set of statements is at best a *part* of the explanation of the fact that Possible World Two is the actual world. Here is an analogy that will help to explain why this is the case. Suppose the cancer rate in Watkins Grove is much higher than the national average, and the City Council wants to know why. Suppose it is pointed out that there are many chemical plants in Watkins Grove, and it is suggested that the presence of these plants is the explanation the City Council is looking for. If it turns out that many communities the size of Watkins Grove contain a comparable number of chemical plants and yet have a cancer rate not much different from the national average, this fact will show that the explanation the City Council has been offered must be at best a part of the explanation of the high cancer rate in Watkins Grove. It may well be that the chemical plants are an important *part* of the explanation of the high cancer rate in Watkins Grove, but, as the idiom has it, "there must be more to it than that." (Something *else*—the particular chemicals produced in Watkins Grove, or the way the plants dispose of their chemical wastes, or some combination of any of literally hundreds of factors—must also be a part of the explanation of the high cancer rate in Watkins Grove.)

An explanation of the high cancer rate in Watkins Grove must be a series of statements that does not leave open any possibility that the cancer rate in Watkins Grove be average or low. By analogy, an explanation of the actuality of Possible World Two must be a series of statements that does not leave open any possibility that Possible World Two be non-actual. But then if S, which is by stipulation an explanation of the fact that Possible World Two is the actual world, were true in, say, Possible World Four, it would be true in Possible World Four that Possible World Two was the actual world. (And this, of course, is impossible, for the only possible world that is actual in Possible World Four is Possible World Four itself.)

In evaluating the reasoning of the preceding two paragraphs, it is important not to confuse the notion of an explanation with the notion "all the explanation there is." Suppose the Principle of Sufficient Reason is false and that, therefore, some fact F has no explanation. It doesn't follow that if someone asks, "Why is F a fact?" there is nothing whatever that can be said in response to this question; it follows only that whatever is said in response to the question, however relevant it may be to the question, will not be an answer to the question. Suppose, for example, that some chemical plants cause cancer, and that other, exactly similar, chemical plants in exactly similar environments do not cause cancer. (We can *suppose* this to make a metaphysical point,

but no one would *believe* it—not in a "real life" situation. This fact illustrates a situation that at least some facts must have explanations, even if we do not know they are.) Then, if someone asks, "Why is there a high cancer rate in Watkins Grove?", the statement "There are many chemical plants in Watkins Grove" is certainly a relevant statement for someone who is responding to the question to which it is not an answer to the question. It is not an *explanation* of the fact that there is a high cancer rate in Watkins Grove. If "There are many chemical plants in Watkins Grove" is the *only* relevant statement that can be made in response to the question "Why is there a high cancer rate in Watkins Grove?", and if other cities, cities whose cancer rates are low or average, have the same numbers of (exactly similar) chemical plants, there simply is no explanation of the high cancer rate in Watkins Grove. High rate is, so to speak, just one of those things.

So S must be true in Possible World Two and in no other possible world. Propositions have this feature? Only one: the proposition that Possible World Two is the actual world. (For consider any proposition true in Possible World Two. Proposition that Stockholm is the capital of Sweden will do as well as any as an example. If this proposition were true in Possible World Two *alone*, it would follow from the fact that Stockholm was the capital of Sweden that Possible World Two was the actual world. That is, the truth of the proposition that Stockholm was the capital of Sweden would settle or determine everything else: it would follow from the fact that Stockholm was the capital of Sweden that Mars had two moons and that spiders have eight legs and that British forces under the command of Lord Elgin burned the Summer Palace at Peking in 1860 and that . . . well, *everything*—everything true, that would follow. It would be absolutely impossible for Stockholm to be the capital of Sweden and for any of these things to be false. And this is absurd. There is only one true proposition whose truth necessitates all other truths, and that is the proposition that Possible World Two is the actual world.³) But it is as evident as anything could be that the fact that Possible World Two is the actual world cannot serve as an explanation of the fact that Possible World Two is the actual world. "Because Possible World Two is the actual world" is not an answer to the question "Why is Possible World Two the actual world?" To say it was would be no better than saying that "Because the sky is blue" was an answer to the question "Why is the sky blue?"

Our conclusion must be that there can be no answer to the question "Why is Possible World Two the actual world?" Another way to put this point would be to say that there can be no explanation of the whole set of truths—for the actual world is simply that possible world such that whatever is true in it, what makes a particular possible world the actual one is that it "contains" all the truths and none of the falsehoods. And this conclusion is not implausible. One cannot explain the fact that given contingent proposition is a truth simply by appealing to necessary truths! Therefore, any explanation of a contingent truth must appeal to other contingent truths, and, as a consequence, the whole set of contingent truths cannot be explained because there are no contingent truths outside this set to appeal to. But then the Principle of Sufficient Reason is false.

We have, therefore, as we promised, deduced the falsity of the Principle from the assumption that there are contingent propositions. It follows that if the Principle is true, then there are no contingent propositions; if the Principle is true, every truth is