

## CAN WESTERN MONOTHEISM AVOID SUBSTANCE DUALISM?

by *Dennis Bielfeldt*

*Abstract.* The problem of divine agency and action is analogous to the problem of human agency and action: How is such agency possible in the absence of a dualistic causal interaction between disparate orders of being? This paper explores nondualistic accounts of divine agency that assert the following: (1) physical monism, (2) antireductionism, (3) physical realization, and (4) divine causal realism. I conclude that a robustly causal deity is incompatible with nondualism's affirmation of physical monism. Specifically, I argue the incoherence of nondualistic strategies that advocate divine information transfer without energy transfer or the divine downward causation of physical events. Furthermore, I claim that the principle of explanatory exclusion makes any nondualistic, noninterventionist account of divine agency highly dubious. Finally, I suggest that Judaism, Christianity, and Islam can avoid a causally inert deity only if they are willing to deny the current presumption of the causal closure of the physical.

*Keywords:* divine agency; downward causation; nondualism; principle of explanatory exclusion; reductionism; supervenience; top-down causality.

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Many people assume that the major monotheistic religions of the West are committed to soul/body substance dualism, the view that human beings consist of a material brain having causal interaction with a nonmaterial mind or soul. Because this view asserts that mind is metaphysically distinct from the body, many have thought that substance dualism is necessary for the possibility of survival after death, a central teaching of the

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monotheistic faiths. But this is wrong, for Christianity, Judaism, and Islam are committed only to the doctrine of the resurrection of the flesh, not the immortality of the soul, and the resurrection of the flesh is fully compatible with nondualism.<sup>1</sup> I believe, however, that Christianity and the other monotheistic faiths are nonetheless committed to an interactionist substance dualism between two disparate ontic orders, God and universe. I argue that, although this interaction is notoriously difficult philosophically, apologists have as yet no cogent nondualistic alternative—if they want to grant real causal power to God.

It might seem odd to have to argue that Western monotheism entails substance dualism, for many merely assume that this is so. How could it be otherwise? If God is the creator of the universe, then an artificer-artifact relationship exists between the two, such that God can and did exist without the universe. Therefore, because God can exist independently, God must be regarded as an independent substance over and against the universe—at least if we understand *substance* in a traditional way (Simons 1995, 481–82).

While this reasoning seems straightforward and unimpeachable, many theologians are reluctant to embrace it (Barbour 1997, 305–32). In addition to the theological problems of dualism, theologians also wish to avoid the problematic causal interaction that substance dualism posits between the disparate orders of God and the universe.<sup>2</sup> If God's action in the universe is conceived dualistically, then at least some physical events must have divine causes. Because all causal influence with which we are familiar is mediated through the transfer of energy, there must be some energy transfer from God into the universe. But because this clearly violates physical conservation principles, there can be no causal interaction between God and the universe, and substance dualism is false.

Furthermore, a God/universe substance dualism posits a problematic causal joint linking two fundamentally different orders of being. But what could be the nature of such a cosmic pineal gland mingling the humors of the infinite and finite? Just as Descartes could locate no *tertium quid* between mind and body but instead speculated about a physical connection in the brain, efforts to uncover the link between nature and supernature generally result in speculation about some physical process as well. As Arthur Peacocke has pointed out, the ultimate “lacuna” of the “God/world ‘causal joint’” still remains even if we hold that the boundary conditions controlling the “world-as-a-whole” constitute that God/universe interface (Peacocke 1990, 163–65). God/universe substance dualism is embarrassing for the same reason as mind/body dualism: It violates physical conservation principles and offers no coherent account of how to link two ontologically disparate orders of being.

The understandable desire of theology to avoid the problems of dualistic causal interactionism has contributed from the time of Kant to a gen-

eral strategy of compatibilism. Granting a distinction between things-as-they-appear and things-in-themselves, Kant confined the categories of substance and causality to the phenomenal order. Because the causal relation could not apply to God lying “beyond the bounds of all possible experience,” subsequent theology was challenged to conceive divine agency noncausally. This presupposition of noncausal divine agency animates the work of F. Schleiermacher, G. W. F. Hegel, liberal theology, neo-Orthodoxy, existential and hermeneutical theology, and the theological constructivist projects today. Langdon Gilkey pointed out long ago twentieth-century theology’s assumption of the noncausal nature of the “mighty acts of God” (Gilkey 1961, 195). The dominant academic tradition has supposed that, while God is not a real cause in the natural order, talk of God acting in that order is nonetheless legitimate. Just as Kant held that the two languages of freedom and duty, and causality and lawfulness, are properly applicable to the human agent, so, too, much post-Kantian theology assumed that the languages of divine intention and purpose, and natural causation and law, are justifiably ascribable to historical events and processes.

I suspect that the roots of this compatibilistic strategy can be found earlier in the scholastic distinction between primary and secondary causes. God conserves nature by operating as a primary cause mediated through various secondary causes. Accordingly, every natural event is wholly produced by other natural events, though God somehow serves as the ultimate author of all natural events. This sacramentally inspired vision of the ultimate divine grounding of all events was easily transformed in the Enlightenment to the compatibilistic model inaugurated by Kant. It is but one step from an unknowable, nonphysical cause to an unknowable, nonphysical, noncausal agent. Many who assumed that the autonomy of the natural sciences left little room for a providential causal ground undergirding natural determinism nonetheless found religious solace in the Kantian compatibilism that at least allowed *talk* of “God’s mighty acts.”

Although in the past I have been sympathetic with post-Kantian compatibilism—Ian Barbour’s independence position (Barbour 1997, 84–89)—I now find myself more and more worried about the inability of that tradition to offer effective models of divine agency. The problem concerns the legitimacy of noncausal accounts of divine action. I am increasingly compelled to accept what Jaegwon Kim has called Alexander’s dictum: To be is to have causal powers (Kim 1993a, 348).<sup>3</sup> I am fearful that the reluctance of theology to deal honestly with God’s putative causal power has hastened the marginalization of God-talk, for if God is not a causally efficacious entity, then what significance has God in our lives? Of what use is a God who cannot really change the course of history or nature, who does not causally explain the existence of life or the universe, or who cannot be causally effective in the process of redemption? Responding that God-talk can empower human beings existentially in the face of fundamental

anxiety is of little help, for that view supposes that it is the symbolic meanings of the language that have the causal power (if they can be afforded such power at all), not the states of affairs referred to by those words.

In this article I want to explore what happens to divine agency if we take both Alexander's dictum and the principle of the causal closure of the physical seriously. Is there any way to ascribe real causal power to God in a universe that is causally closed physically? Those who would quickly deny this possibility should recall current thinking in the philosophy of mind that grants real causal power to the mental without thereby sanctioning nonphysical causes (Kim 1998b, 1–9). If contemporary philosophers of mind can successfully defend the real causal status of the mental without violating the causal closure of the physical (or succumbing to dualism), then why cannot theology claim the reality of divine causal power, affirm physical causal closure, and yet deny dualism?

I believe with Barbour and many others that the principle of physical causal closure cries out for some kind of nondualistic, noninterventionistic account of divine agency and action—and thus a denial of the monarchical model—but I am not sanguine that such an account can be given (Barbour 1997, 306–12). (I have also come to doubt parallel nonreductionistic physicalist accounts in the philosophy of mind.) It should not be surprising to find that the more robust we make the sense of divine causality, the more problematic is the assumption of physical monism. I suggest that if we want to talk about real divine causal power we are stuck with an interventionist model, that is, interactionist substance dualism. Before addressing this further, however, we must look more closely at the principle of causal closure and substance dualism.

#### THE PRESUMPTION OF SUBSTANCE DUALISM

Natural science takes as axiomatic the principle of the causal closure of the physical, the assumption that for each and every natural event there must be other natural events causing that event, and that natural events can cause only other natural events. The principle can be displayed as follows, where  $e$  is a natural event and  $C$  the operation of causality:

$$\langle \{e_1, e_2, e_3, \dots, e_n\}, C \rangle$$

Just as an algebraic group is closed under a particular operation when the value resulting from that operation upon any member of the set is itself a member of the set, so too is the physical universe closed under the operation of causality when causally operating upon any element of the set of events results in a mapping back into that set. What is explicitly denied by causal closure is any event outside the set of physical events causing an event within the set, or any event within the set causing an event outside the set.

But how might divine influence in the world be possible when the universe is causally closed? One option is to place God's action in the midst of the universe rather than claiming that God acts externally upon the universe. Peacocke has suggested that God's action in the world can be understood as a type of "transcendence-in-immanence" analogous to the relation between the *I* and its action in the world (Peacocke 1979, 133–39; 1984, 73–78). While he stresses that such an analogy must always remain "inadequate as a *description* of the nature of that ineffable, ultimate Reality which is God" (Peacocke 1990, 304), his initial intuition to offer a nondualistic account of divine transcendence remains provocative. If we can routinely grant causal power to human agency realized in the lawlike physical network of the brain, then why not grant causal power to God expressing "his intentions within the lawlike physical network" of the world (Peacocke 1979, 134)? Unfortunately, as I will argue, nondualistic accounts of divine agency are as problematic as substance-dualistic accounts. Jettisoning substance dualism merely replaces one set of philosophical problems with another.

Just as classical mind/body dualism held to two ontologically distinct domains of entities and events with causal relations between them, so have the major monotheistic traditions claimed a dualism of the creative and created orders causally related to each other. Two points must be remembered about this traditional God/universe dualism: (1) It is a *substance dualism*, not merely a property dualism; (2) it does not necessarily share all the features of mind/body dualism. We will deal with each in turn.

A central argument for mind/body dualism appeals to modal intuitions. If it is conceivable for mind to exist in the absence of the body, then the mind has different properties from those of the body and cannot therefore be simply identified with the body. If this is true of mind/body, then it applies a fortiori to the God/universe relation: God clearly could exist in the absence of the universe. Moreover, the theological tradition constantly affirmed that God did so exist. Divine creative properties are of a different order from worldly created properties, and thus God and the universe comprise different orders of being.

But what if one were to say that, while divine creative properties are categorically different from created properties within the universe, there is nonetheless one underlying stuff from which these two different property groups arise and to which they apply? In other words, what if one were to grant property dualism but balk at substance dualism? A simple *reductio* suggests that this cannot be the case:

1. Assume that God is substantially identical to the universe.
2. By the indiscernibility of identicals, God and the universe necessarily possess the same substance-making properties. (This assertion of identical substance-making properties is consistent with different descriptions, or different sets of properties emerging from that substance.)

3. But it is possible that God has different substance-making properties from those of the universe, for it is possible for God to exist without the universe. (In fact, the classical traditions have affirmed the temporal priority of the creator over the creation.)

4. Thus, (2) and (3) contradict each other.

5. Because (4) cannot be true, (1) must be false; God is not substantially identical to the universe.

If monotheism is committed to dualism, it seems it must be committed to substance dualism, not merely property dualism. While the latter holds that there is one common domain of basic entities to which two different property kinds apply, the former claims that there really are two different domains, one the class of entities found within the created order and the other the class of entities falling outside that order.<sup>4</sup> A substance dualism of creator and created asserts at minimum the following:

1. There are nondivine things (objects, events, states, etc.) and divine things (objects, events, states, etc.).

2. Divine things are completely different kinds of things from nondivine things.

3. Nondivine things exist within the physical universe, whereas divine things can exist outside that universe.

4. Divine things and things within the universe causally interact, that is, they causally affect one another.

Much more could be said about the precise philosophical nature of this dualism, but I believe I have said enough to give the reader the general idea of what I am after.

As for the second point, some might claim that substance dualism implies that God is “in” the universe in precisely the same way that the mind is “in” the body, or that God “has” the universe in the way that a person possesses a body (Jantzen 1984). But such arguments result in all kinds of absurdities. For instance, if you step on my toes you step on me, but it does not follow that if you step on the earth you are stepping on God’s feet (Taliaferro 1994, 333). A dualism of God and universe need not be committed to a Cartesian-style substance dualism of mind and body. God/universe substance dualism merely affirms (1)–(4) above; it offers no specifics about the nature of the interaction.

In this paper I challenge any position that tries to reinterpret the relationship between God and the universe as a relationship between *levels* of being rather than between *orders* of being. Accordingly, I question the use of the notion of supervenience to conceive the relation between God and the universe.<sup>5</sup> Developing a suggestion of John Compton and Peacocke, I earlier advanced such a supervenience position by claiming an analogy between God’s relationship to God’s action in the universe and the ego’s relation to his or her actions in the body (Compton 1972; Peacocke 1979). I

argued that, just as the mental is not separate from the brain but constitutes a higher-level family of properties supervenient upon brain processes, so might we conceive of God not as separate from the universe but as comprising a higher-level layer supervening upon the natural processes of the universe (Bielfeldt 1999a). I now believe that this position is deeply flawed and that it involves as many philosophical problems as substance dualism itself.

The critique of theological supervenience is extremely instructive, in my opinion, because the supervenience position takes most seriously the demands of nondualism and the causal closure of the physical. I believe that a proponent of a nondualistic account of divine agency must affirm the following four positions:

1. *The Principle of Physical Monism.* This naturalistic commitment eschews entelechies, vitalisms, or any other mysterious, nonnatural “energies” and staunchly affirms the causal closure of the physical. It assumes that the ultimate constituents of reality are those entities and processes denoted in the language of fundamental particle physics. Willem Drees calls this the principle of *ontological naturalism* (Drees 1996, 12).

2. *The Principle of Antireductionism.* This principle grants that scientific explanation occurs on many different levels and that there are thus properties that are irreducible to fundamental physical properties. For instance, no psychophysical bridge laws can reduce the thought of the Durham Cathedral to the mass and spin of fundamental particles. (There are thus no laws to the effect that if  $x$  has the property of thinking of Durham Cathedral, then there is some  $y$  having properties  $m_1, m_2, m_3 \dots m_n$ , and if there is some  $y$  having properties  $m_1, m_2, m_3, \dots m_n$ , then there is an  $x$  having the property of thinking of Durham Cathedral.) There is therefore a commitment to the conceptual and explanatory autonomy of non-physical properties. Drees terms this the principle of *conceptual and explanatory nonreductionism* (Drees 1996, 16).

3. *The Physical Realization Thesis.* This states that all irreducible, upper-level properties must have some physical realization. For instance, although it may be in principle impossible to specify which physical processes correlate to a thinking of the Durham Cathedral, each and every thinking of that cathedral does have some physical realization. This is similar to Drees’s principle of *constitutive reductionism* (Drees 1996, 14).

4. *The Principle of Divine Causal Realism.* This states that God really does have causal power, that it is as legitimate to say that God’s intentions cause physical events in the universe as it is to assert that one’s goals or desires cause one’s physical actions. To reject this principle is to flirt with a denial of divine existence altogether, for it is plausible to assume Alexander’s dictum, the claim that “to be real is to have new and irreducible causal powers” (Kim 1993a, 350). Just as denying causal reality to mental states

tends to make them epiphenomenal and candidates for subsequent elimination (à la phlogiston), so too the repudiation of divine causality suggests an impoverished, epiphenomenal deity fated for elimination in the face of the surefooted advance of science. Reject the principle of divine causal realism, and God's mighty acts become "nomological danglers," divine events unnecessary for the explanation and prediction of any natural processes whatsoever.

It is not by accident that (1)–(4) mirror closely the current received view in the philosophy of mind: the assumption of physical monism, the irreducibility of psychological properties, the neurophysical realization of all psychological states, and the real causal efficacy of mental states (Kim 1993a, 344). Just as many philosophers of mind have toiled with greater or lesser success to reconcile these four assertions, so it was my hope to find an interpretation of (1)–(4) that would allow their simultaneous truth. If it were found, such an interpretation would constitute a model that could as unproblematically attribute causal powers to a divine agent realized in a physicalistic universe as theories in the philosophy of mind ascribe causal powers to the human agent realized in the neurophysiology of the brain.

But there are grave difficulties in making (1)–(4) consistent. The problem is assumption (4), divine causal realism. It seems that the stronger we make (4), the weaker (1) becomes. In my opinion, those searching to avoid dualism tend to overlook the simple fact that a robust construal of (4) will inevitably lead to a violation of the causal closure of the physical. Previously I had construed (4) rather weakly and had thus claimed a model that could reconcile (1)–(4). Specifically, I held that God could be causally linked only to events, entities, and states described by theological language and could thus not be causally connected to any events, entities, or states referred to by the languages of the special sciences (Bielfeldt 1995; 1999a). In other words, *intralevel* divine causality is allowed, but *interlevel* causality is precluded. I now suspect that my account of divine causality does not meet Alexander's dictum and that the divine agent about which I spoke is causally inert and lacks ontological status entirely.

So what happens when we try to strengthen (4) so as to protect God from this charge of causal inertness? It seems that any nondualistically inspired view granting God more than mere epiphenomenal causality must embrace one or more of the following problematic notions: (1) the possibility of information transfer without energy transfer, (2) the notion of downward causation between two layers within one ontic domain, or (3) the legitimacy of two complete and independent causal accounts of the same phenomena. If, as I argue, these three notions turn out to be problematic, then such an account of divine agency cannot be a coherent philosophical option. It may well be that the intellectually honest believer must finally embrace a type of substance dualism that denies (1) and its presumption of the causal closure of the physical.<sup>6</sup>



## NONDUALISM, CAUSAL CLOSURE, AND DOWNWARD CAUSALITY

Alternatives to substance dualism in construing the God/universe relation are analogous to positions advanced in the philosophy of mind as alternatives to Cartesian mind/body dualism.

Because I take seriously Charles Taliaferro's suggestion that we should explore the "analogies and disanalogies between the person-body and God-cosmos relationships out of the conviction that the philosophy of mind and the philosophy of religion have resources to challenge and contribute to one another (Taliaferro 1994, 340), I offer the following options for conceiving of divine agency. Proposals (1) and (2) are *reductionist* strategies suggested by historical positions in the philosophy of mind. I am not claiming that anyone actually advocates their theological analogues.

1. *Theological linguistic reduction.* Just as logical behaviorism sought to give an analysis of each and every mental conduct term by semantically reducing it to some set of stimulus-response conditionals referring only to overt behaviors and dispositions to behave, so might a theological linguistic reduction attempt to provide an analysis of divine agency, intentionality, and action by referring only to the subjunctive and counterfactual conditionals of the natural and social sciences.

2. *Theological intertheoretic reduction.* Just as identity theory sought to give an explanation of mental content and conduct sentences by asserting the nomic coextensiveness of the higher-level theoretical properties of psychology with the lower-level theoretical properties of neurophysiology, so might a theological intertheoretic reduction claim that divine intentionality and action are just some complex set of properties referred to by the natural and social sciences.

Because both of these positions possess glaring theological and philosophical inadequacies, I shall discuss them no further. The following two nonreductionist proposals are more promising:

3. *Theological functionalism.* Just as functionalism identifies mental properties with the typical causal roles they play in systems that instantiate them (i.e., mental properties are just the set of their causal connections to sensory, behavioral, and other mental states), so might theological functionalism identify divine intentionality and action with the causal roles they assume within the system of the physical universe. On this view, God could be conceived of as a complex software program realized within the hardware of the cosmos (cf. Tipler 1994).

4. *Theological anomalous monism.* Just as anomalous monism asserts a property dualism by claiming that intentionality comprises a distinct set of properties irreducible to the neurophysiological—even though only physical events and entities ultimately exist—so might theological anomalous monism claim a property dualism in which divine properties possessing

causal powers somehow emerge from the complex organization of physical entities and events.

Proposals (3) and (4) are initially quite promising because both assert the compatibility of the principle of divine causality and the principle of the causal closure of the physical. On either view, God is construed as an entity realizable within the physical cosmos in such a way that God's causal power does not violate the integrity of the natural causal order. But exactly how is this possible?

I previously attempted to understand the relation between God and the universe as a distinction between two ontological layers of one ontic domain, layers related to each other metaphysically but not causally. Accordingly, God's action could be understood as supervenient upon natural physical processes such that interlevel causality was denied and intralevel causality allowed. In short, I wanted to explore a version of theological anomalous monism, an analogue of the position in the philosophy of mind famously developed by Donald Davidson (1980, 207–27). However, Kim has convinced me that Davidson's view is committed to epiphenomenalism (Kim 1993a, 336–57; 1998a, 211–40). Simply put, mental events do no real causal work on Davidson's view, and thus by Alexander's dictum, they fail to achieve genuine ontological status. Although I cannot possibly defend it here, I believe that Kim, Brian McLaughlin, and Ernest Sosa get the best of Davidson on the issue of mental causation (Kim 1993b; McLaughlin 1993; Sosa 1993). But if mental events are epiphenomenal, so also are any putative "mighty acts of God." I shall deal with theological anomalous monism later. First, however, I want to explore two nondualistically inspired options for divine agency, options that do not have exact analogues in the mainstream discussion within the philosophy of mind. It is important to note, however, that each actually remains dualistic in an important sense, for each presupposes a causal joint between the creating and created orders.

The first strategy claims that divine power can be exerted through the introduction of information into objectively indeterminate systems. One might claim, for example, that objective indeterminacy at the microlevel allows a locus for divine action that does not violate causal closure requirements. Quantum theory holds that when from quantum state  $S$  eventuality  $e_1$  (and not  $e_2$ ) is actualized, the reduction from potentiality to the actual eventuality  $e_1$  is not the result of physical causes but instead depends upon objective chance (Shimony 1989, 374). It might be argued that this actualization of  $e_1$  is not wholly the result of chance but rather is brought about by God's introducing information without violating causal closure requirements by inputting energy into the physical system. William Pollard argued long ago that because an electron in a superposition of states has no definite position, no energy is required for God to actualize one among the set of its possibilities. In this way, God could effect the collapse of the wave

function to a single value (Pollard 1958). Nancey Murphy has recently compared the electron's actualization into a particular state to "Buridan's ass." Just as there must be a sufficient reason for the ass to eat one or the other pile of equally attractive hay, so there must be sufficient reason why state  $e_1$  is actualized and not  $e_2$ . God thus functions as the ultimate "hidden variable" (Murphy 1995, 341–42). Thomas Tracy, too, suggests that God can work at the quantum level so as to "continuously affect events without disturbing the immanent order of nature" (Tracy 1995, 319).

This position is problematic, however, for we currently have no way to conceive how information could be propagated without energy transfer. All information transfer appears to require a causal realization in physical systems. Any assumption of extra physical energy clearly violates causal closure requirements, for it asserts that there is information-encoded physical energy that causes other physical actualizations but is not itself wholly caused by physical events and processes. Furthermore, there is no evidence suggesting that any extra energy is present in the collapse of the wave function into a specific actuality, and thus no evidence insinuating any physical causal realization. Moreover, even if such evidence were available, the question of the causal joint would remain. If somehow on the ontological interpretation of quantum indeterminacy something more than chance is at work, and that "something more" is a physically realized divine input, then what is the nature of the causal joint connecting the divine intent to that physically realized "something more"? (This view remains dualistic, because the divine intent is of a different ontological order from the physically realized "something more.")

The suggestion that God's causal power qua information is somehow nonphysically realized is no less problematic for the principle of the causal closure of the physical, because according to it there would still be physical events (i.e., the collapse of the wave function into a particular eventuality) that nonetheless have nonphysical causes. But if physical events can have nonphysical causes, then not all events in the physical order are closed under causal operations, and the principle of the causal closure of the physical is false. Moreover, the question of the nature of the link between nonphysical causal agency and the actualization of a particular eventuality resurfaces. (The dualism is now between the nonphysical information and the physical system.) The general problems besetting interactionistic substance dualism plague the quantum option—physical closure is violated and a problematic link between ontologically disparate realms asserted.

There are other concerns with the claim of divine action at the quantum level. Specifically, I share Willem Drees's discomfort about attributing a metaphysical cause to the physical reduction of a wave potentiality to a concrete eventuality (Drees 1996, 100). Quantum mechanics as currently formulated certainly requires no metaphysical supplementation, and to give it any seems to threaten its very integrity.<sup>7</sup> But there is another

problem as well. According to orthodox quantum theory, because the Schrödinger wave equation smoothly and deterministically governs the probability of premeasurement potentialities at the quantum level, indeterminacy is introduced only at the observation or measurement level. The indeterminacy of the particular actualization of eventualities seems to be a function of measurement, however one wishes to understand that process. But if this is so, then God's action in the world can occur only at times of measurement. Thus, between occasions of measurement there would be no introduction of information into the system, and no divine action (Polkinghorne 1995, 152). This objection could perhaps be deflected were one to jettison the orthodox interpretation of quantum mechanics in favor of some hidden variable theory where God is the ultimate hidden variable. But hidden variable theories have not carried the day, and to advocate one where God is the ultimate hidden variable seems doubly dubious.

Is there a way to conceive of divine agency operating in chaotic macro-systems without violating the principle of the causal closure of the physical? Is it possible to discern in the novelty of chaotic systems the locus of divine agency in the universe? As is well known, predictable dynamic systems manifest *attractors* that are simple curves in state space. Unpredictable dynamic systems, on the other hand, display *strange attractors*, complex orbits that result from the folding of state space (Cruthfield, Farmer, Packard, and Shaw 1995, 41ff.). Can we find a place for God to act in the proclivity of chaotic systems to exhibit novelty as they tend toward their strange attractors?

Unfortunately, prospects are bleak for finding a place for divine activity within the processes of a chaotic system, because nonlinear chaotic systems are, in my opinion, best conceived as metaphysically deterministic. As Wesley Wildman and Robert Russell declare, "nature gives no evidence of any metaphysical openness. [The] fact that a natural dynamical system is open to its environment . . . does not entail metaphysical openness, for the entire environment may be causally determined" (Wildman and Russell 1995, 82). The chaotic randomness resulting from iterations of the logistic equation is of a weak variety consistent with determinism (1995, 76). If this is so, then were God to act somehow in nature by using the capability of chaotic systems to amplify very small changes in initial inputs, God would still be in the business of intervening through "law-suspending miracles" (1995, 83). This would be true even though those interventions would be so small as to be undetectable.

In order to understand this better, consider the example of a bead poised at the top of an inverted U-shaped wire. Although we cannot predict the way the bead will fall, we nonetheless assume that the explanation for the bead's behavior is not mysterious: the bead will fall one way rather than the other because the air and surface exert minute influences upon it, causing it to begin movement in a particular direction. We assume this to be so

even though we cannot in principle measure those influences and predict the bead's subsequent trajectory. Now to claim that God intervenes in this situation is to posit that God provides an initial causal nudge to the macroscopic actualization by fine-tuning the air and surface parameters. As Drees has argued, however, any inputting of divine energy on this account would have to be absolutely instantaneous, for at some  $t_n$  extremely close to  $t_0$ , there would already be physical causal inputs present in the form of amplified feedback within the system due to initial energy differentials. Were God to influence the system after  $t_0$ , some physical energy input would be required in order to counteract the amplified feedback already present in the system (Drees 1996, 96ff.). But this clearly violates physical conservation principles. Moreover, even if God were always to act immediately, there would still be a violation of the principle of the causal closure of the physical, for the fine-tuning of air and surface parameters already makes appeal to an extranatural cause for a physical event. It seems that the lacuna of the causal joint is retained on this account, along with interactionistic substance dualism.

John Polkinghorne, adopting another strategy of conceiving how divine agency operates in chaotic systems, suggests that the unpredictability of chaotic dynamics insinuates an ontological openness toward the future that could allow for the input of divine information. Starting with the critical realist assumption that "epistemology models ontology," he claims that the "intrinsically unpredictable and unisolable" character of chaotic systems signals that "ontologically much of the physical world is open and integrated in character." Instead of interpreting the putative openness of chaotic systems as an epistemic limitation of the precise "infinitesimal disturbances" of the system, Polkinghorne suggests a "causal agency" that operates "in the openness represented by the range of possible behaviors contained within the monoenergetic strange attractor." The "active information" of God is not, however, inputted into the system through a "localized mechanism." Rather, the "complete holistic situation" exerts its influence through top-down causality in a supposedly nondualistic fashion. Polkinghorne thus posits a dual-aspect monism in which divine and physical descriptions form complementary accounts of the "intrinsic indefiniteness" of chaotic systems (Polkinghorne 1995, 148–55).

While I find Polkinghorne's account suggestive, I do not believe it can succeed. The reason is this. If we try to avoid the causal joint conundrum by placing God within the universe, then either God must be supervenient upon the events and entities of the universe such that God's being is ontologically consequent upon those events and entities, or God must be somehow ontologically prior to the universe by virtue of an ability to downwardly cause events within the universe. The first option makes God less than God, for instead of being the "All Determining Reality" God becomes the "All Determined Reality" (Bielfeldt 1999b, 625). (Supervenience is, after

all, a dependency or determinacy relation.) The problem with the second option (in addition to its pantheistic consequences) is simply that it presupposes the concept of downward causation. To this highly problematic notion we now turn.

Downward causation is an initially attractive strategy by which to conceive of the relation between God and cosmos. If we hold that complex systems allow a downward causation from properties at higher levels to those at lower levels, then perhaps it is not implausible that God would use such a causation to influence the boundary conditions of specific chaotic systems or the system of the universe-as-a-whole. Does this strategy offer hope for advocates of nondualistic divine agency?

The notion of downward causation derives from the work of Donald Campbell, who, while agreeing with reductionists in asserting (1) and (2) below, nonetheless argues that controversial claims (3) and (4) are required for a fully adequate causal explanation (Campbell 1974, 180).

1. All processes at the higher levels are restrained by and act in conformity to the laws of lower levels, including the levels of subatomic physics.

2. The teleonomic achievements at higher levels require for their implementation specific lower-level mechanisms and processes. Explanation is not complete until these micromechanisms have been specified.

3. The emergentist principle. Biological evolution in its meandering exploration of segments of the universe encounters laws, operating as selective systems, which are not described by the laws of physics and inorganic chemistry, and which will not be described by the future substitutes for the present approximations of physics and inorganic chemistry.

4. Downward causation. Where natural selection operates through life and death at a higher level of organization, the laws of the higher-level selective system determine in part the distribution of lower-level events and substances. Description of an intermediate-level phenomenon is not completed by describing its possibility and implementation in lower-level terms. Its presence, prevalence, or distribution (all needed for a complete explanation of biological phenomena) will often require reference to laws at a higher level of organization as well. Paraphrasing (1), all processes at the lower levels of a hierarchy are restrained by and act in conformity to the laws of the higher levels.

Because “scientific description is still incomplete when all the details of (1) and (2) are solved” (Campbell 1974, 182), Campbell claims that there must be higher-level laws causally influencing the distribution of lower-level events. Peacocke makes appeal to this notion, claiming that “changes at the micro-level . . . are what they are *because* of their incorporation into the system as a whole, which is exerting specific constraints on its units, making them behave otherwise than they would in isolation” (Peacocke 1990, 53–54).

It is extremely important to distinguish epistemological and ontological issues when discussing top-down causation. Peacocke assumes, quite plausibly, that adequate epistemological analyses of events often require a distinction between bottom-up and top-down processes (Peacocke 1990, 54). On the basis of the epistemological analysis he concludes that, just as one accords ontological status to the entities at the bottom explaining the top, so one must attribute ontological status to entities at the top explaining the bottom:

On the critical-realist view of the epistemology of the sciences . . . the “theories and experimental laws” refer in our epistemological analyses . . . to realities which must be deemed to exist at the various levels being studied—that is, they also have an ontological reference, however elusive. (Peacocke 1990, 54)

From this follows the critical conclusion concerning two-way causation between the higher and lower levels:

So it is legitimate to describe the realities postulated as existing at the higher levels (the wholes, the “top” of the “top-down” terminology) to be causally interactive, in both directions, with the realities postulated as existing at the lower ones (the parts, the “bottom”)—while continuing, of course, to recognize the often provisional nature of our attempted depictions of realities at both levels. (Peacocke 1990, 55)

Given this commitment to two-way causation between levels, Peacocke cites with approval the work of the noted neurophysiologist Roger W. Sperry, who in a revealing passage describes the “downward causality” of the mental onto the neurophysiological:

. . . the molecules of higher living things are moved around mostly by the living, vital powers of the particular species in which they’re embedded. They’re flown through the air, galloped across the plains, swung through the jungle, propelled through the water, not by molecular forces or quantum mechanics, but by the specific holistic vital and also mental properties—aims, wants, needs—possessed by the organisms in question. (Sperry 1984, 201)

This quote definitely proclaims that the lower-level actualizations are really caused by events at the higher levels. For Sperry, the epistemological analysis of downward causation clearly demands an ontological interpretation.<sup>8</sup>

Yet Peacocke backs away from use of the word *cause* in treating the influence of the higher level upon the lower level. As he correctly indicates, “the word ‘causal’ is more normally used for the linkage of different events at the same level of explanation.” In downward causation, however, “we seem to have . . . a determination of form through a *flow of information*, rather than through a transmission of energy, where ‘information’ is conceived of in a broad enough sense to include the input from the environment whereby molecular mechanisms are selected” (Peacocke 1990, 59).

I find this notion of “information determination” problematic. As I have already argued, I do not see how there can be a real flow of information without the transmission of energy. Peacocke draws an analogy to a

computer program controlling electronic changes whereby the programming level possesses nonphysical information (Peacocke 1990, 59). But in the absence of an account of how the programming level might possess this nonphysical information, how can this analogy succeed? Energy is, after all, needed to read and implement the computer program; it is required to write and store the program. Although the operation of the computer hardware might be explainable according to an epistemological analysis at the programming level, it is not the programming itself that ultimately counts in causing the circuits to be actualized in a particular way. The various circuits have the current flow they do because of the available input energy and a particular switching. This switching is itself the result of energy switched through the “reading” of the program. How can this input of physical energy be avoided?

A more profound issue remains, however. Critical realism attributes ontological status to the entities referred to in scientific theory and countenances the ascription of genuine causal powers to those entities at the higher levels of analysis. But this judgment of irreducible causal power at the higher level is unwarranted, I believe, for although we have no reduction of the higher to the lower, we nonetheless have a realization of the higher in the lower. Because the higher-level properties are constituted by and realized in lower-level events and processes, causal primacy must be afforded not to the higher-level properties but to the entities and events constituting those higher-level properties. The physical realization thesis requires that when lower-level properties realize a higher-level property, they are sufficient for that higher-level property (Kim 1993a, 354). But if this is so, then why afford causal powers to the higher level? Why not instead take the lower-level events and processes as the real cause of subsequent events and treat the higher-level properties as mere epiphenomena? It is not the computer program but the physical realization of the computer program in its environment that has the real causal powers. Just because one cannot conceptually reduce the higher level to the lower level, it does not follow that irreducible causal power emerges at the higher level. Concepts concern language and thought; causality is an objective relationship in the world. But if this is so, and if Alexander’s dictum applies, then we may not even be able to accord full ontological status to the entities at the higher level, for to be is to have real causal power. It seems that the thesis of physical realization is problematic for both downward causation and the very *being* of the higher-level entities putatively involved in such causation. But this seems counterintuitive. Must this conclusion be accepted?

I don’t think it must be accepted if one is scrupulous about drawing the appropriate distinctions. Take the example of microphysical events realizing neurophysical properties that realize, in turn, psychological properties. Must we say that only microphysical events are real? Kim tries to answer this question by employing the notion of a *micro-based property*. The idea



is that the physical domain is closed under formation of micro-based properties. Assume that if  $P$  is a micro-based property having parts  $a_1, \dots, a_n$ , such that  $P_1(a_1), \dots, P_n(a_n)$ , and  $R(a_1, \dots, a_n)$ , then  $P$  is a physical property when  $P_1, \dots, P_n$ , and  $R$  are physical properties, and each  $a_i$  is a basic particle or aggregate of such particles (Kim 1998b, 114). In addition, he suggests that *second-order* functional, dispositional properties be regarded as physical. Such properties can be specified as follows (Kim 1998b, 20):

*F* is a *second-order property* over set  $\mathbf{B}$  of base (or first-order) properties iff  $F$  is the property of having some property  $P$  in  $\mathbf{B}$  such that  $D(P)$ , where  $D$  specifies a condition on members of  $\mathbf{B}$ .

On this view, the first-order properties satisfying condition  $D$  are realizers of  $F$ . Take, for instance, the functional property of dormitivity. Substance  $S$  has dormitivity if it possesses a causal/nomic relation whereby people ingesting  $S$  manifest a proclivity to sleep. But different chemicals can realize dormitivity, that is, different first-order properties can satisfy condition  $D$ . The same is true of other dispositional properties like solubility, fragility, and so forth. According to this view, all micro-based properties are physical (even if those properties are macrophysical), and all functional or dispositional properties defined over these micro-based properties are also physical. Because they are micro-based properties constituted by the underlying microphysical properties, upper-level biological properties need not be less real than the microphysical properties at their base. Moreover, higher-level functional properties are real by virtue of their realization in a particular configuration of micro-based properties. These second-order properties actually are second-order designators of their first-order realizers, and real for that reason.

It is also important to note on this analysis that no new causal powers arise at the second-order level (Kim 1998a, 118–19). Second-order properties inherit their causal powers from the micro-based properties realizing them. (It is perhaps not too misleading to say that they are ways of specifying these underlying microphysical processes.)<sup>9</sup> But if this is so, then the putative emergent causal powers of the higher levels trumpeted by advocates of downward causation seem not to materialize after all.

So if the physical realization thesis conflicts with downward causation, how does talk of this top-down causality get started? We are tempted to such talk because of epistemic and conceptual limitations. To see this, imagine a higher-level property group  $H$ , whose realization base is some complex disjunction  $L_1 \vee L_2 \dots, L_n$ . If we do not know the precise law connecting the  $H$  to lower-level actualizations, we might as a matter of practice claim that the  $H$  causes some subsequent event  $L_{n+1}$ . We might say with Campbell that the jaws of the ant “causally influence” the specific actualization of the DNA. The reason for this is that we cannot in principle specify the realization base of the boundary condition of the ant’s jaw.

But the epistemic limitations of human beings do not themselves determine the way things ultimately stand. The realist intuition claims that from the ultimate standpoint (from the perspective of God),  $L_1 \vee L_2 \dots L_n$  is nonetheless the *real cause* of  $L_{n+1}$ , and there is some strict bridge law connecting  $H$  to this disjunctive realization base. It is because of our finite point of view that we locate  $H$  as the cause. Daniel Bonevac says it clearly in considering the problem of mental causality: “From God’s perspective, the mental and physical would be linked by strict biconditional laws, but those laws might be so complex that they are humanly incomprehensible. Mental events, on this view, could have real causal powers. But they would have those causal powers by virtue of their supervenience upon, and thus identity with, physical events” (Bonevac 1995, 138).

According to Bonevac, supervenience is “reduction in the mind of God.” The realist intuition is that the higher level is really biconditionally linked with the lower level—even if we are limited in the knowledge of those biconditionals. If this is so, then downward causation is merely a matter of our epistemic and conceptual limitations about the realization base for the upper level. It is not that there is a causal relation between the higher and lower, or some kind of information transfer of a nonphysical nature; rather, it is simply that we cannot in practice link the higher to the lower. We say that the ant jaws cause the DNA actualizations because we are not omniscient and thus cannot specify the infinite disjunctions that realize the boundary condition of the system. “Expressing these biconditionals may require a language with infinitely long sentences; the infinite disjunctions involved, reflecting multiple realizability . . . may not even be recursively enumerable” (Bonevac 1995, 137). Downward causation is problematic because it turns out that the putative causal power ascribed to the higher level is inversely proportional to the knowledge we have of the relation of it to its realization base. But why should supposedly objective causal relations depend on our state of knowledge?

The same considerations apply to Ellis and Murphy’s specification of a top-down effect. “Top-down *effects* occur where the macroscopic evolution of a hierarchical system is completely determined by microscopic laws and states that lead to well-determined microscopic patterns of evolution, but conditions described at the higher semantic levels (such as macroscopic boundary conditions) determine the detailed evolution of the system” (Ellis and Murphy 1996, 24–25). The key word here is *described*, for it is an acknowledgment that epistemic and conceptual limitations force us to a top-down analysis. But semantic irreducibility does not entail causal autonomy. Ellis and Murphy admit this: “Because the semantics of the higher level are intrinsic to its nature, the language (vocabulary and syntax) at each level cannot be reduced to that at a lower level, even though what happens at each higher level is uniquely determined by the coordinated

action taking place at the lower levels, where it is fully described in terms of the lower level language” (Ellis and Murphy 1996, 28).

Ellis and Murphy realize that their top-down effect is not truly a cause. In fact, when they come to talk about real causal power in the higher level, they use the phrase “top-down action,” and go on to speculate (à la Penrose on the mind-body problem) on freedom resulting from the indeterminacy due to quantum gravity in the brain. It is through the determinacy of top-down effects that top-down action is possible (Ellis and Murphy 1996, 37). But this surely is a far cry from an attribution of real causality to top-down action. However, does not the real attraction of downward causation rest on the notion that real irreducible causal powers at the higher level can influence events and processes at the lower level? If we want to employ downward causation in understanding divine agency, should we not speak honestly and forthrightly about real causation and not some epiphenomenal surrogate?

Unfortunately, we have no empirical support for such a real top-down causation in nature. Brian McLaughlin has argued that downward causation implies that there are configurational forces irreducible to point-pair forces, and that there is not “a scintilla of evidence” for the former; in fact, the advent of quantum mechanics has challenged the very intelligibility of downward causal explanations, for it can account for those higher-level actualizations which previous theory had relegated to the effects of the “emergent” (McLaughlin 1992, 89–91). He argues persuasively that British emergentism vanished not because of its philosophical difficulties but because of a lack of scientific evidence.

I believe that talk of top-down causality equivocates between top-down<sub>1</sub> and top-down<sub>2</sub>. While both claim that particular microlevel events cannot happen without a higher-level property being present, the reason why differs. Top-down<sub>1</sub> claims that the lower-level events would not have happened had the higher-level property not occurred because of a *metaphysical* relation between the two levels. Take, for example, the notion that *X*'s thinking of *M* eventuated in neural event *R*. On this construal of top-down, *M* eventuated in *R* because the thinking of *M* is realized in the neural event *B* that causes *R*. On that interpretation, one could say, “had *M* not occurred, *R* would not have occurred,” and not mean that *M* itself caused *R*. On this metaphysical interpretation, the higher-level property is a necessary metaphysical but neither a necessary nor sufficient causal condition for the occurrence of the lower-level property.

On the other hand, top-down<sub>2</sub> holds that the reason why the lower-level events would not have happened if the higher-level property had not occurred is that the higher level somehow causes the lower-level properties to happen. According to this view, some causal power is attributed to the higher-level property such that it forms a necessary part of a sufficient condition for the lower-level changes. In other words, top-down<sub>2</sub> claims

that  $M$  is causally necessary and sufficient for  $R$ . On this view,  $M$  is the real cause for the occurrence of lower-level events, not a metaphysically necessary accompaniment of those lower-level processes. Much befuddlement occurs when this distinction is not kept clearly in mind.

Another way of making this same point is to say that something may be *causally relevant* for the occurrence of a subsequent event without its being *causally efficacious*. Again imagine that  $M$  supervenes on  $B$ . Thus, were  $R$  not to obtain, then neither would  $B$ . But if  $B$  causes  $R$ , then had  $M$  not obtained, then neither would  $R$ . Although this looks like downward causation of  $M$  to  $R$ , we are really talking only of the causal relevance of  $M$  due to the metaphysical connection linking  $M$  and  $B$ . This is a far cry from the causal efficacy of  $M$  for  $R$ , for if the metaphysical relation between  $M$  and  $B$  did not hold,  $B$  would still be the cause of  $R$ , and were there no  $B$ ,  $M$  would be powerless in the production of  $R$ .  $M$  causes  $R$  only by virtue of  $B$  (Kim 1993b, 22–24; Sosa 1993, 43–46).

This confusion between the metaphysical and causal interpretations of top-down influences can be seen once again by construing the levels relation as a relationship between layers of *language*. Allow  $T_1$  and  $T_2$  to be theories of two different languages; the first is the theory describing a region from the higher level and the second the theory describing that same region from the lower level. (For instance, allow  $T_1$  to comprise the names and predicates of psychology and  $T_2$  to comprise the names and predicates of neurophysiology.) Now assume that although  $T_1$  cannot be reduced to  $T_2$  via bridge laws, it is nevertheless supervenient upon  $T_2$ . What is the reductive status of  $T_1$ ?

It is plausible to claim, I think, that  $T_1$  is nonetheless determined by  $T_2$ , because both are suitably related to an ideal background theory to which they might eventually be reduced—or to which they already do reduce in the “mind of God” (Bonevac 1988, 45): “ $T_1$  supervenes on  $T_2$  relative to a background theory  $T$  iff there are translation functions  $f$  and  $g$  such that (1)  $f$  interprets  $T_1$  in  $T$ , (2)  $g$  interprets  $T_2$  in  $T$ , and (3) the image of  $T_1$  under  $f$  is a subset of the image of  $T_2$  under  $g$ ” (Bonevac 1988, 45). Notice that because the functional image of  $T_1$  is a subset of the functional image of  $T_2$ , all of facts of  $T_1$  are facts of  $T_2$ , even though epistemic and conceptual limitations may not allow us to specify precisely how they are facts.

Now imagine in language  $T_1$  that both  $D$  (my desiring an apple at time  $t_1$ ) and  $B$  (my believing at  $t_1$  that there are apples in my refrigerator) cause the event  $C$  in  $T_2$  (the excitation of nerve impulses at  $t_2$  eventuating in me getting out of my chair). We cannot on this scenario claim that the mental events downwardly cause neurophysical changes in the sense of top-down<sub>2</sub>, for given the relation between languages, although  $D$  and  $B$  are necessary for  $C$ , neither  $B$  nor  $D$  is best thought of as a *cause* of  $C$ . The reason why is that statements  $D$  and  $B$  can be mapped into an ideal language such that they fall within the range of statements determined by the functional im-

age of physical statements  $P$  and  $Q$ . Given functions  $f$  and  $g$ , there could not have been  $P$  without  $D$ , or  $Q$  without  $B$ . (I am greatly simplifying this.) Given that  $P$  and  $Q$  jointly cause  $C$ ,  $D$  and  $B$  are plainly *necessary* for  $C$ . However, that necessity is not of a causal variety, because  $P$  and  $Q$  specify more deeply than  $D$  and  $B$  the real cause of  $C$  in  $T_2$ . If one were in possession of the ideal language  $T$  that could ultimately “carve the beast of reality at the joints,” then one would have to grant to language  $T_2$  the greater ability to provide an accurate causal map. Because it is more comprehensive than  $T_1$ —given all the truths of  $T_2$  all the truths of  $T_1$  are established but not vice versa—it more closely confirms to language  $T$ , the language that would by definition give the ideal causal map.

I have claimed in this section that the noninterventionist account of divine agency must make sense of information transfer without energy transfer, or must countenance downward causation. At this point I do not see how either strategy is likely to succeed. We do not have a theory for how information can be propagated in the absence of energy. We do not have empirical evidence for the existence of real irreducible causal power at the higher level that is not finally determined by events and processes at lower levels. But even if these strategies were to succeed, it is important to realize that they remain broadly *dualistic* in their orientation. The first claims that there is a realm from which nonembodied information enters the physical system of the universe. The second strategy admits that God must somehow be outside the universe-as-a-whole, causing the boundary conditions by which subsequent states of the system are determined. In my opinion, a truly nondualistic account of divine agency must put God squarely within the universe in such a way that God’s actions are in some sense events and processes within the universe. If top-down<sub>2</sub> is rejected, then God and God’s actions are best conceived as supervenient upon processes within the universe. I now turn to a critique of that view.

#### THEOLOGICAL ANOMALOUS MONISM AND EXPLANATORY EXCLUSION

In two earlier articles I argued that God and the universe should not be understood as distinct ontic domains but as two distinguishable layers of the one ontic realm, layers related to each other metaphysically, not causally. It seemed to me that God’s actions could be understood as supervenient upon natural physical processes such that intralevel causality was allowed, but interlevel causality denied. My view thus rejected downward causation and information transfer without energy and claimed a physical monism of entities and events, but permitted a real dualism of properties and relations.

Although I always knew that my position might be inadequate to the task of modeling the artificer/artifact relation between God and creation

assumed in the classical Christian tradition, I believed it was internally consistent and coherent. I now have grave doubts about that, however, for I now think my view violates the principle of explanatory exclusion, the principle that there cannot be two or more complete and independent explanations of the same event.<sup>10</sup>

Assume that explanation *P* cites *C* as a physical cause of a certain physical event (say Saint Francis' conversion), and explanation *D* cites *C\** as a divine cause of the same physical event. Now what is the relationship between *C* and *C\**? There are a number of options. (1) We might say that *C* and *C\** are links in the same causal chain leading to *E*. But then neither *C* nor *C\** would be *complete*, and if *C* is not complete, the causal closure of the physical has been violated. (2) We might claim (as I previously did) that *C\** is somehow supervenient upon or otherwise determined by *C*. But now the explanations are no longer independent, for *C\** would not obtain were *C* not to occur. (3) We might argue that *C* and *C\** are both distinct and sufficient causes of *E*. However, on this view we encounter the problem of *overdetermination*, for we must accept that *E* would have happened even if either *C* or *C\** (but not both) did not. Using Kim's example, suppose that a man were shot dead simultaneously by two assassins. Although one might say that either bullet would have been sufficient to kill him, it seems that a complete explanation of the case would have to somehow take into account the impact of both bullets (Kim 1993a, 252). To speak about only one assassin's bullet would be to not offer a complete explanation. Analogously, to assert that God causes all those actualizations also caused by antecedent natural causes is to not let the physical explanations themselves be complete. (4) It might be asserted that *C* and *C\**, while not sufficient themselves, are nonetheless necessary for *E*. But on this view we again find that the respective explanations are not complete and that the causal closure of the physical has been violated. (5) Finally, one might argue that  $C=C^*$ . But this example of intertheoretic reduction makes the divine properties coextensive with physical properties, a view that for a host of reasons is theologically inadequate.

The upshot of this is that we cannot give an independent and complete explanation of divine causality without violating the causal closure of the physical. Consider the statement, "God made it rain Tuesday." If this is true even in the absence of appropriate natural antecedent conditions, then God has in an interventionist way interrupted the natural order of things, and we are left with substance dualism. If the statement is not true unless the appropriate natural antecedent conditions were present, then God's act is not an independent explanation for the event; in fact, the divine act is determined by physical actualizations which themselves constitute the independent and complete explanation for the rain. If the statement is true when there are appropriate antecedent conditions, then either of two alternatives obtain: (1) the statement would not have been true without divine

action—in which case the physical is not causally closed, or (2) the statement would have been true without divine action—in which case we have overdetermination. But why posit two explanations when one is sufficient?<sup>11</sup>

### CONCLUSION

The Western monotheisms have always assumed that God is a causally efficacious entity, a being that can really act in the universe. Although a supernature/nature dualism has notorious problems with its causal joint, if I am correct, philosophical perplexities are not attenuated by embracing nondualistic accounts of divine agency. The reason is this. For traditional talk about God to be true, either there must be some information transfer or downward causation from the divine level to lower physical levels, or there must be some underlying natural events that would make these statements true. But all of these ways are blocked. Indeed, on the supervenience position, God becomes an epiphenomenal dangler, a being whose states are forever determined by the physical but who cannot independently determine anything at all. In light of this it may be wiser simply to admit monotheism's presumption of substance dualism and reexamine our commitment to the causal closure of the physical. How else might we avoid a causally inert deity?

### NOTES

1. The immortality of the soul is clearly not essential to Christianity, because in the first two centuries Christianity grew and prospered without it (Pelikan 1971, 47–52). A number of contemporary Christian philosophers argue for the compatibility of classical theism and mind/body nondualism (Van Inwagen 1995; Baker 1995). For a spirited defense of the necessity of soul/body substance dualism for classical theism see Vallicella 1998.

2. Barbour discusses a number of theological problems with the monarchical model. See Barbour 1997, 306–9.

3. Alexander discusses the nonreality of noncausally relevant entities in his *Space, Time and Deity*: “[Epiphenomenalism] supposes something to exist in nature which has nothing to do, no purpose to serve, a species of *noblesse* which depends on the work of its inferiors, but is kept for show and might as well, and undoubtedly would in time be abolished” (Alexander 1979, 8). Notice that on this definition, existentialist theology's talk of God becomes epiphenomenal.

4. One could further distinguish *weak* and *strong* property dualism. Weak property dualism would say that while there are two kinds of properties, one of which cannot be directly reduced to the other, the one kind is logically supervenient upon the other, that is, fixing all the properties of one type necessarily determines all the properties of the other type. Strong property dualism claims irreducibility and a supervenience that is *not* logical; fixing all the properties of one type does not necessarily determine all the properties of the other type (see Chalmers 1996, 124ff.). If we take seriously the notion of the imminent Trinity, strong property dualism remains just as problematic as its weaker counterpart.

5. The core idea of supervenience is clearly expressed by McLaughlin: “A-respects supervene on B-respects if and only if exact similarity in B-respects excludes the possibility of difference in A-respects” (McLaughlin 1995, 17). Kim points out that three ideas are closely associated with supervenience: the *covariance* of the supervenient properties with their base properties, the *dependency* of the supervenient properties on their base properties, and the *nonreducibility* of the supervenient properties to their base properties (Kim 1993a, 140).

6. For an analysis of the perils and promise of supervenience for theology see Bielfeldt 2000, 140–47.

7. I realize that much more needs to be said to establish this point. Barbour has pointed out that the view does seem to have three rather unpleasant consequences: (1) God would have total control over all events; (2) God would work through unlawful rather than lawful means; and (3) God's action would constitute an implicit reductionism (1997, 313).

8. Nancey Murphy argues for downward causation as well, drawing ontological conclusions from epistemic and conceptual issues. See Ellis and Murphy 1996; Murphy 1999a, b, c, d.

9. I critique Meyering's notion of "multiple supervenience" (Meyering 1999) in a forthcoming article entitled "Downward Causation: How Does the Mental Matter?"

10. I am deeply indebted to Kim for the material in the next paragraph (Kim 1993a, 250ff.).

11. The issue here really pertains to the unity and simplicity of our causal story of the world. Too often theology has not taken seriously the causal question. It has been engaged in offering heuristic or metaphorical accounts of divine agency, accounts entirely detached from the task of plotting regions within the causal map. Metaphorical redescrptions should certainly be counted as examples of explanatory overdetermination.

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