

ON OCKHAM'S WAY OUT

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In Part I, I present two traditional arguments for the incompatibility of divine foreknowledge with human freedom; the first of these is clearly fallacious; but the second, the argument from the necessity of the past, is much stronger. In the second section I explain and partly endorse Ockham's response to the second argument: that only propositions *strictly* about the past are accidentally necessary, and past propositions about God's knowledge of the future are not strictly about the past. In the third part I point out some startling implications of Ockham's way out; and finally in part IV I offer an account of accidental necessity according to which propositions about the past are accidentally necessary if and only if they are strictly about the past.

Two essential teachings of western theistic religions—Christianity, Judaism, and Islam—are that God is omniscient and that human beings are morally responsible for at least some of their actions. The first apparently implies that God has knowledge of the future and thus has foreknowledge of human actions; the second, that some human actions are *free*. But divine foreknowledge and human freedom, as every twelve-year-old Sunday School student knows, can seem to be incompatible; and at least since the fifth century A. D. philosophers and theologians have pondered the question whether these two doctrines really do conflict. There are, I think, substantially two lines of argument for the *incompatibility thesis*—the claim that these doctrines are indeed in conflict; one of these arguments is pretty clearly fallacious, but the other is much more impressive. In part I, I state these two arguments; in part II, I explain (and endorse) Ockham's reply to them; in Part III, I point out some startling implications of Ockham's way out; and finally in part IV, I offer an account of accidental necessity. There is also an appendix on possible worlds explanations of ability.

I. *Foreknowledge and the Necessity of the Past*

In *De Libero Arbitrio* Augustine puts the first line of argument in the mouth of Evodius:

That being so, I have a deep desire to know how it can be that God knows all things beforehand and that, nevertheless, we do not sin by necessity. Whoever says that anything can happen otherwise than as



God has foreknown it, is attempting to destroy the divine foreknowledge with the most insensate impiety. If God foreknew that the first man would sin—and that anyone must concede who acknowledges with me that God has foreknowledge of all future events—I do not say that God did not make him, for he made good, nor that the sin of the creature whom he made good could be prejudicial to God. On the contrary, God showed his goodness in making man, his justice in punishing his sin, and his mercy in delivering him. I do not say, therefore, that God did not make man. But this I say. Since God foreknew that man would sin, that which God foreknew must necessarily come to pass. How then is the will free when there is apparently this unavoidable necessity?¹

(Replies Augustine: “You have knocked vigorously.”) Evodius’ statement of the argument illustrates one parameter of the problem: the conception of freedom in question is such that a person *S* is free with respect to an action *A* only if (1) it is within *S*’s power to perform *A* and within his power to refrain from performing *A*, and (2) no collection of necessary truths and causal laws—causal laws outside *S*’s control—together with antecedent conditions outside *S*’s control entails that *S* performs *A*, and none entails that he refrains from doing so. (I believe that the first of these conditions entails the second, but shall not argue that point here.) Of course if these conditions are rejected, then the alleged problem dissolves.

The essential portion of Evodius’ argument may perhaps be put as follows:

- (1) If God knows in advance that *S* will do *A*, then it must be the case that *S* will do *A*.
- (2) If it *must* be the case that *S* will do *A*, then it is not within the power of *S* to refrain from doing *A*.
- (3) If it is not within the power of *S* to refrain from doing *A*, then *S* is not free with respect to *A*.

Hence

- (4) If God knows in advance that *S* will do *A*, then *S* is not free with respect to *A*.

Augustine apparently found this argument perplexing. In some passages he seems to see its proper resolution; but elsewhere he reluctantly accepts it and half-heartedly endorses a compatibilist account of freedom according to which it is possible both that all of a person’s actions be determined and that some of them be free.

Thomas Aquinas, however, saw the argument for the snare and delusion that it is:

If each thing is known by God as seen by Him in the present, what is

known by God will then have to be. Thus, it is necessary that Socrates be seated from the fact that he is seen seated. But this is not absolutely necessary or, as some say, with the *necessity of the consequent*; it is necessary conditionally, or with the *necessity of the consequence*. For this is a necessary conditional proposition: *if he is seen sitting, he is sitting*.²

Aquinas's point may perhaps be put more perspicuously as follows. (1) is ambiguous as between

(1a) Necessarily, if God knows in advance that *S* will do *A*, then *S* will do *A*.

and

(1b) If God knows in advance that *S* will do *A*, then it is necessary that *S* will do *A*.

Now consider

(1c) If God knows in advance that *S* will do *A*, then *S* will do *A*.

(1a), says Aquinas, is a true proposition expressing "the necessity of the consequence"; what it says, sensibly enough, is just that the consequent of (1c) follows with necessity from its antecedent. (1b), on the other hand, is an expression of the necessity of the *consequent*; what *it* says, implausibly, is that the necessity of the consequent of (1c) follows from its antecedent. Aquinas means to point out that (1a) is clearly true but of no use to the argument. (1b), on the other hand, is what the argument requires; but it seems flatly false—or, more modestly, there seems not the slightest reason to endorse it.

If the above argument is unconvincing, there is another, much more powerful, that is also considered by Aquinas.³ The argument in question has been discussed by a host of philosophers both before and after Aquinas; it received a particularly perspicuous formulation at the hands of Jonathan Edwards:

1. I observed before, in explaining the nature of necessity, that in things which are past, their past existence is now necessary: having already made sure of existence, 'tis now impossible, that it should be otherwise than true, that that thing has existed.
2. If there be any such thing as a divine foreknowledge of the volitions of free agents, that foreknowledge, by the supposition, is a thing which already has, and long ago had existence; and so, now its existence is necessary; it is now utterly impossible to be otherwise, than that this foreknowledge should be, or should have been.
3. 'Tis also very manifest, that those things which are indissolubly con-

nected with other things that are necessary, are themselves necessary. As that proposition whose truth is necessarily connected with another proposition, which is necessarily true, is itself necessarily true. To say otherwise, would be a contradiction; it would be in effect to say, that the connection was indissoluble, and yet was *not so*, but might be broken. If that, whose existence is indissolubly connected with something whose existence is now necessary, is itself not necessary, then it may possibly not exist, notwithstanding that indissoluble connection of its existence.—Whether the absurdity be'n't glaring, let the reader judge.

4. 'Tis no less evident, that if there be a full, certain and infallible foreknowledge of the future existence of the volitions of moral agents, then there is a certain infallible and indissoluble connection between those events and that foreknowledge; and that therefore, by the preceding observations, those events are necessary events; being infallibly and indissolubly connected with that whose existence already is, and so is now necessary, and can't but have been.⁴

Edwards concludes that since "God has a certain and infallible prescience of the acts and wills of moral agents," it follows that "these events are necessary" with the same sort of necessity enjoyed by what is now past.

The argument essentially appeals to two intuitions. First, although the past is not necessary in the broadly logical sense (it is possible, in that sense, that Abraham should never have existed), it *is* necessary in *some* sense: it is fixed, unalterable, outside anyone's control. And second, whatever is "necessarily connected" with what is necessary in some sense, is itself necessary in that sense; if a proposition *A*, necessary in the way in which the past is necessary, entails a proposition *B*, then *B* is necessary in that same way. If Edwards' argument is a good one, what it shows is that if at some time in the past God knew that I will do *A*, then it is necessary that I will do *A*—necessary in just the way in which the past is necessary. But then it is not within my power to refrain from doing *A*, so that I will not do *A* freely. So, says Edwards, suppose God knew, 80 years ago, that I will mow my lawn this afternoon. This foreknowledge is, as he says, a "thing that is past." Such things, however, are now necessary; "'tis now impossible, that it should be otherwise than true, that that thing has existed." So it is now necessary that God had that knowledge eighty years ago; but it is also *logically* necessary that if God knew that I will mow my lawn today, then I will mow my lawn today. It is therefore now necessary that I will mow; it is thus not within my power to refrain from mowing; hence though I will indeed mow, I will not mow freely.

Edwards' argument is for what we might call "theological determinism"; the premise is that God has foreknowledge of the "acts and wills of moral agents"

and the conclusion is that these acts are necessary in just the way the past is. Clearly enough the argument can be transformed into an argument for *logical* determinism, which would run as follows. It was true, eighty years ago, that I will mow my lawn this afternoon. Since what is past is now necessary, it is now necessary that it was true eighty years ago that I will mow my lawn today. But it is logically necessary that if it was true eighty years ago that I will mow my lawn today, then I will mow my lawn today. It is therefore necessary that I will mow my lawn—necessary in just the sense in which the past is necessary. But then it is not within my power not to mow; hence I will not mow freely.

Here a Boethian bystander might object as follows. Edwards' argument involves divine *foreknowledge*—God's having known at some time in the past, for example, that Paul will mow his lawn in 1995. Many theists, however, hold that God is *eternal*,⁵ and that his eternity involves at least the following two properties. First, his being eternal means, as Boethius suggested, that everything is *present* for him; for him there is no past or future. But then God does not know any such propositions as *Paul will mow in 1995*; what he knows, since everything is present for him, is just that Paul mows in 1995. And secondly, God's being eternal means that God is atemporal, "outside of time"—outside of time in such a way that it is an error to say of him that he knows some proposition or other *at a time*. We thus cannot properly say that God *now* knows that Paul mows in 1995, or that at some time in the past God knew this; the truth, instead, is that he knows this proposition *eternally*. But then Edwards' argument presupposes the falsehood of a widely accepted thesis about the nature of God and time.

I am inclined to believe that this thesis—the thesis that God is both atemporal and such that everything is present for him—is incoherent. If it *is* coherent, however, Edwards' argument can be restated in such a way as not to presuppose its falsehood. For suppose in fact Paul will mow his lawn in 1995. Then the proposition *God (eternally) knows that Paul mows in 1995* is now true. That proposition, furthermore, was true eighty years ago; the proposition *God knows (eternally) that Paul mows in 1995* not only *is true now*, but *was true then*. Since what is past is necessary, it is now necessary that this proposition was true eighty years ago. But it is logically necessary that if this proposition was true eighty years ago, then Paul mows in 1995. Hence his mowing then is necessary in just the way the past is. But, then it neither now is nor in future will be within Paul's power to refrain from mowing.

Of course this argument depends upon the claim that a proposition can be true *at a time*—eighty years ago, for example. Some philosophers argue that it does not so much as make sense to suggest that a proposition *A* is or was or will be true at a time; a proposition is true or false *simpliciter* and no more true at a time than, for example, true in a mail box or a refrigerator.⁶ (Even if there is no beer in the refrigerator, the proposition *there is no beer* is not true in the

refrigerator). We need not share their scruples in order to accommodate them; the argument can be suitably modified. Concede for the moment that it makes no sense to say of a *proposition* that it was true at a time; it nonetheless makes good sense, obviously, to say of a sentence that it expressed a certain proposition at a time. But it also makes good sense to say of a sentence that it expressed a truth at a time. Now eighty years ago the sentence

(5) God knows (eternally) that Paul mows in 1995

expressed the proposition that God knows eternally that Paul mows in 1995 (and for simplicity let us suppose that proposition was the only proposition it expressed then). But if in fact Paul will mow in 1995, then (5) also expressed a truth eighty years ago. So eighty years ago (5) expressed the proposition that Paul will mow in 1995 and expressed a truth; since what is past is now necessary, it is now necessary that eighty years ago (5) expressed that proposition and expressed a truth. But it is necessary in the broadly logical sense that if (5) then expressed that proposition (and only that proposition) and expressed a truth, then Paul will mow in 1995. It is therefore necessary that Paul will mow then; hence his mowing then is necessary in just the way the past is.

Accordingly, the claim that God is outside of time is essentially irrelevant to Edwardsian arguments. In what follows I shall therefore assume, for the sake of expository simplicity, that God does indeed have foreknowledge and that it is quite proper to speak of him both as holding a belief at a time and as having held beliefs in the past. What I shall say, however, can be restated so as to accommodate those who reject this assumption.

In 1965 Nelson Pike proposed an interesting variant of Edward's argument for theological determinism from the stability of the past. (Those not interested in a detailed anatomy of Pike's argument are invited to skip to the beginning of section II.) More exactly, what he proposed was an interesting variant of the argument for the conclusion that divine foreknowledge is incompatible with human freedom. What he argued is not that human freedom is incompatible with divine foreknowledge *simpliciter*, but that it is incompatible with the claim that God is *essentially* omniscient and has foreknowledge of human actions. To say that God has the property of being omniscient *essentially* is to say that he is indeed omniscient and furthermore could not have failed to be so. It is to say that God is omniscient and that it is not possible that he should have existed and failed to be omniscient: there is no possible world in which he exists but is not omniscient. It follows that it is impossible that God holds or has held a false belief.

To argue his case, Pike considers the case of Jones, who mowed his lawn at T_2 —last Saturday, let's say. Now suppose God is essentially omniscient. Then at any earlier time T_1 —80 years ago, for example—God believed that Jones would mow his lawn at T_2 . Furthermore, since he is essentially omniscient, it

is not possible that God falsely believe something; hence his having believed at T_1 that Jones would mow at T_2 entails that Jones does indeed mow at T_2 . The essential premise of the argument, as Pike puts it, goes as follows:

(vi) If God existed at T_1 and if God believed at T_1 that Jones would do X at T_2 , then if it was within Jones' power at T_2 to refrain from doing X , then (1) it was within Jones' power at T_2 to do something that would have brought it about that God held a false belief at T_1 , or (2) it was within Jones' power at T_2 to do something which would have brought it about that God did not hold the belief He held at T_1 , or (3) it was within Jones' power at T_2 to do something that would have brought it about that any person who believed at T_1 that Jones would do X at T_2 (one of whom was, by hypothesis, God) held a false belief and thus was not God—that is that God (who by hypothesis existed at T_1) did not exist at T_1 .⁷

Another way to put the claim Pike makes in (vi), I think, is to claim that

(6) God existed at T_1 and believed at T_1 that Jones would do X at T_2 and it was within Jones' power at T_2 to refrain from doing X

entails

(7) Either (7.1) it was within Jones' power at T_2 to do something that would have brought it about that God held a false belief at T_1 , or (7.2) it was within Jones' power at T_2 to do something which would have brought it about that God did not hold the belief he held at T_1 , or (7.3) it was within Jones' power at T_2 to do something that would have brought it about that God did not exist at T_1 .

The rest of the argument then consists in suggesting that each of (7.1), (7.2) and (7.3) is necessarily false. If so, however, then (6) is necessarily false and divine foreknowledge is incompatible with human freedom.

Now everyone will concede, I think, that it was not possibly within Jones' power at T_2 to do something that would have brought it about that God did not exist at T_1 ; nor, if God is essentially omniscient, was it possibly within Jones' power at T_2 to do something that would have brought it about that God held a false belief at T_1 .⁸ But what about (7.2), the second disjunct of (7)? Was it—could it have been—within Jones' power to do something that would have brought it about that God did not hold the belief he held at T_1 ? We must ask a prior question. How shall we *understand*

(7.2) It was within Jones' power at T_2 to do something that would have brought it about that God did not hold the belief he held at T_1 ?

If God is essentially omniscient, it is clearly necessary that if Jones had refrained from doing X at T_2 , then God would not have believed at T_1 that Jones would do X at T_2 . Hence (6) entails that it was within Jones' power at T_2 to do something—namely refrain from doing X —which is such that if he had done it, then God would not have held a belief that in fact he *did* hold. This suggests that Pike intends (7.2) as ascribing to Jones the power to do something that would have brought it about that God would not have held a belief that in fact he did hold. So construed, what (7.2) asserts is that God held a certain belief at T_1 , and it was within Jones' power at T_2 so to act that God would not have held that belief then. Presumably, therefore, (7.2) must be understood as

(7.2*) God held a certain belief B at T_1 , and at T_2 it was within Jones' power to perform an action which is such that if he had performed it, then at T_1 God would not have held B .⁹

Accordingly, (7.2) is to be read at (7.2*). Now Pike's strategy here is to claim first that (6) entails (7) and then that each of the disjuncts in (7) is necessarily false. The premise proclaiming the falsehood of (7.2) is

(iv) It is not within one's power at a given time to do something that would bring it about that someone who held a certain belief at a time prior to the time in question did not hold that belief at the time prior to the time in question.¹⁰

If the argument is to succeed, then of course (iv) must be construed in such a way as to contradict (7.2*)—perhaps as

(iv*) For any persons S and S^* , if at some time in the past S^* held a certain belief, then it is not within the power of S to perform any action which is such that if he were to perform it, then S^* would not have held that belief then.

The relevant specification of (iv*) withholds from Jones, not the absurd power of bringing it about that God both did and did not hold a given belief, but the power, at T_2 , to do a thing X which is such that if he *had* done it, then God would not have held a belief that as a matter of fact he did hold. But of course the question is, what do (iv*) and its specification have to recommend them? Why should we be inclined to accept them? Perhaps, Pike thinks, because the proposition *God believed at T_1 that Jones would mow at T_2* is a fact about the past relative to T_2 ; and it is not within anyone's power so to act that what is *in fact* a fact about the past wouldn't have been a fact about the past. That is, for any fact f about the past, it is not within anyone's power to perform an action which is such that if he were to perform it, then f would not have been a fact

about the past. More likely, the claim is that there is a certain *kind* of proposition about the past such that it is never within anyone's power so to act that a true proposition of *that* kind would have been false; a proposition specifying what someone believed at an earlier time, furthermore, is a proposition of just that sort. In either case Pike's argument for the incompatibility of divine foreknowledge and human freedom is rightly seen as in the company of the argument Aquinas, Ockham, Edwards and others consider for that conclusion—the argument from the fixedness of the past.

II. Ockham's Way Out

As Edwards (and perhaps Pike) sees things, then, "in things which are past, their existence is now necessary . . . , 'Tis too late for any possibility of alteration in that respect: 'tis now impossible that it should be otherwise than true that that thing has existed." Nor is Edwards idiosyncratic in this intuition; we are all inclined to believe that the past, as opposed to the future, is fixed, stable, unalterable, closed. It is outside our control and outside the control even of an omnipotent being. Consider, for example, Peter Damian, often (but mistakenly) cited as holding that the power of God is limited by nothing at all, not even the laws of logic. In *De Divina Omnipotentia*, a letter to Desiderio of Cassino, Damian recalls and discusses a dinner conversation with the latter, a conversation that touched off a centuries long discussion of the question whether it was within the power of God to restore to virginity someone who was no longer a virgin. The topic is God's power over the past:

. . . I feel obliged to respond to an objection that many put forward. They say: "If God," as you affirm, "is omnipotent in all things, can he so act that things that are made, are not made? He can certainly destroy all things that have been made, so that they exist no more: but it is impossible to see how he can bring it about that those things which were made should never have been made at all. He can bring it about that from now and henceforth Rome should no longer exist, but how can the opinion be maintained that he can bring it about that it should never have been built of old?"¹¹

Damian's response is not entirely clear. In Chapter 15, which is substantially his concluding chapter, he suggests that "it is much the same thing to ask 'How can God bring it about that what once happened did not happen?' or 'Can God act in such a way that what he made, he did not make?' as to assert that what God has made, God did not make."¹² (Damian takes a relatively strong line with respect to this last; anyone who asserts it, he says, is contemptible, not worthy of a reply, and should instead be branded.) Here it isn't clear whether he is

holding that the proposition *what has happened is such that God can bring it about that it has not happened* is equivalent to the proposition *God can bring it about that what has happened hasn't happened* and is thus false, or whether he simply fails to distinguish these propositions. He goes on to make heavy weather over the relation of God's eternity to the question under discussion, apparently holding that "relative to God and his unchangeable eternity", it is correct to say that God *can* bring it about that Rome was never founded; "relative to us," on the other hand, the right thing to say is that God *could have* brought it about that Rome was never founded.¹³

Damian's views on the matter are not altogether clear; what *is* clear is that he, like the rest of us, saw an important asymmetry between past and future. This asymmetry consists in part in the fact that the past is outside our control in a way in which the future is not. Although I now have the power to raise my arm, I do not have the power to bring it about that I raised my arm five minutes ago. Although it is now within my power to think about Vienna, it is not now within my power to bring it about that five minutes ago I was thinking about Vienna. The past is fixed in a way in which the future is open. It is within my power to help determine how the future shall be; it is too late to do the same with respect to the past.

Edwards, indeed, speaks in this connection of the *unalterability* of the past; and it is surely natural to do so. Strictly speaking, however, it is not alterability that is here relevant; for the future is no more alterable than the past. What after all, would it be to alter the past? To bring it about, obviously, that a temporally indexed proposition which is true and about the past before I act, is false thereafter. On January 1, 1982, I was not visiting New Guinea. For me to change the past with respect to that fact would be for me to perform an action *A* such that prior to my performing the action, it is true that on January 1, 1982 I was not in New Guinea, but after I perform the action, false that I was not in New Guinea then. But of course I can't do anything like that, and neither can God, despite his omnipotence.

But neither can we alter the future. We can imagine someone saying, "Paul will in fact walk out the door at 9:21 A. M.; hence *Paul will walk out at 9:21 A. M.* is true; but Paul has the power to refrain from walking out then; so Paul has the power to refrain from walking out then; so Paul has the power to alter the future." But the conclusion displays confusion; Paul's not walking out then, were it to occur, would effect no alteration at all in the future. To alter the future, Paul must do something like this: he must perform some action *A* at a time *t* before 9:21 such that prior to *t* it is true that Paul will walk out at 9:21, but after *t* (after he performs *A*) false that he will. Neither Paul nor anyone—not even God—can do something like that. So the future is no more alterable than the past.

The interesting asymmetry between past and future, therefore, does not consist in the fact that the past is unalterable in a way in which the future is not; nonetheless this asymmetry remains. Now, before 9:21, it is within Paul's power to make it false that he walks out at 9:21; after he walks out at 9:21 he will no longer have that power. In the same way in 1995 BC God could have brought it about that Abraham did not exist in 1995 BC; now that is no longer within his power. As Edwards says, it's too late for that.

Recognizing this asymmetry, Ockham, like several other medieval philosophers, held that the past is indeed in some sense necessary: it is *necessary per accidens*:

I claim that every necessary proposition is *per se* in either the first mode or the second mode. This is obvious, since I am talking about all propositions that are necessary *simpliciter*. I add this because of propositions that are necessary *per accidens*, as is the case with many past tense propositions. They are necessary *per accidens*, because it was contingent that they be necessary, and because they were not always necessary.¹⁴

Here Ockham directs our attention to propositions about the past: past tense propositions together with temporally indexed propositions, such as

(8) *Columbus sails the ocean blue* is true in 1492¹⁵

whose index is prior to the present time. Such propositions, he says, are accidentally necessary if true; they are *accidentally* necessary because they *become* necessary. Past tense propositions become necessary when they become true; temporally indexed propositions such as (8), on the other hand, do not become true—(8) was always true—but they become necessary, being necessary after but not before the date of their index. And once a proposition acquires this status, says Ockham, not even God has the power to make it false.

In *Predestination, God's Foreknowledge and Future Contingents*, Ockham goes on to make an interesting distinction:

Some propositions are about the present as regards both their wording and their subject matter (*secundum vocem et secundum rem*). Where such propositions are concerned, it is universally true that every true proposition about the present has (corresponding to it) a necessary one about the past:—e.g., 'Socrates is seated,' 'Socrates is walking,' 'Socrates is just,' and the like.

Other propositions are about the present as regards their wording only and are equivalently about the future, since their truth depends on the truth of propositions about the future. Where such (propositions) are

concerned, the rule that every true proposition about the present has corresponding to it a necessary proposition about the past is not true.¹⁶

Ockham means to draw the following contrast. Some propositions about the present “are about the present as regards both their wording and their subject matter”; for example,

(9) Paul is seated.

Such propositions, we may say, are *strictly* about the present; and if such a proposition is now true, then a corresponding proposition about the past—

(10) Paul was seated—

will be accidentally necessary from now on. Other propositions about the present, however, “are about the present as regards their wording only and are equivalently about the future”; for example,

(11) Paul correctly believes that the sun will rise on January 1, 2000.

Such a proposition is “equivalently about the future,” and it is not the case that if it is true, then the corresponding proposition about the past—

(12) Paul correctly believed that the sun will rise on January 1, 2000

in this case—will be accidentally necessary from now on. (Of course we hope that (12) will be accidentally necessary after January 1, 2000.)

What Ockham says about the present, he would say about the past. Just as some propositions about the present are “about the present as regards their wording only and are equivalently about the future,” so some propositions about the past are about the past as regards their wording only and are equivalently about the future; (12) for example, or

(13) Eighty years ago, the proposition *Paul will mow his lawn in 1999* was true

or (to appease those who object to the idea that a proposition can be true at a time)

(14) Eighty years ago, the sentence “Paul will mow his lawn in 1999” expressed the proposition *Paul will mow his lawn in 1999* and expressed a truth.

These propositions are about the past, but they are also equivalently about the future. Furthermore, they are not necessary *per accidens*—not yet, at any rate. We might say that a true proposition like (12) - (14) is a *soft* fact about the past, whereas one like

(15) Paul mowed in 1981

—one *strictly* about the past—is a *hard* fact about the past.¹⁷

Now of course the notion of aboutness, as Nelson Goodman has reminded us¹⁸ is at best a frail reed; *a fortiori*, then, the same goes for the notion of being *strictly* about. But we do have *something* of a grasp of this notion, hesitant and infirm though perhaps it is. It may be difficult or even impossible to give a useful criterion for the distinction between hard and soft facts about the past, but we do have *some* grasp of it, and can apply it in many cases. The idea of a hard fact about the past contains two important elements: *genuineness* and *strictness*. In the first place, a hard fact about the past is a genuine fact about the past. This cannot be said, perhaps, for (13). It is at least arguable that if (13) is a fact about the past at all, it is an *ersatz* fact about the past; it tells us nothing about the past except in a Pickwickian, Cantabridgian sort of way. What it really tells us is something about the future: that Paul will mow in 1999. (12) and (14), on the other hand, do genuinely tell us something about the past: (12) tells us that Paul believed something and (14) that a certain sentence expressed a certain proposition. But (12) and (14) aren't *strictly* about the past; they also tell us something about what will happen in 1999. It may be difficult to give criteria, or (informative) necessary and sufficient conditions for either genuineness or strictness; nevertheless we do have at least a partial grasp of these notions.

Accordingly, let us provisionally join Ockham in holding that there is a viable distinction between hard and soft facts about the past. The importance of this distinction, for Ockham, is that it provides him with a way of disarming the arguments for logical and theological determinism from the necessity of the past. Each of those arguments, when made explicit, has as a premise

(16) If *p* is about the past, then *p* is necessary

or something similar. Ockham's response is to deny (16); *hard* facts about the past are indeed accidentally necessary, but the same cannot be said for soft facts. Such propositions as (13) and (14) are not hard facts about the past; each entails that Paul will mow his lawn in 1999, and is therefore, as Ockham says, "equivalently about the future." Not all facts about the past, then, are hard facts about the past; and only the hard facts are plausibly thought to be accidentally necessary. (16), therefore, the general claim that all facts about the past are accidentally necessary, is seen to be false—or at any rate there seems to be no reason at all to believe it. And thus dissolves any argument for theological determinism which, like Edwards', accepts (16) in its full generality.

I believe Ockham is correct here; furthermore, there is no easy way to refurbish Edwards' argument. Given Ockham's distinction between hard and soft facts, what Edwards' argument needs is the premise that such propositions as

(17) God knew eighty years ago that Paul will mow in 1999

are hard facts about the past. Clearly, however, (17) is not a hard fact about the past; for (like (13) and (14)), it entails

(18) Paul will mow his lawn in 1999;

and no proposition that entails (18) is a hard fact about the past.

Let me be entirely clear here; I say that none of (13), (14) and (17) is a hard fact about the past, because each entails (18). In so saying, however, I am not endorsing a *criterion* for hard facthood; in particular I am not adopting an “entailment” criterion, according to which a fact about the past is a hard fact about the past if and only if it entails no proposition about the future. No doubt *every* proposition about the past, hard fact or not, entails *some* proposition about the future; *Socrates was wise*, for example, entails *It will be true from now on that Socrates was wise*; and *Paul played tennis yesterday* entails *Paul will not play tennis for the first time tomorrow*. What I am saying is this: No proposition that entails (18) is a hard fact about the past, because no such proposition is *strictly* about the past. We may not be able to give a criterion for being strictly about the past; but we do have at least a rough and intuitive grasp of this notion. Given our intuitive grasp of this notion, I think we can see two things. First, no conjunctive proposition that contains (18) as a conjunct is (now, in 1986) strictly about the past. Thus *Paul will mow his lawn in 1999 and Socrates was wise*, while indeed a proposition about the past, is not *strictly* about the past. And second, hard facthood is closed under logical equivalence: any proposition equivalent (in the broadly logical sense) to a proposition strictly about the past is itself strictly about the past.¹⁹ But any proposition that entails (18) is equivalent, in the broadly logical sense, to a conjunctive proposition one conjunct of which is (18); hence each such proposition is equivalent to a proposition that is not a hard fact about the past, and is therefore itself not a hard fact about the past. Thus the Edwardsian argument fails.

Similar comments apply to Pike’s argument (above, p. 240-43) for the incompatibility of essential divine omniscience with human freedom. Pike puts his argument in terms, not of God’s *foreknowledge*, but, so to speak, of God’s *forebelief*; and the essential premise of the argument, as you recall, is

(iv*) For any persons *S* and *S**, if at some time in the past *S** held a certain belief, then it is not within the power of *S* to perform an action such that if he were to perform it, then *S** would not have held that belief then.

His essential insights, I think, are two: first, it seems natural to think of propositions of the sort *eighty years ago, S believed p* as hard facts about the past (and thus as plausible candidates for accidental necessity); and secondly, if God

is essentially omniscient, then such a proposition as *God believed eighty years ago that p entails p* . (To these insights he adds the idea, not in my view an insight, that it is not within anyone's power to perform an action which is such that if he were to perform it, then what is *in fact* a hard fact about the past wouldn't have been a fact at all.)

Unfortunately, the second of these insights is incompatible with the first. If God is essentially omniscient, then

- (19) Eighty years ago, God believed the proposition that Paul will mow his lawn in 1999

entails that Paul will mow in 1999. By the above argument, then, (19) is not strictly about the past and is therefore not a hard fact about the past. But then we no longer have any reason to accept (iv*). Perhaps it is plausible to accept (iv*) for S^* stipulated not to be essentially omniscient, or stipulated to be such that propositions of the sort *S^* believed that p* are hard facts about the past.²⁰ But given the possibility of essential divine omniscience, (iv*) in its full generality has nothing whatever to recommend it; for if God is essentially omniscient, then such propositions as (19) are not hard facts about the past.

We can see the same point from a slightly different perspective. Pike is assuming, for purposes of argument, that God is essentially omniscient. Suppose we add, as classical theism also affirms, that God is a necessary being. What follows is that God both exists and is omniscient in every possible world; hence in every possible world God believes every true proposition and believes no false propositions. But then *truth* and *being believed by God* are equivalent in the broadly logical sense; it is then necessary that for any proposition p , p is true if and only if God believes p . It follows that

- (20) Eighty years ago, God believed that Paul will mow in 1999

is equivalent in the broadly logical sense to

- (21) Eighty years ago, it was true that Paul will mow in 1999.

Here again we can accommodate our colleagues ("atemporalists," as we may call them) who do not believe that propositions can be true at times; for (20), given the plausible (but widely disputed) assumption that necessarily, for any time t there is a time t^* eighty years prior to t , is also equivalent to

- (22) Paul will mow in 1999.

Even without the "plausible assumption," (20) is equivalent to

- (23) There is (i.e., is, was or will be) such a time as eighty years ago, and Paul will mow in 1999.

Clearly enough none of (21), (22), and (23) is a hard fact about the past; but

(20) is equivalent in the broadly logical sense to at least one of them; hence (20) is not a hard fact about the past. Furthermore, (20) is inconsistent with Paul's being free to mow in 1999 only if (23) is; and no one, presumably, except for the most obdurate logical fatalist, will hold that (23) is incompatible with Paul's being free to mow in 1999.²¹ So if, as traditional theism affirms, God is both a necessary being and essentially omniscient, then theological determinism is logically equivalent to logical determinism; divine foreknowledge is incompatible with human freedom only if the latter is inconsistent with the existence of true propositions detailing future free actions.

Ironically enough, from Ockham's perspective it is the suggestion that God is omniscient but *not* essentially omniscient that is plausibly thought to create a problem. Return, once more, to

(20) Eighty years ago, God believed that Paul will mow in 1999.

If God is not essentially omniscient, then (20) does not entail that Paul will mow in 1999; at any rate we no longer have any reason to suppose that it does. But then we are deprived of our only reason for denying that (20) is strictly about the past; we shall then presumably have to hold that (20) is a hard fact about the past. From an Ockhamist perspective, it follows that (20) is accidentally necessary. But an Ockhamist would also certainly hold that even if God is not *essentially* omniscient, nevertheless his omniscience is counterfactually independent of Paul's actions; that is to say, there isn't anything Paul can do such that if he were to do it, then God would not have been or would no longer be omniscient. If Paul were to refrain from mowing his lawn in 1999, therefore, God would not have believed, eighty years ago, that Paul will mow then. But Ockham also thinks it is or will be within Paul's power to refrain from mowing then. From Ockham's point of view, then, the facts are these: if God is not essentially omniscient, then there is an accidentally necessary proposition *P*—(20), as it happens—and an action Paul can perform, such that if he were to perform it, then *P* would have been false. Ockham is not very explicit about accidental necessity; nevertheless he would have held, I think, that it is not within anyone's power to perform an action which is such that if he were to perform it, then a proposition which is in fact accidentally necessary would have been false. From Ockham's point of view, therefore, divine foreknowledge threatens human freedom only if God is not essentially omniscient.

What I have argued, then, is that Ockham's way out gives us the means of seeing that neither Edwards' nor Pike's argument is successful. Edwards' argument fails because, essentially, God's having *known* a certain proposition is not, in general, a hard fact about the past; but only hard facts about the past are plausibly thought to be accidentally necessary. Pike's argument fails for similar reasons: if God is essentially omniscient, then the facts about what God *believed*

are not, in general, hard facts about the past; but then there is no reason to suppose that none of us can act in such a way that God would not have believed what in fact he does believe. In sections IV and V, therefore, I shall assume, with Ockham, that divine foreknowledge and human freedom are not incompatible.

IV. *On Ockham's Way Out*

As we have seen, Ockham responds to the arguments for theological determinism by distinguishing hard facts about the past—facts that are genuinely and strictly about the past—from soft facts about the past; only the former, he says, are necessary *per accidens*. This response is intuitively plausible. It is extremely difficult, however, to say precisely what it is for a proposition to be strictly about the past, and equally difficult to say what it is for a proposition to be accidentally necessary. According to Ockham, a proposition is not strictly about the past if its “truth depends on the truth of propositions about the future” (above, p. 245). This suggests that if a proposition about the past *entails* one about the future, then it isn't strictly about the past; we might therefore think that a proposition is strictly about the past if and only if it does not entail a proposition about the future. We might then concur with Ockham in holding that a proposition about the past is accidentally necessary if it is true and *strictly* about the past. But as John Fisher points out, difficulties immediately rear their ugly heads.²² I shall mention only two. In the first place, suppose we take ‘about the future’ in a way that mirrors the way we took ‘about the past’; a proposition is then about the future if and only if it is either a future tense proposition or a temporally indexed proposition whose index is a date later than the present. Then obviously any proposition about the past will entail one about the future;

(24) Abraham existed a long time ago

and

(25) Abraham exists in 1995 BC

entail, respectively,

(26) It will be the case from now on that Abraham existed a long time ago

and

(27) It will always be true that Abraham exists in 1995 BC.

But then the distinction between propositions strictly about the past and propositions about the past *simpliciter* becomes nugatory.

Perhaps you will reply that propositions like (26) and (27) are at best *ersatz*

propositions about the future, despite their future tense or future index; on a less wooden characterization of 'about the future' they wouldn't turn out to be about the future. Perhaps so; I won't here dispute the point. But other and less tractable difficulties remain. First, (24) and (25) both entail that Abraham will not begin to exist (i.e., exist for the first time) in 1999 (Fischer, p. 75); and that isn't, or isn't obviously, an *ersatz* fact about the future. Second, on that more adequate characterization, what ever exactly it might be, it will no doubt be true that

- (28) It was true 80 years ago either that God knew that Friesland will rule the world in 2000 AD or that Paul believed that Friesland will rule the world in 2000 AD²³

entails no non-*ersatz* future propositions and is thus strictly about the past. Now suppose, *per impossible*, that Friesland will indeed rule the world in 2000 AD. Then (28) (given divine omniscience) will be true by virtue of the truth of the first disjunct; the second disjunct, however, is false (by virtue of Paul's youth). And then on the above account (28) is accidentally necessary; but is it really? Isn't it still within someone's power—God's let's say—to act in such a way that (28) would have been false (Fischer, p. 74)?

Necessary *per accidens* and *being strictly about the past* thus present difficulties when taken in tandem in the way Ockham takes them. The former, furthermore, is baffling and perplexing in its own right; and this is really the fundamental problem here. If, as its proponents claim, accidental necessity isn't any sort of logical or metaphysical or causal necessity, what sort of necessity is it? How shall we understand it? Ockham, Edwards and their colleagues don't tell us. Furthermore, even if they (or we) had a plausible account of *being strictly about the past*, we couldn't sensibly *define* accidental necessity in terms of being strictly about the past; for the whole point of the argument for theological determinism is just that propositions about the future that are entailed by accidentally necessary propositions about the past will themselves be accidentally necessary. So how shall we understand accidental necessity?

Perhaps we can make some progress as follows. In explaining accidental necessity, one adverts to facts about the power of agents—such facts, for example, as that not even God can now bring it about that Abraham did not exist; it's too late for that. Furthermore, in the arguments for logical and theological determinism, accidental necessity functions as a sort of middle term. It is alleged that a proposition of some sort or other is about or strictly about the past; but then, so the claim goes, that proposition is accidentally necessary—in which case, according to the argument, it is not now within the power of any agent, not even God, to bring it about that it is false. Why not eliminate the middle man and *define* accidental necessity in terms of the powers of agents? If a proposition *p* is accidentally necessary, then it is not possible—possible in the broadly logical

sense—that there be an agent who has it within his power to bring it about that p is false; why not then define accidental necessity as follows:

- (29) p is accidentally necessary at t if and only if p is true at t and it is not possible both that p is true at t and that there is a being that at t or later has the power to bring it about that p is false?²⁴

But how shall we understand this “has the power to bring it about that p is false”? Pike speaks in this connection of “it’s being within Jones’ power to do something that would have brought it about that” p , and Fisher of “being able so to act that p would have been false.” This suggests

- (30) S has the power to bring it about that p is false if and only if there is an action it is within S ’s power to perform such that if he were to perform it, p would have been false.

(30) is perhaps inadequate as a *general* account of what it is to have the power to bring it about that a proposition is false. For one thing, it seems to imply that I have the power with respect to necessarily false propositions (as well as other false propositions whose falsehood is counterfactually independent of my actions) to bring it about that they are false; and this is at best dubious. But here we aren’t interested, first of all, in giving an independent account of having the power to bring it about that p is false; even if (30) isn’t a satisfactory general account of that notion, it may serve acceptably in (29). Incorporating (30), therefore, (29) becomes

- (31) p is accidentally necessary at t if and only if p is true at t and it is not possible both that p is true at t and that there exists an agent S and an action A such that (1) S has the power at t or later to perform A , and (2) if S were to perform A at t or later, then p would have been false.²⁵

Now so far as I know, Ockham gave no explicit account or explanation of accidental necessity; nevertheless it is not implausible to see him as embracing something like (31). On this definition, furthermore, (given common sense assumptions) many soft facts about the past will not be accidentally necessary: for example

- (32) Eighty years ago it was true that Paul would not mow his lawn in 1999.

Even if true, (32) is not accidentally necessary: it is clearly possible that Paul have the power, in 1999, to mow his lawn; but if he were to do so, then (32) would have been false. The same goes for

- (33) God believed eighty years ago that Paul would mow his lawn in 1999

if God is essentially omniscient; for then it is a necessary truth that if Paul were to refrain from mowing his lawn during 1999, God would not have believed, eighty years ago, that he would mow then. (32) and (33), therefore, are not accidentally necessary.

Since (32) and (33) are not hard facts about the past, Ockham would have welcomed this consequence. But our account of accidental necessity has other consequences—consequences Ockham might have found less to his liking. Let's suppose that a colony of carpenter ants moved into Paul's yard last Saturday. Since this colony hasn't yet had a chance to get properly established, its new home is still a bit fragile. In particular, if the ants were to remain and Paul were to mow his lawn this afternoon, the colony would be destroyed. Although nothing remarkable about these ants is visible to the naked eye, God, for reasons of his own, intends that it be preserved. Now as a matter of fact, Paul will not mow his lawn this afternoon. God, who is essentially omniscient, knew in advance, of course, that Paul will not mow his lawn this afternoon; but if he had foreknown instead that Paul *would* mow this afternoon, then he would have prevented the ants from moving in. The facts of the matter, therefore, are these: if Paul were to mow his lawn this afternoon, then God would have foreknown that Paul would mow his lawn this afternoon; and if God had foreknown that Paul would mow this afternoon, then God would have prevented the ants from moving in. So if Paul were to mow his lawn this afternoon, then the ants would not have moved in last Saturday. But it is within Paul's power to mow this afternoon. There is therefore an action he can perform such that if he were to perform it, then the proposition

(34) That colony of carpenter ants moved into Paul's yard last Saturday

would have been false. But what I have called "the facts of the matter" certainly seem to be possible; it is therefore possible that there be an agent who has the power to perform an action which is such that if he were to perform it, then (34) would have been false—in which case it is not accidentally necessary. But (34), obviously enough, is strictly about the past; insofar as we have any grasp at all of this notion, (34) is about as good a candidate for being an exemplification of it as any we can easily think of. So, contrary to what Ockham supposed, not all true propositions strictly about the past—not all hard facts—are accidentally necessary—not, at any rate, in the sense of (31).

Another example: a few years ago Robert Nozick called our attention to *Newcomb's Paradox*. You are confronted with two opaque boxes, box A and box B. You know that box B contains \$1,000 and that box A contains either \$1,000,000 or nothing at all. You can choose to take both boxes or to take just box A; no other action is possible. You know, furthermore, that the money was

put there eighty years ago by an extremely knowledgeable agent according to the following plan: if she believed that you would take both boxes, she put \$1,000 in box B and nothing in box A; if on the other hand, she believed that you would exercise a decent restraint and take only box A, she put \$1,000 in box B and \$1,000,000 in box A. You know, finally, that this being has an amazing track record. Many other people have been in just your situation and in at least a vast majority of such cases, if the person in question took both boxes, he found box A empty; but if he took just box A, he found it to contain \$1,000,000. Your problem is: given your depleted coffers and acquisitive nature, what should you do? Should you take both boxes, or just box A? And the puzzle is that there seem to be strong arguments on both sides. First, there seems good reason to take just box A. For if you were to take just box A, then the being in question would have known that you'd take just box A, in which case she would have put \$1,000,000 in it. So if you were to take just box A, you'd get \$1,000,000. If you were to take both boxes, on the other hand, then the being in question would have known that you would take both, in which case she would have put nothing in box A and \$1,000 in box B. If you were to take both boxes, therefore, you would get \$1,000. So if you were to take just box A you'd get \$1,000,000 and if you were to take both boxes you'd get \$1,000. Obviously, then, you ought to take just box A.

But there seems an equally plausible argument on the other side. For the money in the boxes has been there for a long time—eighty years, let's say. So if in fact there is \$1,001,000 in those boxes, then there is nothing you can do now to alter that fact. So if there is \$1,001,000 there, then if you were to take both boxes, you'd get \$1,001,000. On the other hand, if there is \$1,001,000 there, then if you were to take just box A, you'd get only \$1,000,000, thus missing out on the extra \$1,000. So if there is \$1,001,000 there, you would get more if you took both boxes than if you took only one. But a similar argument shows that the same holds if there is just \$1,000 there; in that case you'd get \$1,000 if you took both boxes but nothing at all if you took just box A. The only prudent course, then, is to take both boxes.

Now the fact is, as I think, that neither of these arguments is conclusive; each takes as a premise a proposition not obviously true and not entailed by the puzzle conditions. Thus the two boxer appears to argue that if there is \$1,001,000 there, then it follows that if you were to take both boxes, there (still) would have been \$1,001,000 there. But of course that doesn't follow; the argument form *A: therefore, if P were true A would be true* is invalid. Or perhaps he argues that since it is true that if there were \$1,001,000 there and you were to take both boxes, you'd get \$1,001,000, it follows that if there were \$1,001,000 there, then if you were to take both boxes, you would get \$1,001,000. But that doesn't follow either; exportation doesn't hold for counterfactuals. The one boxer, I

think, has a better time of it. He does claim, however, that if you were to take both boxes, then the being in question would have known that you'd take both boxes; but of course this isn't entailed by the puzzle conditions. The best we can say is that it is *probable*, relative to the puzzle conditions, that if you were to take both, then she would have known that you would take both. This is the best we can say; but can we say even as much as that? How does one determine the probability of such a counterfactual on the basis of such evidence as the puzzle conditions provide?

But suppose we strengthen the puzzle conditions. Suppose it isn't just some knowledgeable being with a splendid track record that puts the money in the boxes, but God. Suppose furthermore, that God is omniscient; and add one of the following further conditions (in order of decreasing strength): God is essentially omniscient; God is omniscient in every world in which you exist; God is omniscient both in the worlds in which you take just box A and the worlds in which you take both; God's being omniscient is counterfactually independent of your decision, so that God would have been omniscient if you were to take box A and would have been omniscient if you were to take both boxes. Add also that the other puzzle conditions are counterfactually independent of your actions. Then there is knock-down drag-out argument for taking just box A (and no decent argument at all for taking both). For then both

(35) If you were to take both boxes, then God would have believed that you would take both boxes

and

(36) If you were to take both boxes and God had believed that you would take both boxes, then God would have put nothing in box A

follow from the puzzle conditions; from (35) and (36) it follows by counterfactual logic that

(37) If you were to take both boxes, then God would have put nothing in box A;

and from (37) (together with the puzzle conditions) it follows that if you were to take both boxes, then you'd get only \$1,000. But a precisely similar argument shows that if you were to take just box A, you'd get \$1,000,000. So if you were to take just box A, you would get a lot more money than you would if you were to take both. This argument will be resisted only by those whose intellects are clouded by unseemly greed.

But something further follows. The puzzle conditions, thus strengthened, seem possible. But they entail that there is a true proposition p strictly about the past and an action you can perform such that if you were to perform it, then p would

have been false. For suppose in fact that you will take both boxes, so that in fact

(38) There was only \$1,000 there eighty years ago

is true. According to the puzzle conditions, it is within your power to take just box A; but they also entail that if you were to take just box A, then (38) would have been false. (38), however, is strictly about the past; hence there is a proposition strictly about the past that is not necessary *per accidens*.

So here are a couple of propositions—(34) and (38)—that are hard facts about the past, but are not accidentally necessary. Of course there will be many more. It is possible (though no doubt unlikely) that there is something you can do such that if you were to do it, then Abraham would never have existed. For perhaps you will be confronted with a decision of great importance—so important that one of the alternatives is such that if you were to choose *it*, then the course of human history would have been quite different from what in fact it is. Furthermore, it is possible that if God had foreseen that you would choose *that* alternative, he would have acted very differently. Perhaps he would have created different persons; perhaps, indeed, he would not have created Abraham. So it is possible that there is an action such that it is within your power to perform it and such that if you were to perform it, then God would not have created Abraham. But if indeed that *is* possible, then not even the proposition *Abraham once existed* is accidentally necessary in the sense of (31). By the same sort of reasoning we can see that it is possible (though no doubt monumentally unlikely) that there is something you can do such that if you were to do it, then the Peloponnesian War would never have occurred.

It follows, then, that even such hard facts about the past as that Abraham once existed and that there was once a war between the Spartans and Athenians are not accidentally necessary in the sense of (31). Indeed, it is not easy to think of *any* contingent facts about the past that are accidentally necessary in that sense. Of course there are limits to the sorts of propositions such that it is possibly within my power so to act that they would have been false. It is not possible, for example, that there be an action I can perform such that if I were to do so, then I would never have existed.²⁶ But even if it is necessarily not within *my* power so to act that I would not have existed, the same does not go for *you*; perhaps there is an action you can take which is such that if you were to take it, then I would not have existed. (I should therefore like to ask you to tread softly.) Neither of us (nor anyone else) could have the power so to act that there should never have been any (contingently existing) agents; clearly it is not possible that there be an action *A* some (contingently existing) person could perform such that if he were to do so, then there would never have been any contingent agents. So the proposition *there have been* (contingent) *agents* is accidentally necessary; but it is hard indeed to find any stronger propositions

that are both logically contingent and accidentally necessary.

V. *Power Over the Past*

The notion of accidental necessity explained as in (31) is, I think, a relevant notion for the discussion of the arguments for theological determinism from the necessity of the past; for the question at issue is often, indeed ordinarily, put as the question which propositions about the past are such that their truth entails that it is not within anyone's power so to act that they would have been false. Accidental necessity as thus explained, however, does little to illumine our deep intuitive beliefs about the asymmetry of past and future—the fact that the future is within our control in a way in which the past is not; for far too few propositions turn out to be accidentally necessary.²⁷ What is the root of these beliefs and what is the relevant asymmetry between past and future? Is it just that the scope of our power with respect to the past is vastly more limited than that of our power with respect to the future? That is, is it just that there are far fewer propositions about the past than about the future which are such that I can so act that they would have been false? I doubt that this is an important part of the story, simply because we really know very little about how far our power with respect to either past or future extends. With few exceptions, I do not know which true propositions about the past are such that I can so act that they would have been false; and the same goes for true propositions about the future.

So suppose we look in a different direction. Possibly there is something I can do such that if I were to do it, then Abraham would not have existed; but it is not possible—is it?—that I now *cause* Abraham not to have existed. While it may be within Paul's power so to act that the colony of ants would not have moved in last Saturday, surely it isn't within his power now—or for that matter within God's power now—to *cause* it to be true that the colony didn't move in. Perhaps we should revise our definition of accidental necessity to say that a proposition is (now) accidentally necessary if it is true and also such that it entails that it is not (now) within anyone's power (not even God's) to cause it to be false. And perhaps we could then see the relevant asymmetry between past and future as the fact that true propositions strictly about the past—unlike their counterparts about the future—are accidentally necessary in this new sense.

The right answer, I suspect, lies in this direction; but the suggestion involves a number of profound perplexities—about agent causation, the analysis of causation, whether backwards causation is possible, the relation between causation and counterfactuals—that I cannot explore here. Let us instead briefly explore a related suggestion. In our first sense of accidental necessity, a proposition *p* is accidentally necessary if and only if *p* is true and such that it is not possible that *p* be true and there be an agent and an action such that (1) the agent is now

or will in the future be able to perform the action and (2) if he were to do so, the p would have been false. Then such propositions as *Abraham existed in 1995 BC* turn out not to be accidentally necessary because of the possibility of divine foreknowledge and, so to speak, divine fore-cooperation. Perhaps if I were to do A , then God would have foreseen that I would do A and would not have created Abraham. My doing A , however, isn't by *itself* sufficient for Abraham's not existing; it requires God's previous cooperation. So suppose we strengthen the counterfactual involved in the above definition; suppose we say

- (39) p is accidentally necessary at t if and only if p is true at t and it is not possible both that p is true at t and that there exists an action A and an agent S such that (1) S has the power at t or later to perform A , and (2) *necessarily* if S were to perform A at t or later, then p would have been false.

While it may be within Paul's power to do something—namely, mow his lawn—such that if he were to do so, then that colony of ants would not have moved in, his performing that action does not *entail* the falsehood of the proposition that the ants did move in; and it looks as if there is nothing he or anyone can do that does entail its falsehood.

Permit me a couple of comments on this definition. First, although it involves the idea of a proposition's being true at a time, it is easily revised (as are (42) and (44) below) so as to accommodate our atemporalist friends. Second, I am thinking of the notion of an *agent*, as it enters into the definition, broadly, in such a way as to include agents of all sorts; in particular it is to include God. Third, propositions that are necessary in the broadly logical sense turn out accidentally necessary (see footnote 25). Fourth, accidental necessity thus characterized is closed under entailment but not under conjunction; see Appendix, below, p. 264. Fifth, many contingent propositions about the past turn out to be accidentally necessary, but so do some contingent propositions about the future. And finally, Ockham's claim that necessity *per accidens* is connected with what is strictly about the past seems to be vindicated on (39); barring a couple of complications (see below, pp. 260-61), it looks as if a logically contingent proposition about the past is accidentally necessary in the sense of (39) if and only if it is true and strictly about the past. So, for example,

- (40) Eighty years ago, the sentence "Paul will mow his lawn in 1995" expressed the proposition *Paul will mow his lawn in 1995* and expressed a truth

is true, (let's suppose) but not strictly about the past. Here there is indeed something someone can do that entails its falsehood: Paul can mow his lawn in 1995. But it's not possible that there be an action Paul (or anyone) can or will

be able to perform such that his performing it entails that

(41) Paul didn't mow his lawn in 1984

is false. We may thus say, with Ockham, that propositions strictly about the past are accidentally necessary; and the relevant asymmetry between past and future is just that contingent propositions strictly about the past are accidentally necessary, while their colleagues about the future typically are not.

Unfortunately, there is a residual perplexity. For what shall we count, here, as *actions*? Suppose it is in fact within Paul's power so to act that the ants would not have moved in; isn't there such an action as *bringing it about that the ants would not have moved in* or *so acting that the ants would not have moved in*? If there is (and why not?) then it is both an action he can perform and one such that his performing it entails that the ants did not move in; but then *the ants moved in* is not accidentally necessary after all. Here what we need, clearly enough, is the idea of a *basic* action, what an agent can in some sense do *directly*. *Moving my arm*, perhaps, would be such an action; starting a world war or so acting that the ants would not have moved in would not. Let's say that an action is one I can *directly* perform if it is one I can perform without having to perform some other action in order to perform it. Starting a war would not be an action I can directly perform; I cannot start a war without doing something like pushing a button, pulling a trigger, or making a declaration. According to Roderick Chisholm, the only actions I can directly perform are *undertakings*.²⁸ I can't, for example, raise my arm without trying or endeavoring or undertaking to do so; more exactly (as Chisholm points out (p. 57)), I can't raise it without undertaking to do *something*—scratch my ear, for example. I am inclined to think he is right: more generally, I can't perform an action which is not itself an undertaking, without undertaking some action or other. (What I say below, however, does not depend on this claim.) But he is also right in thinking that undertakings are not undertaken. If so, however, it will follow that the only actions I can directly perform are undertakings.

Now some actions I can perform are such that my undertaking to perform them and my body's being in normal conditions are together causally sufficient for my performing them; raising my hand and moving my feet would be an example. "Normal conditions" here, includes, among other things, the absence of pathological conditions as well as the absence of such external hindrances as being locked in a steamer trunk or having my hands tied behind my back. Of course more should be said here, but this will have to suffice for now. Let us say, then, that an action *A* is a basic action for a person *S* if and only if there is an action *A** that meets two conditions: first, *S* can directly perform *A**, and secondly, *S*'s being in normal conditions and his directly performing *A** is causally sufficient for his performing *A*. Then we may revise (39) by appropriately

inserting "A is basic for S":

- (42) p is accidentally necessary at t if and only if p is true at t and it is not possible both that p is true at t and that there exists an agent S and an action A such that (1) A is basic for S , (2) S has the power at t or later to perform A , and (3) necessarily if S were to perform A at t or later, then p would have been false.

There is one more complication.²⁹

- (43) God foreknew that Smith and Jones will not freely cooperate in mowing the lawn

should not turn out to be accidentally necessary; but on (42) it does. The problem is that (42) does not properly accommodate cooperative ventures freely undertaken; it must be generalized to take account of multiple agency. This is easily enough accomplished:

- (44) p is accidentally necessary at t if and only if p is true at t and it is not possible both that p is true at t and that there exist agents S_1, \dots, S_n and actions A_1, \dots, A_n such that (1) A_i is basic for S_i , (2) S_i has the power at t or later to perform A_i , and (3) necessarily, if every S_i were to perform A_i at t or later, then p would have been false.³⁰

And now we may say, perhaps, that the way in which the future but not the past is within our control is that contingent propositions strictly about the past are accidentally necessary, while those about the future typically are not.

By way of summary and conclusion, then: the two main arguments for the incompatibility of divine foreknowledge with human freedom are both failures. The Ockhamite claim that not all propositions about the past are hard facts about the past seems correct; among those that are not hard facts would be propositions specifying God's (past) foreknowledge of future human actions, as well as propositions specifying God's past beliefs about future human actions, if God is essentially omniscient. Only hard facts about the past, however, are plausibly thought to be accidentally necessary; hence neither God's foreknowledge nor God's forebelief poses a threat to human freedom. Accidental necessity is a difficult notion, but can be explained in terms of the power of agents. The initially plausible account of accidental necessity ((31)) is defective as an account of the intuitively obvious asymmetry between past and future; for far too few propositions turn out to be accidentally necessary on that account. (44), however, is more satisfying.

Appendix: Ability and Possible Worlds

What is it to have the *ability* to do something—to mow the lawn, for example? What is it for an action to be within my power? Can we get any insight into this question by thinking about it in terms of possible worlds? It is initially obvious that I have the ability to perform an action at a time only if there is a possible world in which I perform that action then. Of course this condition isn't *sufficient*; what it is within my power to do and what it is logically possible that I do, sadly enough, do not coincide. But what would be the right condition? Can we give an illuminating account of ability in terms of possible worlds?

In replying to a criticism I made³¹ of his argument for the incompatibility of human freedom with essential divine foreknowledge, Nelson Pike ventures such an account. He points out first that “when assessing what is within my power at a given moment, I must take into account the way things are and the way things have been in the past” and goes on:

If we assume that what is within my power at a given moment determines a set of possible worlds, all of the members of that set will have to be worlds in which what has happened in the past relative to the given moment is precisely what has happened in the past relative to that moment in the actual world.³²

He then applies this account to Jones and the question whether it was within his power to refrain from mowing at T_2 if at T_1 God believed that he would mow at T_2 :

Going back now to the original problem, we have assumed that Jones does X at T_2 and that God exists and is everlasting and essentially omniscient. It follows that God believes at T_1 that Jones does X at T_2 . The question before us is whether it is within Jones' power at T_2 to refrain from doing X. Plantinga assumes that this is to ask whether there is a possible world in which Jones refrains from doing X at T_2 . His answer is that there is—it is a world in which God does not believe at T_1 that Jones does X at T_2 . But Plantinga has not formulated the question correctly. He has not taken account of the restrictions that must be respected if one is to employ a possible worlds analysis of what it is for something to be within one's power. The question is not whether there is just some possible world or other in which Jones refrains from doing X at T_2 . What must be asked is whether there is a possible world, having a *history prior to T_2 that is indistinguishable from that of the actual world*, in which Jones refrains from doing X at T_2 . The answer is that there is not. All such worlds contain an essentially omniscient being who believes at T_1 that Jones does X at T_2 . There is no possible world of this description in which Jones refrains from doing X at T_2 .³³

Now on one point Pike is wholly correct: (broadly) logical possibility, as he says, is quite insufficient for ability. There are plenty of actions I cannot perform, despite the fact that there are possible worlds in which I do perform them: composing poetry in Japanese is an example, as is, say, memorizing *Kant's Critique of Pure Reason* in half an hour. Ability and logical possibility do not coincide; and (contrary to what Pike says) I have never assumed or suggested otherwise. Indeed, as I've argued elsewhere, ability and possibility do not coincide even for God. There are many possible worlds God could not have weakly actualized, despite the fact that it is logically possible that he weakly actualize them—despite the fact, that is, that there are possible worlds in which he does weakly actualize them.³⁴

Pike's positive proposal as to what it is to have the ability to do or refrain from doing *X*, however, is vastly more problematic. The suggestion is that

- (1) *S* has the power to refrain from doing *X* at *t* if and only if there is a possible world *W* that has a history up to *t* indistinguishable from the actual world and in which *S* refrains from doing *X* at *t*.

And given (1), it follows that at T_2 Jones does not have the power not to mow. For a world in which there is no essentially omniscient being who believes at T_1 that Jones will do *X* at T_2 does not (given our supposition that God is essentially omniscient and believes at T_1 that Jones will do *X* at T_2) have a history prior to T_2 that is indistinguishable from that of the actual world; every world in which there is such a being, furthermore, is one in which, clearly enough, Jones does *X* at T_2 . Accordingly, there is no possible world that meets the above two conditions with respect to Jones' doing *X*; it therefore follows, Pike thinks, that Jones' having the power to refrain from doing *X* at T_2 is inconsistent with God's being essentially omniscient and believing at T_1 that Jones would do *X* at T_2 .

Now it isn't wholly clear what it is for a pair of worlds to have indistinguishable histories prior to *t*;³⁵ but (1) seems initially much too strong. First, what is so special about *essential* omniscience? According to Pike, a pair of worlds have distinguishable histories prior to *t* if one but not the other contains an essentially omniscient being who prior to *t* believes that Jones will mow; but won't the same go for a pair of worlds one but not the other of which contains a being who is omniscient *simpliciter* and believes that proposition prior to *t*? If so, on Pike's showing human freedom is incompatible with God's being omniscient *simpliciter*. Further, wouldn't a pair of worlds have distinguishable histories prior to *t* if one but not the other contained a being, omniscient or not, who prior to *t* *knew* the proposition in question?³⁶ Or a being who *correctly believed* the proposition, whether or not he knew it? Indeed, wouldn't *W* and *W** have distinguishable histories prior to *t* if in one but not the other the proposition in

question was *true* prior to t , whether or not anyone know or believed it? Or if one but not the other contained a being who prior to t had the property *mows his lawn at t* ? But then on Pike's account it will follow that a person is free with respect to an action A at a time t only if it is not true prior to t that he will perform A then, and only if he doesn't have, prior to t , the property of being such that he performs A at t . And then Pike's account of ability, together with the assumption that propositions about the future have truth value, will imply logical determinism.

An Ockhamite bystander might suggest that what Pike needs here is the distinction between those propositions about the past that are accidentally necessary and those that are not. It is only the former, he says, that are relevant to a pair of worlds having indistinguishable histories prior to t ; a pair of worlds have indistinguishable histories prior to t if and only if no proposition is accidentally necessary (in the sense of (44)) at t in one but not the other. Then the fact that, say, in W but not W^* Smith knows at $t - n$ that Jones will mow at $t + n$ does not suffice to show that W and W^* have distinguishable histories prior to t ; for

(2) Smith knows at $t - n$ that Jones will mow at $t + n$

while true in W is not accidentally necessary in W at t .

Sadly enough, however, this suggestion is unsatisfactory; for

(3) Every proposition Paul believed at noon yesterday was true

and

(4) At noon yesterday Paul believed that Jones will not mow his lawn for the next three days

are both true (let's suppose). If so, they are also accidentally necessary; each is such that there is nothing anyone can now do that entails its falsehood. (Their conjunction, however, is another matter; accidental necessity is not closed under conjunction, as this example shows.) Clearly enough, however, there is no possible world in which (3) and (4) are both true and in which Jones mows his lawn tomorrow; but surely this does not imply that it is not or will not be within his power to mow then.

Here the Ockhamite bystander might make another suggestion: what Pike needs here, he might say, is not the idea of accidental necessity, but the distinction between hard and soft facts about the past. What we should say, he suggests, is that I have the ability to do X if and only if there is a possible world that shares its hard facts about the past with the actual world and in which I do X . This suggestion, however, is doubly deficient. First it is of no use to Pike. For on this suggestion a pair of worlds can have histories that are indistinguishable prior to t even if the one but not the other contains an essentially omniscient

God who prior to t believes that Jones will mow at t ; as we have already noted, if God is essentially omniscient, then *God believed at T_1 that Jones will mow at T_2* is not strictly about the past. Secondly, the suggestion is dubious in its own right. The fact that there is a possible world that shares its hard facts with the actual world and in which I do X, does not, I think, suffice to show that it is within my power to do X. Return to the Newcomb situation; and suppose that the knowledgeable agent involved is extremely knowledgeable but not essentially omniscient. Suppose this person (call him Michael) knows whether you will take one box or two, and suppose his knowledge is counterfactually independent of your action: it is true (but not necessarily true) that if you were to take both boxes, then Michael would have known that, but if you were to take just one, then he would have known *that*. More generally, it is true (but not necessarily true) that there is nothing you can do which is such that if you were to do it, then Michael would have held a false belief as to what you would do. I take it the case as so far set out entails that it is not within your power to bring it about that Michael holds a false belief on the topic in question. It is consistent with these conditions, I think, to add that the conjunction of all the hard facts about the past with the proposition that Michael believes that you will take both boxes, does not entail that you will in fact take both. It is therefore possible that this conjunction be true but you take just one box. If this conjunction were true and you took only one box however, then in so doing you would bring it about that Michael had a false belief. Now I am inclined to think that all this is possible; but if it is, then there is a possible world that shares its hard facts about the past with the actual world and in which you bring it about that Michael held a false belief—and this despite the truth that it is not in fact within your power to bring it about that Michael held a false belief. I am therefore inclined to think that this suggestion—the suggestion that S has the power to do X if and only if there is a possible world that shares its hard facts about the past with the actual world and in which he does X —is at best dubious.

What I can do depends upon what I can *directly* do, together with the facts, with respect to each of the actions A^* I can directly perform, as to what would happen if I were to perform A^* . What I can do depends (among other things) on two things: (a) my repertoire of direct actions, and (b) the question which counterfactuals are true—which counterfactuals whose antecedents specify that I perform some action or series of actions that are direct for me. Now of course possible world thought has been abundantly illuminating and clarifying with respect to the second. It is hard to see, however, how it can help us with the first; it is hard to see, that is, how to give an illuminating account in terms of possible worlds of what it is within a person's power to do directly.

NOTES

1. Augustine, *On Free Will in Augustine: Earlier Writings*, tr. J. H. S. Burleigh, Vol VI (Philadelphia: The Westminster Press, 1953), Bk. III, ii, 4.

2. Thomas Aquinas, *Summa Contra Gentiles*, Book I, Chap. 67, 10. The quoted passage involves Aquinas' view that the future is (in a sense hard to make clear) somehow *present* to God. This does not affect my point in quoting it, which is only to show that Aquinas notes the distinction between necessity of the consequent and necessity of the consequence—a distinction that enables us to see just how the argument in question goes wrong.

3. See *Summa Contra Gentiles*, I, 67, and *Summa Theologiae*, I, Q. 14, a. 13.

4. Jonathan Edwards, *Freedom of the Will*, 1745, Section 12.

5. See E. Stump and N. Kretzmann, "Eternity," *The Journal of Philosophy*, 1981, pp. 429-458.

6. See, for example, Peter van Inwagen, *An Essay on Free Will*, (Oxford: The University Press, 1983), p. 35 ff.; and Nelson Pike, *God and Timelessness*, (New York: Schocken Books, 1970), p. 67 ff. (Pike's objection is not to temporally indexed propositions as such, but to alleged propositions of the sort *It is true at T₁ that S does A at T₂*.)

7. Nelson Pike, "Divine Omniscience and Voluntary Action," *The Philosophical Review*, 1965, p. 33.

8. Of course it does not follow that it was not within Jones' power, at T₁, so to act that a belief God *did* hold at T₁ *would have been false*. See my *God, Freedom and Evil* (New York: Harper & Row, 1974, and Grand Rapids: William B. Eerdmans, 1977), p. 70.

9. In principle, of course, (7.2) is subject to another reading, one in which "it is within Jones' power to do something that would have brought it about that" has wide scope, so that what is expressed could be put more explicitly as

(7.2**) It is within Jones' power at T₂ to do something that would have brought it about that the proposition *God did not hold the belief he held at T₁* would have been true.

The proposition *God did not hold the belief he held at T₁* would have been true if and only if there is a certain belief such that God held that belief at T₂ and furthermore did *not* hold that belief then. The power of (7.2**) ascribes to Jones, therefore, is the absurd power of doing something such that if he had done that thing, then God would have held a certain belief at T₂ and furthermore would *not* have held that belief then. If we read (7.2) as (7.2**), however, then it is easy to show that (6) does not entail (7), so that Pike's claim that it *does* would be false.

10. *Op. Cit.*, p. 32.

11. Peter Damian, *De Divina Omnipotentia*, Chapter IV. In Migne's *Patrologia Latina* Vol. 145, 599. The translation of the last two sentences is from Anthony Kenny's *The God of the Philosophers*, (Oxford: The Clarendon Press, 1979), p. 101.

12. *Ibid.*, 618. The translation is by Owen J. Blum and is taken from John Wippel and Alan Wolter, *Medieval Philosophy*, (New York: The Free Press, 1969), p. 147.

13. *Ibid.*, p. 619.

14. William of Ockham, *Ordinatio*, I, Prologue, q. 6.

15. I take it that (8) is equivalent to

(8*) *Columbus sails the ocean blue* is, was or will be true in 1492;

I am here ignoring allegedly tenseless propositions, if indeed there are any such things.

16. William Ockham, *Predestination, God's Foreknowledge, and Future Contingents*, tr. with Introduction, Notes and Appendices by Marilyn Adams and Norman Kretzmann (Ithaca: Cornell University Press, 1969), 46-47.

17. See Nelson Pike, "Of God and Freedom: a Rejoinder," *The Philosophical Review*, 1966, p. 370, and Marilyn Adams, "Is the Existence of God a 'Hard' Fact?," *The Philosophical Review*, 1966, pp. 493-94.

18. Nelson Goodman, "About," *Mind*, 1962.

19. I think it is clear that hard facthood *is* closed under broadly logical equivalence; this argument, however, does not require the full generality of that premise. All it requires is that no proposition strictly about the past is equivalent in the broadly logical sense to a conjunction one conjunct of which, like (18), is a contingent proposition paradigmatically about the future.

20. Even so restricted, (iv*) is by no means obviously true: couldn't I know my wife or child so well that, while I correctly believe that she will do A, it is within her power to do B instead; and if she were to do B, then I would have believed that she will do B? It isn't easy to see why not.

21. More exactly, anyone who thinks *both* that such propositions as (23) are either true or false *and* that (23) is incompatible with Paul's being free to mow in 1999, will be a logical fatalist.

22. John Fischer, "Freedom and Foreknowledge," *The Philosophical Review*, 1983, pp. 73-75.

23. I leave it to the reader to restate (28) in such a way as to accommodate those who hold that propositions are not true at times.

24. The appropriate atemporalist counterpart of (29) is

(29*)*p* is accidentally necessary if and only if *p* is true and it is not possible both that *p* is true and that there is or will be a being that has or will have the power to bring it about that *p* is false

of which (29) is a generalization. (31), (39), (42) and (44) below have similar counterparts.

25. (31) can be expressed a bit more precisely (if a bit less felicitously) as

(31)*p* is accidentally necessary at *t* if and only if *p* is true at *t* and it is not possible both that *p* is true at *t* and that there exists a time *t**, an agent *S* and an action *A* such that *t** is at least as late as *t*, at *t** *S* has the power to perform *A*, and if *S* were to perform *A* at *t**, then *p* would have been false.

The atemporalist counterpart of (31) is

(31*) *p* is accidentally necessary if and only if *p* is true and it is not possible both that *p* is true and that there exists or will exist an action *A* such that (1) *S* has or will have the power to perform *A*, and (2) if *S* were to perform *A*, then *p* would have been false.

Note that on (31) propositions that are necessary in the broadly logical sense turn out to be accidentally necessary. If this is considered a defect, it can be remedied by adding an appropriate condition to the *definiens*. Similar comments apply to (39), (42) and (44) below.

26. Every action is necessarily such that if I were to perform it, I would have existed; so if there were such an action, it would be such that if I were to perform it, then I would both have existed and not existed.

27. We might be inclined to broaden (31) as follows:

(31*) P is accidentally necessary at t if and only if p is true at t and there is no action A and person S such that if S were to perform A , then p would have been false.

(31*) is indeed broader than (31). First, it is clearly necessary that any proposition satisfying the *definiens* of (31) also satisfies the *definiens* of (31*). Second, it seems possible that there be a true proposition p such that, while indeed it is *possible* that there be a person S and an action A such that S can perform A and such that if S were to perform A , then p would have been true, as a matter of fact there is no such person and action. It is therefore possible that there be a proposition that is accidentally necessary in the sense of (31*) but not in the sense of (31). The problem with (31*), however, is a close relative of the problem with (31); under (31*) there will be far too few (contingent) propositions such that *we have any reason to think* them accidentally necessary.

28. Roderick Chisholm, *Person and Object* (LaSalle: Open Court Publishing Co., 1976), p.85. Chisholm's powerful discussion of agency (pp. 53-88 and 159-174) should be required reading for anyone interested in that topic. (Chisholm does not use the term "directly perform," and I am not here using the term "basic action" in just the way he does.)

29. Called to my attention by Edward Wierenga, to whom I am especially grateful for penetrating comments on an ancestor of this paper. I am grateful for similar favors to many others, including Lawrence Powers, Alfred Freddoso, Mark Heller, Peter van Inwagen, William Alston, David Vriend, the members of the Calvin College Tuesday Colloquium, and especially Nelson Pike.

30. Again, (44) can obviously be recast so as to accommodate our atemporalist colleagues. What I claim for (44) is that propositions strictly about the past are accidentally necessary in the sense of (44), while their colleagues about the future typically are not; I do not claim that (44) is a satisfactory general analysis of our preanalytic notion of accidental necessity. So taken, it is subject to counterexamples of various kinds, including propositions of the form PVQ where P is a false contingent proposition strictly about the past and Q is a future proposition to the effect that some free agent A will perform some action (an action that is within A 's power). I think we do indeed *have* a general preanalytic notion of accidental necessity, although there are some hard puzzle cases, and the issues get complicated. Allow me to venture the following as a first approximation: say that p is *past* accidentally necessary if and only if p is a proposition about the past (not necessarily strictly about the past) and p is accidentally necessary in the sense of (44); and let P be a conjunction of the past necessary propositions.

Then

(44*) p is accidentally necessary *simpliciter* if and only if p is true and it is not possible that both (a) P but no proposition properly entailing P is past accidentally necessary, and (b) there is a past accidentally necessary proposition q , an agent S and an action A such that (1) A is basic for S , (2) S can perform A at t or later, and (3) necessarily, if q is true and S were to perform A , then p would have been false.

31. *God, Freedom and Evil*, pp. 66-73.

32. Nelson Pike, "Divine Foreknowledge, Human Freedom and Possible Worlds," *The Philosophical Review*, 1979, p. 216.

33. *Ibid.*, p. 217.

34. See my *The Nature of Necessity*, (Oxford: The University Press, 1974), pp. 169-84, and also my "Which Worlds Could God Have Created?" *Journal of Philosophy*, 1973.

35. See my *The Nature of Necessity*, pp. 175-76.

36. See Stephen Davis, "Divine Omniscience and Human Freedom," *Religious Studies*, 1979, pp. 303-16, and Joshua Hoffman, "Pike on Possible Worlds, Divine Foreknowledge, and Human Freedom," *The Philosophical Review*. 1979, pp. 433-42.