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DIVINE CAUSATION

Richard T. McClelland and Robert J. Deltete

Quentin Smith has argued that it is logically impossible for there to be a divine cause of the universe. His argument is based on a Humean analysis of causation (confined to event causation, specifically excluding any consideration of agency) and a principle drawn from that analysis that he takes to be a logical requirement for every possibly valid theory of causation. He also thinks that all divine volitions are efficacious of logical necessity. We argue that all of these claims are faulty, and that theists can resist Smith's arguments without merely begging the question in favor of a divine cause.

Introduction

In a recent paper, Quentin Smith has advanced the claim that it is logically impossible for there to be a divine cause of the universe (hereinafter DCU).¹ He gives two lines of reasoning for this claim, the first of which tries to establish what we take to be the conclusion that such divine causes are *prima facie* impossible, and the second of which attempts to reach a more substantive result. According to the first line of argument, there being a DCU is inconsistent with "all extant definitions of causality;" according to the second line of argument, a DCU is inconsistent with "a logical requirement upon these and all possible valid definitions or theories of causality."² That logical requirement, in turn, is a principle (hereinafter called P) which says that "For any two particular events or states x and y, if x is a logically sufficient condition of y, then x is not a cause of y."³ We think that the best reading of P is this: letting (a) stand for the claim that event c is the cause of event e, and letting (b) stand for the claim that event c is not a logically sufficient condition of event e, then P= not-(b) entails not-(a). The argument here, then, continues that since God is omnipotent, meaning that "God can do everything that is logically possible"⁴, anything that God wills to do always and of logical necessity occurs. Thus, God's willing that the Big Bang occurs (supposing that the Big Bang is coterminous with the creation of the universe⁵) is necessarily efficacious. Given Smith's principle P, the conclusion is that God cannot be a cause of the universe. It further follows that traditional teleological and cosmological arguments for the existence of God really amount to arguments against God's existence. Classical theism is thus found to be, paradoxically, a rich source of atheistic proofs. Indeed, since classical theism requires that God be understood as a



DCU, theism turns out to be necessarily false.

Smith's arguments proceed under various assumptions other than P. One is that only event causation is to be considered. In particular, Smith excludes any consideration of so-called agent causation, for reasons important enough to quote at length:

Considerations of agent causality are not germane to our discussion: our topic is the cause of the universe's beginning to exist, not the cause of God's act of willing that the universe begin to exist. We are not examining the relation between God (the agent) and his act of willing (the effect), but the relation between his act of willing (an event) and the beginning of the universe (another event). Thus, definitions of agent causality are irrelevant to our arguments: we are interested only in definitions of event causality, where the cause and effect are both events.⁶

The effect of this move is to set up a schema according to which God is distinguished from God's volitions, and God's volitions are distinguished from one of their effects, namely the Big Bang (thus: God—volition—BB), and according to which only the latter two elements need to be considered. (A similar schema appears elsewhere in Smith's writings, together with his view that while a divine volition might explain the Big Bang, the divine volition itself is left unexplained, a mere brute fact. Thus, the connection between the divine volition and the divine agent whose volition it is, has no explanatory value and can be partitioned off from the over-arching account of (alleged) divine causation of the universe.⁷) Another assumption of Smith's arguments is univocity: it is his view that causal relations can be encompassed by a single definition (or theory) that lays down necessary and sufficient conditions for one event to be the cause of another. A third assumption is that causation is to be understood basically in terms of the Humean tradition; and it is with this tradition that Smith begins his preliminary argument.

We think that all three of these assumptions are mistaken, and that therefore Smith's preliminary argument fails. We also think that his more fundamental argument (based on P and a premise stating the necessary efficacy of all divine volitions) can be resisted without merely begging the question in favor of a DCU. While we recognize that this does nothing to show that there is a DCU, we think that Smith has failed to show that it is logically impossible for there to be a DCU. We further think that the manner in which Smith fails to establish his main thesis betrays misunderstandings of the nature of causality and of classical theism. We shall proceed by taking issue with Smith's preliminary argument, and then with the argument based on P.

Part One: The Humean Argument.

A. The argument:

Smith's *prima facie* case proceeds in three stages: a review of the Humean theory of causality, a review of non-Humean theories of causation with a

view to closing off this way of rescuing the possibility of a DCU, and a review of various alleged ways in which a classical theist might escape the Humean argument. Let us consider each of these stages of the argument in more detail.

According to Hume, Smith claims, there are three requirements for one event to be related to another as cause to effect: (a) temporal priority; (b) spatio-temporal contiguity; and (c) constant conjunction or nomological relatedness.⁸ These three conditions are taken to be individually necessary and jointly sufficient for one event to be the cause of another. According to Smith, moreover, a DCU will fail at least (b) and (c). If we take God to be a temporally conditioned entity, then God's willing the Big Bang can be temporally prior to that event, thereby satisfying (a). Since such a formulation is certainly possible, and arguably better than the Boethian construal of atemporal eternity, Smith has little objection on this score. However, on just about any interpretation, classical theism holds that God is a non-spatial being, so that God's willing the Big Bang lacks spatial location, and thus fails to satisfy condition (b). Similarly, Smith argues, since God is a supernatural being, God's willing the Big Bang cannot be governed by any natural laws, and thus fails the condition of nomological relatedness, where that is understood in a broadly Hempelian way. Indeed, since God is omnipotent, Smith thinks that God's willings would be logically sufficient to bring about their effects without any reference to covering laws. Therefore, since God's willing the Big Bang fails two of the three Humean requirements for "is a cause," God's willing cannot be a cause of the universe.

Turning to more contemporary theories of causation, Smith considers three possibilities: (1) singularist theories such as that of J.C. Ducasse; (2) transference (or, as we prefer, transmission) theories (Castañeda, Fair and the like); and (3) counterfactual theories such as that of David Lewis. With regard to the first, Smith notes that a DCU is plausibly taken to be a case of singularist causation, since the creation of the universe (construed as *creatio originans*) is plausibly thought to be a unique event. However, he goes on to argue that such a view will not avail the theist because it still requires spatio-temporal contiguity, which a DCU fails. Similarly, transference theories are of no use because God is not a physical entity, so that there is nothing physical (e.g. energy) for God to transmit or transfer in creating the universe. Moreover, it is no good transmitting something non-physical, "since the Big Bang is wholly physical." Finally, according to Smith, a DCU fails to fit Lewis' theory because of God's omnipotence: the act of an omnipotent being is necessarily efficacious, so that God's willing the Big Bang is also necessarily efficacious; and necessarily efficacious events cannot support the counterfactual relation between cause and effect which his theory presupposes. At this point in the argument, Smith concludes that any alternative theory of causation will likely include some condition that a DCU violates, either because of divine incorporeality, divine omnipotence, or the supernatural character of God. It therefore seems unlikely that a DCU can satisfy any theory of causation which has developed in the modern period on the basis laid down by Hume.

Having reviewed Hume's theory of causation and its modern epigoni, Smith considers three ways—each, he claims, more or less *ad hoc*—in

which a theist might resist his argument thus far. The first trades on the fact that the argument is strictly inductive: a theist may insist that the best theory of causation has yet to turn up, that a DCU is still logically possible. Secondly, the theist might insist that a DCU is, after all, unique, and that we should therefore cobble together a theory of causation to fit it, i.e., a theory that is singularist, non-contiguous, and non-nomological. Thirdly, a theist might argue that causation is a primitive concept which cannot be supplied with a theory at all. In that case, the failure of a DCU to fit some univocal definition of "is a cause" is relatively harmless. Although none of these three moves seems satisfactory, Smith explicitly argues against only the third. His reply is that this move is merely question-begging, since a theist cannot give any reason for making it that is independent of the theistic claim that there is a DCU.⁹ We take it that Smith would regard the other two moves as similarly question-begging.

At this stage, we make three observations about Smith's argument. The first is that it relies heavily on the Humean tradition of theories of causation. Second, the entire argument proceeds under the assumption of univocity, namely, that "is a cause" can be satisfactorily defined by a single set of necessary and sufficient conditions. Third, a very important assumption Smith appeals to repeatedly is that divine omnipotence requires that all divine volitions are necessarily efficacious and that this necessity is a logical necessity. We think that all three of these assumptions are dubious, and our reply to the first line of Smith's argument for his main thesis is to give reasons for so thinking.

B. Reply to the Humean Argument:

1. Concerning univocity:

We doubt that it is possible to give a univocal definition for "is a cause." Certainly no one has offered a set of necessary and sufficient conditions for causation that has commanded universal assent among philosophers. More importantly, we know of no theory that can account for the many kinds of causal relations and the explanations which they generate or to which they belong. Historical explanations, for example, seem to demand singularist causation. The events in question here are unique and unrepeatable; and yet it would be perverse to suggest that they have no explanations or that these explanations are not causal. But these causal explanations do not conform to covering-law theories of causality.¹⁰ Likewise, if mental states are causes of the actions of intentional agents, as we suppose them to be, and if mental states are not spatio-temporal entities, as we also suppose them to be, then intentional causal explanations of the actions of agents are most unlikely to be easily accommodated to any of the standard theories of causality to which we appeal in cases of physical causation.¹¹ It is therefore misguided, in our view, to insist that "is a cause" be given a univocal definition, despite the drawing power of such a proposal.

Since the days of Socrates there has been a strong tendency in Western philosophy to define leading concepts in terms of necessary and sufficient conditions, and to require that these conditions cover all uses of those concepts. But there are many philosophically interesting concepts which do not respond well to this demand. It is notoriously difficult to give neces-

sary and sufficient conditions for such things as “friendship”, “love”, “agency”, “mind”, “behavior”, or “being.” We also think that it is undesirable and unreasonable to try to give univocal definitions of such concepts. This is not to suggest, however, that there are not such things as common properties or even universals. But, like Wittgenstein, we think that the search for generality can sometimes be spurious, and that insistence upon a univocal definition for “is a cause” is an instance of this spurious generalizing. It is much more likely that, as in Wittgenstein’s famous example of “is a game,” our concepts of causality bear family resemblances to one another, than that they can be contained in a single univocal definition. If so, then the failure of a DCU to match up with a univocal definition of “is a cause” (whether Humean or otherwise) is considerably less damaging than Smith allows.¹²

2. Against the Humean requirements:

There is no doubt that Hume took himself to be offering a theory or definition of causality, and that he supposed temporal priority, spatio-temporal contiguity, and constant conjunction to be both necessary and sufficient for the application of “is a cause.” Moreover, as is generally agreed, Hume certainly supposed that the third requirement excluded any necessary relationships between causes and their effects. Indeed, it was the main burden of Hume’s critique of our common sense notions of causality that there can be no such necessary relationships between causes and effects. And he almost certainly construed this necessity as strict logical necessity. Thus there is, according to Hume, no contradiction in supposing that some causal event occurs and the usual and expected effect event does not.¹³ However, Hume’s own requirements for “is a cause” have drawn a good deal of fire, and, as we will show, are very dubious.¹⁴ The failure of a DCU, then, to satisfy the Humean requirements, whether in their original eighteenth-century form or in more modern dress, is less momentous than Smith supposes.

2 (a): On Temporal Priority:

It seems that some causes are simultaneous with their effects. For example, it is widely held that what physicists call “the collapse of the wave packet” on the quantum level represents “an instantaneous change of state over a large area” of space-time.¹⁵ On the macro-level, Wesley Salmon gives the example of a pulse of white light passing through a red-filter: “...it is the intersection of the white light pulse with the red filter that produces the red light, and the light becomes red at the very time of its passage through the filter.”¹⁶ John Lucas refers to similar cases, such as the coloring of copper sulphate by the light which interacts with it, and the like. It thus appears that simultaneity is just as fundamental a relation between some causes and their effects as is temporal priority for other causal relations. The upshot is that, even in cases of physical causation, strict temporal priority is not a necessary condition, as Hume held it to be.

The relationship of this Humean requirement to the theistic claim that there is a DCU is complex. It depends partly on how we resolve the debate over divine eternity. As is well known, there have been two main concep-

tions of divine eternity: the traditional Boethian one, in which God is conceived of as a strictly atemporal being, with neither temporal location nor duration; and the omnitemporal (or “transtemporal,” as Lucas has called it) view, according to which God is temporally conditioned but exists fully at every moment of time.¹⁷ We think that the arguments favor the omnitemporalist view. However, when it comes to the creation of the universe, perhaps the more relevant issue is simultaneity. For creation is not taken by theists to be the operation of the divine agent upon some pre-existing matter. According to classical theism, God creates the universe “out of nothing” and not, as Plato’s demiurge, by rearranging something that already exists.¹⁸ Accordingly, it seems that if God is to be a DCU, the divine cause must be simultaneous with its effect (the coming to be of the universe). Moreover, this seems to be so regardless of which view one takes of divine eternity. However, in so far as the Boethian atemporalist view has difficulty handling the concept of simultaneity, it is at a disadvantage.¹⁹

Smith might reply that God is not a physical being (whether atemporal or omnitemporal) and thus that Salmon’s and Lucas’ examples of simultaneous causation are not strictly relevant. But this is beside the point. Hume constructed his theory of causality to handle physical cases (at the macro-level, recalling the famous billiard balls), and the Salmon and Lucas examples refute this part of that theory. The theory stands or falls on the basis of physical cases. Moreover, if mental states and other intentional states are not spatio-temporal or physical entities, and yet can have causal influence, then incorporeality is not a barrier to causality.²⁰

We conclude, then, that Hume’s requirement of temporal priority does not hold up even in cases of ordinary physical causation, whether at the micro-level of quantum effects, or at the macro-level. A believer in the possibility of a DCU is free to reject this requirement. Thus far, then, the Humean approach raises no insurmountable barrier to there being a DCU.

2(b): Concerning contiguity and continuity:

Hume himself requires that causes be strictly contiguous with their effects, both spatially and temporally (the latter is part of his first requirement: temporal priority). The notion of contiguity belongs with Hume’s atomism, and in so far as that atomism is implausible, we have little motivation to accept contiguity. Hume thought that the contiguity requirement was given in our experience, and arises therefrom by way of an inevitable, irresistible and veridical idea of that experience. As such, it belongs to his theory of ideas and to his treatment of the relationship between ideas and language.²¹ Probably more directly germane to our discussion is the relation between Hume’s ideas about contiguity and the contemporaneous debate about “action at a distance,” a debate sharpened considerably by Newton’s theory of gravitation, which seemed to require such action. Like Leibniz, Hume resisted the idea of action at a distance, and the requirement of contiguity insures that there can be no true action at a distance. But the possibility of action at a distance has come back into physical theory as a result of certain quantum mechanical effects, to which we return below. Meanwhile, Hume’s atomism and his theory of ideas are subject to sufficient difficulties to suggest that the contiguity requirement is false. More

importantly, we have ample reason to insist that both space and time are continuous, and thus that causes and their effects cannot be, strictly speaking, spatially or temporally contiguous.²²

Accordingly, contemporary neo-Humeans theorists have abandoned the requirement of contiguity, replacing it with spatio-temporal *continuity*, a notion which fits much more comfortably with the use of field theories in modern physics.²³ So, the Humean requirement of spatio-temporal contiguity is no barrier to the logical possibility of a DCU.

However, it seems that the theistic claim still violates the neo-Humean requirement for spatio-temporal continuity. For while an omnitemporal God may satisfy the temporal aspect of this requirement, God is not a spatial entity, since God lacks a physical body and is thus not spatially continuous with the universe God allegedly creates. There is, however, a line of reply open to a theist that Smith has overlooked. It rests on two, admittedly uncertain, claims: (a) that we have some reasons from physical theory to doubt the necessity of even spatio-temporal continuity; and (b) that we have some reasons from our experience of our own agency, and independently of theism itself (to avoid begging the question), to reject the requirement as necessary in the case of intentional action by an agent.

There are several results of quantum mechanics that appear to challenge the assumption of spatio-temporal continuity as a universal feature of naturally occurring events. One is the so-called collapse of the wave packet in the well-known two-slit experiment.²⁴ There is no widely agreed-upon interpretation of this result, though it is well-confirmed experimentally. But one possibility is that action at a distance does occur in nature, at least at the quantum level. If that is so, then the assumption of spatio-temporal continuity, as applied to causal sequences, is under threat.

Another threat comes from a second quantum mechanical phenomenon, the so-called Einstein-Podolsky-Rosen paradox. The phenomenon is not easily summarized in a short space, and its explanation is controversial.²⁵ But the general upshot of the EPR paradox is that it appears to be possible for two different quantum systems to influence one another when there is no possibility of spatio-temporally continuous causal influence passing between them. Once again, therefore, it appears that action at a distance—or what is often described as a violation of locality—occurs in nature, at least at the quantum level. As our knowledge of the physical world changes, it is possible that we will find ourselves having to reject the neo-Humean requirement of continuity: indeed, we may already have done so, for our best physical theories may already require such rejection.²⁶ Thus, not only is Smith's endorsement of Humean contiguity insecure, but so is its neo-Humean substitute, continuity. A theist could resist these requirements without merely begging the question in favor of a DCU.

Our second rationale for resisting the requirements of contiguity, or of continuity, concerns mental causation. Recall, first of all, that the problem with the requirement has to do with God's incorporeality. According to classical theism there are two reasons for thinking that God's creative action does not occur at some physical distance from the world: first, because God lacks a spatial location, and second, because God's action gives rise to the world and does not merely operate upon a previously

existing matrix. Now, on Smith's analysis of it, the hypothesis is that the world results from a divine volition or act of will, i.e., an intentional state of the creating agent. We have to imagine, then, that an agent having no spatial relation to the world nonetheless operates as a cause of the world's existence. One reason for thinking that this is not possible, Smith claims, is that it violates contiguity/continuity requirements. However, a theist might reply that, after all, our own intentional states are quite similar to what is here required for a DCU: specifically, our intentional states are causally efficacious, and yet have no spatio-temporal location. In these cases, too, the causes are operating not at some distance from their effects, but independently of any spatial considerations. Indeed, it is plausible to think that intentional states of all kinds are similar: causally effective, but not spatially related to their effects—or even to their bearers. If so, then what the theist claims about a DCU has rational support from the metaphysics of intentional states, and this support is independent of theism.²⁷ It is therefore open to a theist to resist the requirements of contiguity or continuity, rather in the spirit of G. E. Moore's "I know that this is a hand." That is, we have better reason to hold onto a plausible account of the metaphysics of intentional states, even though it violates conditions of contiguity or continuity, than we do to hold onto Hume's theory of causation, or to more recent variants of it. And these reasons do not constitute a mere begging of the question.²⁸

2(c): The nomological relationship:

The third requirement for a broadly Humean explication of "is a cause" is that cause and effect be nomologically related. In Hume's original theory, this relation is understood in terms of "constant conjunction," and it was this idea that replaced the common-sense notion that causes necessitate their effects. However, so-called "regularity theories" of causation to which the notion of constant conjunction gives rise have been subjected to severe criticism and are no longer regarded as tenable.²⁹ Perhaps for that reason, Smith, following Hempel, quickly slides over to a "deductive-nomological" or "covering law" model for this aspect of his neo-Humean account of causation. In this model a set of statements which may be taken to describe initial conditions and another set of statements describing relevant general laws together form the explanation for the event in question. The occurrence of the event to be explained causally is derived deductively from the set of initial conditions and the set of general laws pertaining.³⁰ Smith thinks that a DCU is inconsistent with such a nomological condition for "is a cause" on two grounds: (a) that as a supernatural being, God's actions are not governed by natural laws of any kind; and (b) because God is omnipotent and his omnipotent willings are necessarily efficacious, the occurrence of the Big Bang is necessary, given only that God wills it, and without any contribution by a "covering-law."³¹ In reply several points can be made.

First, the deductive-nomological (D-N) model of scientific explanation has itself been the subject of searching criticism.³² Without rehearsing some well-known counter-examples, we note that what these examples have in common is the problem of causal relevance. Provision of a "covering-law," or D-N, account does not guarantee that we have given a good causal

explanation of the events in question. This point can be generalized: in order to distinguish between covering-law, or D-N, accounts that do succeed in explaining, and those that do not, causal factors must be introduced. It follows that causal explanations cannot be analyzed merely in terms of the canons of D-N derivations. Richard Miller has put this point effectively in terms of the following dilemma:

1. Either we add causal factors to covering-law derivations (CLD's) or we do not.
2. If we do not add them, a CLD (often) fails altogether to explain.
3. If we do add them, a CLD (often) turns out to be explanatorily superfluous.
4. So, (often) either a CLD fails to explain altogether, or it is explanatorily superfluous.

Either way, we cannot give a general analysis of explanation in terms of CLD's, and we cannot analyze causality in terms of D-N derivations.³³ The D-N account, then, is neither a necessary nor a sufficient condition for a causal explanation. More relevantly to our purpose: nomological relatedness, understood in terms of the D-N model, is not a necessary component of "is a cause."

Moreover, such critiques of the D-N model are particularly relevant to the actions of finite agents such as ourselves. We often make perfectly intelligible causal claims about our own actions without having in mind any relevantly applicable covering laws, much less with any ability to supply a deductive-nomological derivation for those actions. As Miller has said: "Surely, people are not unreasonable to identify a particular episode of jealousy as the cause of a particular episode of violence...."³⁴ Such a claim is intelligible and explanatory, but it neither invokes a general covering law (since none is available) nor supplies a derivation linking cause and effect by deductive reasoning. The relevance of these considerations to our immediate problem can be secured by anticipating the results of our argument in the next section. We there take up Smith's general dismissal of the relevance of agency to his inquiry into the metaphysics of divine causation. We think that this dismissal constitutes a serious distortion of the larger problem of causality and a gross misunderstanding of the metaphysical commitments of classical theism. Specifically, if causal explanations commonly (perhaps universally) do not depend on nomological relatedness, in cases involving finite agents, there is no good reason to think that such relatedness is necessary in the case of an infinite agent. We think that it is unavoidable for us to model our understanding of divine agency on our experience of our own agency. And our own causal efficacy as agents does not require nomological relatedness as Smith has conceived it. Neither, then, should divine agency be held to the neo-Humean requirement of nomological relatedness in order to qualify as a genuine cause.

The second problem Smith points to with regard to nomological relatedness concerns the necessary efficacy of divine willings or volitions. We think this claim misunderstands the metaphysical commitments of classical theism. This problem will be treated in the next section of our paper,

together with a number of issues concerning Smith's hasty dismissal of the relevance of agency to our general understanding of causation.

Part Two: Agency, Causation and Necessity.

We have argued thus far that anyone who believes that a DCU is logically possible has ample warrant, resting on grounds independent from theism itself, for resisting Smith's neo-Humean argument against that possibility. Our objections to that analysis were partly global (e.g., to its univocity) and partly particular (that the Humean requirements are commonly violated by genuine cases of causation). Some of those objections will be pressed further in this section, especially against univocity. But our main aim here is to controvert the argument depending on Smith's principle P, which says: "For any two particular events or states x and y , if x is a logically sufficient condition of y , then x is not a cause of y ."³⁵ Smith's argument goes as follows:

1. P.
2. Any divine volition is a logically sufficient condition of its intentional object.
3. So, no divine volition is a cause.
4. So, in particular, God's willing that the Big Bang occur is not a cause of the Big Bang.

This is a valid argument, but we think that both of its leading premises are dubious. Accordingly, we think that the argument could reasonably be taken to be unsound. A theist could resist the argument without merely begging the question in favor of a DCU.

1. Against P:

We ask first "where did Smith get P?" It does not appear to be a generalization, for only a few examples are given and those serve only to illustrate what P means. Neither is any direct justificatory argument given for P. Rather, Smith uses his principle repeatedly to show from a variety of angles how the claims of theists are inconsistent with P. But this is, at most, a very indirect defense of P itself. It is more likely that P derives directly from Smith's Humean analysis of causation, upon which analysis rested his earlier, *prima facie*, argument against a DCU. As is well known, Hume insisted that causal relations are not logically necessary. The main Humean argument goes like this: if there were a logically necessary connection between a cause (C) and an effect (E), then $C \ \& \ \sim E$ would be self-contradictory. But, $C \ \& \ \sim E$ is not self-contradictory. So, there is no necessary connection between C and E. Thus, for example, while it would be very surprising to us should water freeze when it is heated to 212 degrees Fahrenheit, there is no contradiction in this, for the course of nature might change, and a sufficiently fundamental change in the nature of water could result in such behavior.³⁶ From such considerations, it is not far to Smith's principle P. However, we have already given reasons for doubting the general Humean approach to causation. Our criticism has so far been

largely negative. But there is a positive critique to advance, one that advances an alternative to the Humean perspective, according to which P is either false or largely irrelevant to our understanding of causation, and is thus not an essential part of every possibly valid definition or theory of causation, as Smith avers.

According to the alternative view, natural laws, and with them causal relationships, are grounded in an ontology of things and their properties, especially their dispositional properties. These properties exist independently of our beliefs, thoughts, expectations or conventions. Dispositional properties, which imbue their bearers with their powers to bring about various effects under specified conditions, are real, and are not reducible to categorical properties (such as spatio-temporal relations, size, shape, and so on). Of particular importance are those dispositional properties that are essential and which conjunctively define the natural kinds to which individual material things belong. So construed, such properties are Lockean "real essences," which furnish the basis for a scientific exploration of natural kinds and of kinds of natural processes, and for the discovery of natural laws.³⁷

On this view, natural laws are understood to supervene on essences and to be necessary: "Laws of nature, we argue, are truths whose necessity is grounded in the essential properties of this world and the things in it. Hence, it is not the relation between universals that constitutes the necessity of laws, but rather, their necessity results from the essential nature of the properties on which the nomological relation supervenes."³⁸ According to several proponents of this view of natural laws, the concept of necessity used here is not the same as strict logical necessity, understood as a relation between propositions: "...for it is a contingent matter what natural kinds there are....So a natural law, unlike a logical truth, would not be true in all worlds, but would be true in all worlds which contain the natural kinds mentioned in the law. Hence, a law possesses a kind of conditional necessity: necessity relative to the natural kinds to which it actually refers."³⁹ Indeed, Harré and Madden have argued that this conditional necessity, which they call "natural necessity," is neither reducible to nor dependent upon logical necessity.⁴⁰ Others in the dispositional essentialist tradition have argued that "natural necessity" is either just a type of logical necessity or entails logical necessities.⁴¹ The issues are too complex for us to resolve this dispute. It is agreed by all the writers in this tradition, however, that natural laws are epistemically contingent and are known *a posteriori*.

Natural kinds can be seen as complex conjunctive properties: thus, for example, electrons have a charge of -1.602×10^{-19} coulombs, a rest mass of 9.10908×10^{-31} kilograms, and a spin of $+1/2$ Planck units. Any possible world in which electrons occur has particles with these properties, and anything in a possible world that fails to have any of these properties cannot be an electron. Similarly, copper has the properties of atomic number 29, atomic weight 63.54, malleability, ductility, fusibility and electrical conductivity. These properties are both dispositional and explanatory; knowledge of them gives us deep insights into the range of typical causal effects of copper by giving us a detailed account of its nature. Anything that lacks this nature would not count as copper, and anything that possesses this cluster of properties will count as copper and necessarily manifests the

effects of these causal powers. In this view of things, it is properties and not laws that are fundamental; laws are to be explained by reference to properties. Indeed, Madden notes that “the concept ‘x has the power to y’...catches what might be called the strong sense of ‘potentiality’, namely, ‘what would automatically happen if interfering conditions were absent or taken away.’”⁴²

We have a good deal of sympathy with this view. It is particularly valuable with regard to scientific knowledge and practice. More particularly, it gives what we think is a very appealing account of the nature of natural laws. It accounts for their objectivity, locates the difference between laws and mere regularities, and it explains why laws are confirmed by their instances and have predictive power. It is “bottom up” in taking natural laws to be descriptive of the essences of natural kinds (or derivable from laws that are), and explains nomological necessity by grounding it in essences.⁴³ As Swoyer has put it: “A chief virtue of the property theory is that it takes widely acknowledged features of laws at face value and provides a *better explanation* of them than do its competitors.”⁴⁴ Moreover, we think that this approach to causation allows room for a rich notion of the causal capacities of agents, without any need to invoke a special theory of agent causation.⁴⁵ That development, in turn, furnishes a solid metaphysical basis for analogies between our own agency and divine agency, but without begging the truth of theism.

What happens to Smith’s principle P if this alternative approach to causation is adopted? There seem to be two possibilities. On the one hand, if the necessities ascribed to causal relations by Ellis and company are or entail logical necessities, then P is clearly false.⁴⁶ If, on the other hand, natural necessities are not logical necessities and do not entail logical necessities, then P is not disproved; but, it does seem to follow that it is not essential to every possibly valid theory of causation, since P plays no special role in dispositional essentialism. We think that Bigelow and Madden are right in claiming that natural necessities are not logical necessities and that they do not entail logical necessities. But, we do not think that P is essential to every possibly valid theory of causation, and we think that it does not illuminate the nature of many genuinely causal relationships. Conversely, the framework of dispositional essentialism is valuable to theistic philosophers precisely because it accords very well with scientific knowledge and practice and provides a metaphysical framework independent of theism.

2. Against Premise 2.

We have several reasons for rejecting the second premise of Smith’s argument, and at least one of these is closely related to—if, indeed, not a further instance of—our previous argument concerning the modality of causal necessities.

(a) Regarding agents and their volitions:

As we have noted earlier, Smith explicitly excludes from his investigation any special role for agency. We believe this tantamount to excluding a DCU by definition, and Smith himself gives at least two indications that he

cannot do so consistently. Smith's second premise has to do with divine volitions or willings. But volitions or willings, whatever else they may be, always belong to agents. Judith Jarvis Thompson has argued that the conditions for identifying actions from among all other events necessarily include mention of the agent to which they belong.⁴⁷ If, as seems reasonable, we include volitions or willings among the actions of an agent, then Smith's insistence on treating only event-causation will not serve to keep the agent wholly out of view. Moreover, Smith's second premise makes the claim that each and every divine volition is necessarily efficacious. But this is already to make a very substantial claim about the nature of the agent whose volitions they are. Evidently, then, Smith already knows a good deal about that agent and what he knows plays a substantial role in his argument. It is thus entirely in order for us to insist that investigation of that agent's nature be taken further. But there is no way to do so short of consideration of our own agency, for that is the only agency which we experience directly.⁴⁸ Smith's exclusion of agency is unjustified, then, both on general grounds and on the grounds of his own manner of proceeding.

Furthermore, the claim made by theists is that God, a divine agent, is the originating (and sustaining) cause of the universe, not that some event, shorn of all connection with its bearer, is the originating cause of the universe. So, unless agents are just events—which nobody thinks—, it is not possible to confine the discussion solely to relations between events (or states). The theistic claim is that God causes the universe to exist, and makes use of an act of will to do so.⁴⁹ Events or states are at most the proximate causes of the universe. The ultimate originating cause is the divine agent and not merely that agent's volition. We have referred earlier to Smith's schema, according to which the divine agent is split off from divine volitions, and only one of the latter is allowed to count as a cause of the Big Bang. This partition is a direct result of the Humean event-ontology within which Smith's analysis of causation is embedded. We think that it is not possible correctly to understand the relations between volitions and their effects without also understanding the relations between those volitions and the agents whose volitions they are. In particular, we are unlikely to grasp the modal properties attaching to the volitions-effects relation without also investigating the relations between volitions and agents. A second objection to Premise 2 should make this clear.

(b) Agents and necessity:

It sometimes happens among agents like ourselves that we can make things happen with a certain kind of necessity. The key concepts are those of intervention and prevention. It sometimes happens that we can arrange for an originating event to lead to an effect and also prevent any other events in the near spatio-temporal neighborhood from interfering. For example, we can so arrange things in the set-up of a physical experiment that nothing in its near neighborhood is at all likely to interfere. Indeed, one of the main skills of a good experimenter is to anticipate interference with an experimenter's running and to design it so that no interference takes place. The modality here is practical, not logical: it is not the case that interference is logically impossible, and yet the outcome is in some sense

necessary. We call this modality “practical necessity,” and we think that it either is an instance of the “natural necessity” explored by Harré, Madden, Ellis, and Bigelow, or is closely related to it. Moreover, we think that our experience with such practically sufficient causation is an important source of our concepts of alethic modality.⁵⁰ Furthermore, it is at least possible that something analogous to practical necessity applies in the case of divine creation, too.

The question we pose is this: supposing God has determined to create a universe, what is to prevent this determination from being carried out? *Ex hypothesi*, there can be no preventive event from the side of the universe, i.e., no event having a spatio-temporal location with the power to prevent the effects of the divine cause, because there is no universe existing independently of that divine cause to supply it. Prevention, then, can arise only from within the divine volitional economy. We can think of several ways this might happen: (a) by virtue of a change in the divine volition (easy enough for an omnitemporal agent), or (b) by virtue of an inconsistency or other type of conflict among the divine volitions. It seems to us that it is logically possible for each of these things to occur (even if they never actually do), and thus that it is logically possible for the nexus of divine intentionality and action to be such that actual creation does not occur even though the will to create does. That is, we think that the unity of divine intentionality is not automatic and is not a logical necessity. Rather, it is a function of the previous (infinite) history of the divine agent and of higher order divine volitions (e.g., the volition to hold steady the lower-order volition to create a universe).⁵¹ Happily for us, if theism is true, God’s will to create did not suffer from any such disunity. Given, then, no universe with an independent existence to supply a preventive event, and a unified divine intentional structure, the creation of the world becomes unpreventable. And what is unpreventably true, as Arthur Prior argued long ago, is necessarily true.⁵² Moreover, in the case of a divine agent, no appeal to omnipotence need be made. God makes it unpreventably true that the universe exists by virtue of the integrity of divine intentionality. The creation of the world, on this view, is not so much an exhibition of divine power, as it is of divine singleness of purpose. The modality attaching to the divine volition to create a universe is not logical necessity, but practical necessity.

It is at least *possible* to understand the traditional doctrine of *creatio ex nihilo* in this way. And in that case, divine volitions to create a universe like ours are practically, but not logically sufficient for their effects. Smith might reply that such a view of divine agency is out of court, but he can do so only if he permits an extensive investigation of the nature of divine agency to go forward. However, his whole approach to the problem of a DCU prohibits such an investigation.

(c) The problem of incompatibilist freewill:

Consider the hapless Fredd Bloggs. It is part of the tradition of classical theism that God wills that Fredd Bloggs always do what is morally right. And yet, notoriously, Fredd does not always do what is morally right. If every divine volition is necessarily efficacious (as Smith holds), then Fredd is not free to make his way in the world contrary to the divine will. Rather,

he is under a metaphysical compulsion always to do what is morally right. Moreover, if the modality of this compulsion is logical necessity, then the compulsion is as strong as it can possibly be, for then it is a logical truth that Fredd always do what is morally right. But if Fredd is possessed of incompatibilist freewill, then it is genuinely “up to” Fredd whether or not he always does what is morally right.⁵³ So understood, Fredd’s creaturely freewill is in deep conflict with the view that all divine volitions are necessarily efficacious. Indeed, it cannot be true that every divine volition is even contingently efficacious. Of course, it is true that compatibilism has been the dominant mode of resolving the freedom-determinism debate in the modern period, and that plenty of theists have been compatibilists. But it is certainly possible to formulate classical theism in terms of incompatibilist freewill, and it seems that once we do so we must reject Premise 2 as, at best, a gross over-generalization.

It may be replied that our argument overlooks important distinctions between various types of divine volitions, and that once such distinctions are drawn, Smith’s premise is safe. Thus, we might distinguish between God’s antecedent willing (e.g., that all moral agents always do what is morally right) and God’s consequent willing (what God wills, all things considered, including what God wills in the event that not every moral agent always does what is morally right). Or we might distinguish between God’s ethical decrees and God’s causal decrees, taking the former to be contingently efficacious and the latter to be necessarily efficacious. Or we might distinguish between what God decrees (generally) and what God desires, taking the latter to be only contingently efficacious.⁵⁴ And perhaps there are other ways of carving up divine volitions such that some types satisfy our demand for incompatibilist freewill, while other types are necessarily efficacious. Indeed, we would welcome such a reply, and we would go much further in exploring the internal structure or dynamics of divine intentionality.⁵⁵ But such a reply is not open to Smith. He has eschewed any investigation of agency, and thus cannot draw any of these distinctions between various kinds of divine volitions. Indeed, to appeal to divine omnipotence as a ground for Premise 2 is already to break the barrier he has erected around agency.

We conclude, then, that a theist can have good grounds for being dissatisfied with Premise 2. Taken at face value, it is an over-generalization. But it also misconstrues the type of modality which attaches to those divine volitions which do necessitate their effects. That misconception, in turn, obscures what we think are important complexities attaching to divine intentionality. These are, of course, metaphysical speculations. But in so far as they rest on the metaphysics of dispositional essentialism, they cannot be held merely to beg the question in favor of a DCU, since dispositional essentialism is a conceptual framework designed to account for scientific realism and is independent of theism. But, if Premise 2 collapses, then the argument which depends on it is unsound.

Concluding Reflections.

It remains for us to survey briefly the results of our inquiry and to suggest some of its wider implications.

(a) Smith is hasty and naïve about causation. His approach is broadly Humean, confined to relations between events, and univocal. The contemporary philosophical discussion of causation has moved beyond these parameters in several directions that are of special interest to theists: room is being made in the contemporary discussion (1) for singularist, and anomic causation, (2) for irreducibly probabilistic causal laws, (3) for consideration of non-event based ontologies, (4) for consideration of agency as a particular form of singularist causation, and (5) process theories of causation have been widely developed since Salmon's (1984). In our view, process theories are particularly interesting to theists and others interested in agency as a form of singularist causation. They also have some obvious attraction for those drawn to the metaphysics of dispositional essentialism and property theories of causality.⁵⁶ A convergence of these approaches might furnish a particularly powerful metaphysical framework of value to theists, not least because it is independent of theism and generates a conceptually rich understanding of the natural sciences, as well as furnishing theists with a rich source of analogies for divine agency. The entire manner in which the discussion of causation has progressed in the last two decades opens up possibilities that Smith has not taken into account. And once they are taken into account, it is no longer enough to cast even merely *prima facie* doubt on the logical possibility of a DCU by comparing it to a Humean and univocal analysis of "is a cause."

(b) Smith's main argument against the logical possibility of a DCU rests on two premises that we think are dubious. Principle P derives from the broadly Humean analysis of causation which gave rise to the *prima facie* argument against a DCU. It is a fundamental principle of Humean empiricism that there are no necessary connections to be found in nature. In the alternative perspective provided by dispositional essentialism, there are necessary connections to be found in nature. Depending on how these necessary relations are understood (as logical necessities or as conditional necessities), we can argue that P is either false or superfluous. Either way, a theist could reject P without merely begging the question in favor of a DCU. At the same time, whichever way the debate over modality is resolved, such a theist need not deny the fundamental tenet of empiricism, namely that our knowledge of natural kinds is *a posteriori*.⁵⁷

In a similar way, a theist could argue that the other premise of Smith's main argument is dubious. A case can be made that the intentional actions of agents sometimes necessitate their effects, and that this necessity (which we have called "practical necessity") is either the same as Madden and Ellis' "natural necessity" or analogous to it. Such necessities also attach to some divine volitions. One way in which Smith's Premise 2 goes wrong is in supposing that divine volitions *logically* necessitate their effects. There are causal necessities which are not logical necessities. Moreover, Premise 2 is guilty of over-generalization, and subject to objections on the basis of incompatibilist freewill. Smith cannot block these objections without giving to agency a relevance that he has excluded from the outset of his discussion. In any case, a theist may again reject Premise 2 without merely begging the question in favor of a DCU.

(c) Smith is also hasty and naïve about the tradition of classical theism. In dismissing agency from any consideration, and in spite of his intentions, he misconstrues the basic thrust of the theistic claim that the universe originates in (and is sustained by) the intentional and free action of a divine agent. Action always belongs to agents, and there can be no understanding of the nature of an action without understanding at least something of the nature of its agent. One must understand the divine agency to understand what is being claimed by theists (if only for the purpose of overturning that claim). And there is no understanding of divine agency, we think, except by way of understanding our own agency, including its modalities. It seems perverse to insist that the only legitimate analysis of the causal influence of agents and their actions is Humean. Such a strategy suggests that we should understand the actions of the billiard players in terms of what is happening on the table between the billiard balls, rather than the other way round. The technical developments in causal theory mentioned above have made it possible for us to adopt the alternative strategy, and to do so without merely begging the question in favor of theism and a DCU.

(d) Our conclusion, then, is that Smith fails to establish his main thesis, namely that “a divine originating and sustaining cause of the universe” is logically impossible. We close with some final reflections for theistic philosophers. The first reflection has to do with omnitemporality. It is difficult to imagine what might be the characteristics of a genuinely omnitemporal and infinite life. We have made some claims in this essay about the structure of divine intentionality and various logical possibilities, some of which, at least, we think are never realized (e.g., it is logically possible for God to will and not to act, even if God never actually does so). We think that the conceptual resources of the omnitemporal point of view have not been exploited as fully as they might be to illuminate the nature of divine intentionality and of divine action. (An obvious source of analogies would be our own experience of the structures of personality and character as they develop over time.) The second reflection arises from a comment by John Lucas: “If we, as theists, believe that the universe is fundamentally personal in character, it follows that our ultimate understanding will not be in terms of things, which occupy space and may or may not possess certain properties, but of persons, who characteristically *do* things. Action, not substance, will be our most important category of thought. It is a truth too long neglected by philosophers.”⁵⁸ However, agents of our type also are “things which occupy space and may or may not have certain properties”. The metaphysics of dispositional essentialism may be a way to explore the nature of agency and action, as well as a way to elaborate solutions to problems in the philosophy of science. Even if Smith’s argument finally fails, it is useful for pointing up the importance of approaching problems about theism in the light of a metaphysical framework that is common both to our understanding of the natural sciences and also to theism. Development of such common ground is, we think, incumbent upon theistic philosophers if sound metaphysics is to be done (thereby avoiding charges of circular reasoning). Our third reflection is that if action is to be one of our most important categories of thought, then one of the most

important derivative categories of thought will be *interaction*, especially interaction between intentional agents. Analytic philosophy of religion has largely proceeded under the rubric of Anselmian "perfect being" theology, where much excellent work has been done. However, we believe that this framework needs (at least) to be supplemented by a new framework, one which is dynamic and which takes action, interaction and the conditions for agency, as central. One aim of the present paper, in answering Smith's arguments against the logical possibility of a DCU, is to suggest some of the lines along which such a framework might be constructed.

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NOTES

1. Quentin Smith, "Causation and the Logical Impossibility of a Divine Cause," *Philosophical Topics* 24 (1996): 169-91. Throughout our reply, we will treat "Divine Cause of the Universe" (or DCU) as a kind-term, rather than as a definite description, partly in order to anticipate specifically Trinitarian issues. Our preferred model for the Trinity, which we do not attempt to defend here, is the social model, well-described by C. Stephen Layman, "Tritheism and the Trinity," *Faith and Philosophy* 5 (1988): 291-98. On this view, there would be, strictly speaking, only one divine agent active in creation, but three divine selves co-operating in that activity. Social Trinitarianism is critically discussed by Richard Swinburne, *The Christian God* (Oxford: Clarendon Press, 1994), pp. 170-91 and Peter Forrest, "Divine Fission: A New Way to Moderate Social Trinitarianism," *Religious Studies* 34 (1998): 281-97.

2. Smith, "Causation," pp. 169-70.

3. Smith, "Causation," p. 176.

4. This construal of "is omnipotent" would certainly be contested (albeit for different reasons) by, e.g., P. T. Geach, "Omnipotence," *Philosophy* 48 (1973), reprinted in S. Cahn and D. Shatz, eds., *Contemporary Philosophy of Religion*, (Oxford: Oxford University Press, 1982), pp. 46-60; R. Swinburne, *The Coherence of Theism* (Oxford: Oxford University Press, 1977), pp. 149-61; T. Flint and A. Freddoso, "Maximal Power," in: *The Existence and Nature of God*, ed. A. Freddoso (Notre Dame: University of Notre Dame Press, 1983), pp. 81-113. We are in broad agreement with Geach's approach to the issues.

5. It is always possible for a theist to resist Smith's larger claims by rejecting the theory of the Big Bang, or indeed any other theory of physical cosmology. However, it is difficult to do so without begging the issue, and it is arguable that theists have an epistemic duty to embrace such theories as have the best evidential base. Since the theory of the Big Bang is one of these, we conclude that theists have a duty to embrace it. Smith discusses whether to take the theistic claim in terms of an "originating cause" or a "continuing cause." We think that originating causation (*creatio originans*) is not essential to the doctrine of *creatio ex nihilo*, but that continuing causation (*creatio continuans*) is. William Lane Craig, "Creation and Conservation Once More," *Religious Studies* 34 (1998): 177-88 reviews arguments for taking only *creatio originans* to represent genuine creation, but the issues are too complex to explore here.

6. Smith, "Causation," p. 170.

7. Quentin Smith, "Simplicity and Why the Universe Exists," *Philosophy*

72 (1997): 130-31. See Robert J. Deltete, "Simplicity and Why the Universe Exists: a Reply to Quentin Smith," *Philosophy* 73 (1998): 490-94.

8. John R. Lucas, *Space, Time and Causality* (Oxford: Basil Blackwell, 1989), pp. 40-41 discusses the issue of Hume's contiguity requirement and argues that it cannot be right: a properly Humean theory should include instead a requirement for spatio-temporal *continuity*. Smith seems to stick to the letter of Hume's treatment on this point. On the other hand, as we shall see, Smith opts for the notion of nomological relatedness, in the tradition of Hempel and the "covering-law" concept of explanation, instead of Hume's idea of constant conjunction.

9. The argument comes at Smith, "Causation," p. 191, note 17.

10. The issue is treated in W. H. Dray, "Explanatory Narrative," *Philosophical Quarterly* 4 (1954): 15-27; and in Dray, *Laws and Explanation in History* (Oxford: Oxford University Press, 1957). There is a thorough discussion in Richard W. Miller, *Fact and Method: Explanation, Confirmation and Reality in the Natural and the Social Sciences* (Princeton: Princeton University Press, 1987), chapters 1-2.

11. See the recent collection edited by John Heil and Alfred Mele: *Mental Causation* (Oxford: Oxford University Press, 1995), especially the papers by Audi, Baker and Hornesby. Also: J. Heil and A. Mele, "Mental Causes," *American Philosophical Quarterly* 28 (1991): 61-71. For the causal relevance of intentional states, including mental states, see generally Lynne Rudder Baker, *Explaining Attitudes: a Practical Approach to the Mind* (Cambridge: Cambridge University Press, 1995).

12. Our resistance to the univocity requirement gains support from writers such as R. W. Miller, *Fact and Method* (1987) and Lynne Rudder Baker, *Explaining Attitudes* (1995), especially chapter 5. Both also emphasize the element of control of phenomena by agents, which we regard as fundamental to a sound approach to the problems of causation (see Part Two below). Univocity is also rejected by: Lucas, *Space, Time and Causality*, ch. 4; C. R. Hitchcock, "The Mishap at Reichenbach Fall: Singular vs. General Causation," *Philosophical Studies* 78 (1995): 267-91; J. Woodward, "A Theory of Singular Causal Explanation," *Erkenntnis* 21 (1984): 231-62, among many others.

13. For Hume see *Treatise*, Book I, Part III, Sections 1-6, 11, 12, 14 and 15; and Book I, Part III, Section ii. Also *Enquiry*, Section VII, paragraphs 48-61.

14. Standard critical assessments of Hume's work can be found in J. R. Lucas, *Space, Time and Causality*, pp. 27-43; and D.F. Norton, ed., *The Cambridge Companion to Hume* (Cambridge: Cambridge University Press, 1993). Criticisms of Hume's metaphysics of causation can be found in most of the literature cited in note 37 below. Rom Harré and Edward Madden, "Natural Powers and Powerful Natures," *Philosophy* 48 (1973): 217 go so far as to call Hume's approach "a philosophical disaster."

15. Wesley Salmon, *Scientific Explanation and the Causal Structure of the World* (Princeton: Princeton University Press, 1984), p. 251 (the whole section, pp. 244-51, is valuable). See also: Myles Brand, "Simultaneous Causation," in: Peter van Inwagen, ed., *Time and Cause: Essays Presented to Richard Taylor* (Dordrecht: Reidel, 1980), pp. 137-53.

16. Salmon, *Structure*, p. 182, a point not affected by any subsequent revisions to his theory of causality, including W. Salmon, "Causality Without Counterfactuals," *Philosophy of Science* 61 (1994): 297-312.

17. The issue has given rise to a rich literature that we cannot review here. The omnitemporalist view is well-presented in J. R. Lucas, *The Future: an Essay on God, Temporality and Truth* (Oxford: Blackwell, 1989), pp. 209-33

and Nicholas Everitt, "Interpretations of God's Eternity," *Religious Studies* 34 (1998): 25-32. The Boethian view is ably defended by Eleonore Stump and Norman Kretzmann, "Eternity," *Journal of Philosophy* 78 (1981): 429-58. Richard Swinburne has attempted a third view in: *The Christian God* (Oxford: Clarendon Press, 1994), pp. 72-95.

18. The traditional doctrine of *creatio ex nihilo* is discussed, and its rationality defended, in Tom Morris, "Creation *ex nihilo*: Some Considerations," in: *Anselmian Reflections: Essays in Philosophical Theology* (Notre Dame: University of Notre Dame Press, 1987), pp. 151-60. Cf. also R. C. Potter, "How to Create a Physical Universe Ex Nihilo," *Faith and Philosophy* 3 (1986): 16-26; S. Menssen and T. Sullivan, "Must God Create?," *Faith and Philosophy* 12 (1995): 321-41. Some theistic philosophers think that God creates all the laws, physical and logical, which obtain in the universe. How this is to be explained is explored from two different, but equally theistic, perspectives by Tom Morris and Chris Menzel, "Absolute Creation," in: *Anselmian Reflections*, pp. 161-78, and Del Ratzsch, "Nomo(theo)logical Necessity," *Faith and Philosophy* 4 (1987): 383-402. See also note 5 above.

19. That the Boethian perspective cannot generate a genuine notion of simultaneity is argued by J. R. Lucas, *The Future*, p. 218. For a reply, see Brian Leftow, "Eternity and Simultaneity," *Faith and Philosophy* 8 (1991): 148-79.

20. Theists could appeal to analogy here, perhaps arguing that while the physical cases of simultaneous causation are not strictly relevant to an incorporeal cause, they might at least generate a useful analogue to what the theist requires. We think that theists cannot avoid analogical predication indefinitely: see further, note 48 below.

21. For Hume's theory of ideas and their relationship to language, see: Ian Hacking, *Why Does Language Matter to Philosophy?* (New York: Cambridge University Press, 1975), pp. 163-70 and *The Cambridge Companion to Hume*, pp. 7-12, 65-71. John Bigelow and Robert Pargetter, "Metaphysics of Causation," *Erkenntnis* 33 (1990): 90-91 usefully place Hume's theory in the context of a theological argument found in Descartes and Malebranche.

22. For an exposition see J. R. Lucas, *A Treatise on Time and Space* (London: Methuen, 1973), pp. 14-19 and 29-42 (for time alone), 123 and 133-37 (for space alone), and 193-96 (for space-time).

23. See Lucas, *Space, Time and Causality*, chapters XI-XII. At pages 57f. and note 15, Lucas notes the deep reluctance of contemporary physicists to admit action at a distance.

24. Briefly described in Salmon, *Structure*, p. 244.

25. Brian Skyrms, "EPR: Lessons for Metaphysics," in: Peter French, et al., eds. *Midwest Studies in Philosophy IX: Causation and Casual Theories* (Minneapolis: University of Minnesota Press, 1984), pp. 245-55 concludes with a plea for non-univocal approaches to causation. For more technical discussions of violations of locality see J.T. Cushing and E. McMullin, eds., *Philosophical Consequences of Quantum Theory: Reflections on Bell's Theorem* (Notre Dame: University of Notre Dame Press, 1989); Salmon, *Structure*, pp. 245-59; and R. Deltete and R. Guy, "Einstein and EPR," *Philosophy of Science* 58 (1991): 377-97. James Brown, "EPR As A Priori Science," *Canadian Journal of Philosophy*, Supplementary Volume 18 (1992): 253-72 explores some important epistemological implications.

26. The implications of Bell's theorem discussed in Cushing and McMullin (see previous note) are also relevant to this point.

27. See especially Lynne Baker, "Metaphysics and Mental Causation," in: Heil and Mele, eds., *Mental Causation* (1995), pp. 75-96; Robert Audi,

"Mental Causation: Sustaining and Dynamic," in: *Mental Causation*, pp. 53-74; and C. MacDonald and G. MacDonald, "Mental Causes and Explanation of Action," in: L. Stevenson, R. Squires and J. Haldane, eds., *Mind, Causation and Action*, (New York: Blackwell, 1986), pp. 35-48. That minds are at least analogous to divine spacelessness is discussed by Paul Helm, "God and Spacelessness," in: Shatz and Cahn, eds., *Contemporary Philosophy of Religion*, pp. 99-110.

28. This strategy is considered by Smith, "Causation," p. 175, but is rejected because it is question-begging (p. 191, note 17). We believe we have removed any danger of circularity.

29. There is a thorough review of these criticisms and counter-examples in D.M. Armstrong, *What is a Law of Nature?* (Cambridge: Cambridge University Press, 1987), pp. 3-73. See also: R. Miller, *Fact and Method* (1987), chapters 1-2 and N. Cartwright, *Nature's Capacities* (Oxford: Clarendon Press, 1989), pp. 71-85.

30. C. Hempel and P. Oppenheim, "Studies in the Logic of Explanation," *Philosophy of Science* 15 (1948): 135-75. In a later essay, Hempel makes room for statistical laws: "Aspects of Scientific Explanation," in: *Aspects of Scientific Explanation and Other Essays in the Philosophy of Science* (New York: Free Press, 1965), pp. 331-496.

31. Smith, "Causation," p. 172.

32. W. Salmon, "Statistical Explanation," in Salmon, et al., *Statistical Explanation and Statistical Relevance* (Pittsburgh: University of Pittsburgh Press, 1971), pp. 29-87, esp. 33-35; and Salmon, *Structure*, pp. 47 and 93. Also: H. Kyburg, "Discussion: Salmon's Paper," *Philosophy of Science* 32 (1965): 147-51; and C. R. Hitchcock, "Salmon on Explanatory Relevance," *Philosophy of Science* 62 (1995): 305f., 311f.

33. Miller, *Fact and Method*, p. 40.

34. Miller, *ibid.*, p. 34.

35. Smith, "Causation," p. 176.

36. Hume's argument is discussed in detail in Edward Madden, "Causality and the Notion of Necessity," *Boston Studies in the Philosophy of Science* 4 (1969): 450-62 and "Hume and the Fiery Furnace," *Philosophy of Science* 38 (1971): 64-78. Madden accepts this argument, but not all of its implications.

37. See especially: John Bigelow, Brian Ellis and Caroline Lierse, "The World as One of a Kind: Natural Necessity and Laws of Nature," *British Journal of the Philosophy of Science* 43 (1992): 371-88; B. Ellis and C. Lierse, "Dispositional Essentialism," *Australasian Journal of Philosophy* 72 (1994): 27-45; and Chris Swoyer, "The Nature of Natural Laws," *Australasian Journal of Philosophy* 60 (1982): 203-23. Also relevant are the two papers mentioned in note 36 above, and: R. Harré and E. Madden, "Natural Powers and Powerful Natures," *Philosophy* 48 (1973): 209-30; E. Madden, "A Third View of Causality," *Review of Metaphysics* 23 (1969): 67-84; R. Harré, "Powers," *British Journal for the Philosophy of Science* 21 (1970): 81-101; R. Harré and E. Madden, *Causal Powers: A Theory of Natural Necessity* (Oxford: Blackwell, 1975); N. Cartwright, *Nature's Capacities and Their Measurement*, chapter 5, and Sydney Shoemaker, "Causality and Properties," in: P. van Inwagen, ed., *Time and Cause*, pp. 109-35. Cf. also the paper by Ratzsch mentioned in note 18 above.

38. Bigelow, Ellis and Lierse, "The World as One of a Kind," p. 378.

39. "The World as One of a Kind," pp. 373, 379; and cf. E. H. Madden, "Causality and the Notion of Necessity," p. 458; Harré and Madden, "Natural Powers," p. 221.

40. On the issue of reducibility see Harré and Madden, *Causal Powers* (1975), pp. 132-35.

41. Both Shoemaker, "Causality and Properties" (1980) and Swoyer, "The Nature of Natural Laws" (1982) argue that causal necessities are logical necessities (Swoyer makes use of the Kripkean notion of metaphysical necessity, i.e., of truth in all possible worlds), and Vallicella's argument (see reference in note 46) depends on this view.

42. Madden, "A Third View of Causality," p. 70.

43. Including global conservation laws, which are taken to be descriptions of the universe as a whole and as belonging to a natural kind. See "The World as One of a Kind," pp. 384-85.

44. Swoyer, "The Nature of Natural Laws" (1982), p. 208.

45. Theories of agent causation are reviewed by Randolph Clarke, "Toward a Credible Agent-Causal Account of Free Will," *Nous* 27 (1993): 191-203. Robert Kane argues that no such special theory is needed: "Free Will: The Elusive Ideal," *Philosophical Studies* 75 (1994): 25-60, and cf. a similar resistance in Robert Audi, *Action, Intention and Reason* (Ithaca: Cornell University Press, 1993), pp. 139-41.

46. See William F. Vallicella, "God, Causation and Occasionalism," (forthcoming in *Religious Studies*) for the argument. We thank Dr. Vallicella for supplying us with a pre-publication copy of his paper.

47. Judith Jarvis Thomson, *Acts and Other Events* (Ithaca: Cornell University Press, 1977), p. 40; cf. J. Hornsby, "Agency and Causal Explanation," in: *Mental Causation* (1995), pp. 161-88, especially pp. 163-4 on the individuation of actions.

48. Smith gives short shrift to analogical predication, which is unfortunate, but space does not permit a detailed reply, nor is the issue central to our argument. In our view, however, it is almost certain that talk about God cannot dispense with analogical predication. See William Alston, *Divine Nature and Human Language: Essays in Philosophical Theology* (Ithaca: Cornell University Press, 1989), chapters 1-5; Richard Swinburne, *The Coherence of Theism* (Oxford: Oxford University Press, 1977), pp. 54-80, 272-80; and David Burrell, *Analogy and Philosophical Language* (New Haven: Yale University Press, 1973) for a valuable historical review.

49. An anonymous reviewer suggested that we might affirm the dependence of the universe on the divine will without resorting to causal language, by construing Biblical and creedal causal language as non-literal in just the way that references to God's anger are construed non-literally. However, we think that divine creation (whether understood as *creatio originans*, or as *creatio continua*, or both) cannot be eliminated by reducing it to metaphor, as our reviewer apparently is inclined to do.

50. See John Lucas, *Space, Time and Causality*, pp. 35-36 for the argument. Evan Fales, *Causation and Universals* (London: Routledge, 1990) similarly grounds our concepts of causality in our own agency. So, too, does D. Dieks, "Physics and the Direction of Causality," *Erkenntnis* 25 (1986): 103.

51. Proponents of divine simplicity will, of course, reject even the logical possibility of a "gap" between divine willing and divine action. However, we find the notion of simplicity dubious because it rules out any kind of complexity within the Godhead. See T. Morris, "God and Mann," *Anselmian Reflections*, pp. 98-123 for some of the difficulties. We are also aware that our view of what is logically possible for God needs to be filled out and defended, and its consequences for the notion of omnipotence drawn. Our view depends on several things: (a) social trinitarianism; (b) a rich notion of divine freedom; (c) the complex structure of divine intentionality; (d) the

resources of the omnitemporal view of divine eternity; and (e) allowing for real (and not merely Cambridge) changes in God. We hope to develop these matters in a future essay. See below (and note 55) for further remarks on the internal structure of divine intentionality.

52. Arthur N. Prior, "The Formalities of Omniscience," *Papers on Time and Tense* (Oxford: Clarendon Press, 1968), pp. 26-44, especially 31-35; and cf. Bigelow and Pargetter, "Metaphysics of Causation" (1990), 114-15.

53. The literature on freewill is vast and cannot be treated here. Much of it is reprised by Robert Kane and Randolph Clarke in the papers referred to in note 45 above.

54. We are grateful to two anonymous reviewers for these and similar suggestions.

55. Borrowing from Clarke's analysis of free action (see note 45 above), we may say that there are at least three conditions attaching to this internal dynamic: (a) the divine agent must act for certain reasons and not for others, thereby ordering those reasons for acting; (b) the divine agent must act in a fashion consistent with other divine actions (and the decisions that underlie them, including the ordering of the reasons for which those actions were taken); and (c) the divine agent must sustain the ordering of those reasons for acting. Such analysis, we think, depends on taking God to be omnitemporal, and probably also requires something like the second-order (and perhaps higher order) volitions posited by Harry Frankfurt, "Freedom of the Will and the Concept of a Person," *The Importance of What We Care About: Philosophical Essays* (Cambridge: Cambridge University Press, 1988), pp. 11-25. This analysis, which we cannot undertake here, would also be part of our defense for the claim that the unity of God's will is not a logical necessity.

56. Process theories have moved decisively beyond their early developments, though their connections with dispositional essentialism and property theories of causation have not yet been drawn. Smith, however, fails to treat this tradition in its strongest and most well-developed form, which is probably Dowe's. For a good summary of the tradition, see Phillip Dowe, "Process Causality and Asymmetry," *Erkenntnis* 37 (1992): 181-84.

57. All the writers mentioned in note 37 above insist that our scientific knowledge is *a posteriori*, even where it concerns causal necessities. It does not follow from their views that any given particular is necessarily existent: "There is no necessity that the actual be what it is, but given what actually is the case it is necessary that certain events occur." (Madden, "Hume and the Fiery Furnace," p. 68.) However, it is unnecessary to exclude the *a priori* altogether from our account of scientific knowledge: see the paper by James Brown referred to in note 25 above and, for a general treatment of *a priori* knowledge, Laurence Bonjour, *In Defense of Pure Reason* (Cambridge: Cambridge University Press, 1998).

58. J. R. Lucas, *Freedom and Grace* (London: SPCK, 1976), p. 111.