

Continuous creation and secondary causation: the threat of occasionalism

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Abstract: One standard criticism of the doctrine of continuous creation is that it entails the occasionalist position that God alone is a true cause and that the events we commonly identify as causes are merely the occasions upon which God brings about effects. I begin by clearly stating Malebranche's argument from continuous creation to occasionalism. Next, I examine two strategies for resisting Malebranche's argument – strong and weak concurrentism – and argue that weak concurrentism is the more promising strategy. Finally, I argue that weak concurrentism requires a necessitarian approach to secondary causation.

Introduction

Theists have traditionally held that the divine action required to conserve the existence of things is the same as the action required to create things in the first place. The doctrine of continuous creation affirms that creation and conservation differ only in an accidental sense; first instances of causing a thing's existence are acts of creation and all subsequent instances are acts of conservation. Continuous creation is subject to two serious objections: first, that it is incompatible with the persistence of created things, and second, that it is incompatible with secondary causation. In this essay, I examine the second of these objections.¹ The argument that continuous creation is incompatible with secondary causation finds its clearest, most forceful statement in Malebranche's case for occasionalism in the *Dialogues on Metaphysics and Religion*.² I begin by clearly stating Malebranche's continuous-creation argument; next, I examine two strategies for resisting Malebranche's conclusion – strong and weak concurrentism – and argue that weak concurrentism is the more promising strategy; finally, I argue that weak concurrentism requires a necessitarian approach to secondary causation.

Malebranche's continuous-creation argument

For present purposes, I will take occasionalism to be the view that God is the sole and total cause of everything that occurs; that is, I will consider a pure form of occasionalism that denies *all* secondary causation.³ When Malebranche's spokesperson, Theodore, tries to convince the reluctant Aristes of the truth of occasionalism, he first argues from the passive nature of material substances. But when Aristes remains unconvinced by this argument, Theodore chooses not to press the point and moves on to his continuous-creation argument. He contends that, even if material substances possessed all of the Schoolmen's occult powers, God's continuous creation of those bodies would prevent them from ever exercising their powers. The argument unfolds over the course of several pages of dialogue, but Theodore offers the following summation:

Creation does not pass, because the conservation of creatures is – on God's part – simply a continuous creation, a single volition subsisting and operating continuously. Now, God can neither conceive nor consequently will that a body exist nowhere, nor that it does not stand in certain relations of distance to other bodies. Thus, God cannot will that this armchair exist, and by this volition create or conserve it, without situating it here, there, or elsewhere. It is a contradiction, therefore, for one body to be able to move another. Further, I claim, it is a contradiction for you to be able to move your armchair. Nor is this enough; it is a contradiction for all the angels and demons together to be able to move a wisp of straw. The proof of this is clear. For no power, however great it be imagined, can surpass or even equal the power of God. Now, it is a contradiction that God wills this armchair to exist, unless He wills it to exist somewhere and unless, by the efficacy of His will, He puts it there, conserves it there. Hence, no power can convey it to where God does not convey it, nor fix nor stop it where God does not stop it, unless God accommodates the efficacy of His action to the inefficacious action of His creatures.⁴

In short, if God is continuously creating everything, there is simply nothing left over for secondary causes to do. Suppose, to use Malebranche's hyperbolic example, that all of the angels and demons joined forces to attempt to move a piece of straw. Since God is creating the straw at every moment, and since the act of creation requires creating the straw in some specific location, what contribution could the angels and demons possibly make? Since the powers of finite beings cannot outstrip the power of an omnipotent being, it is impossible for the angels and demons to cause the straw to exist somewhere other than where God puts it. And since God's volition is sufficient by itself to cause the straw to exist where God wills, there is nothing left over for the angels and demons to contribute to its being there.⁵ Thus, even granting for the sake of argument that angels, demons, or material bodies possess occult powers, the doctrine of continuous creation seemingly entails that they could never produce any effects. And since it is pointless to posit powers that can never be exercised, Malebranche concludes that we must rid ourselves of the opinion that creatures have powers and concede that they are entirely passive.⁶

In the following section, I will consider strategies for resisting Malebranche's conclusion, but it will be helpful to first state the argument more precisely. Drawing upon Philip Quinn's work, we can formulate the doctrine of continuous creation in terms of the following axiom and definitions⁷:

- CC Necessarily, for all x and t , if x is contingent and x exists at t , then God's willing that x exists at t brings about x 's existing at t .
- Cr God creates x at t = def. God's willing that x exists at t brings about x 's existing at t , and there is no t' prior to t such that x exists at t' .
- Co God conserves x at t = def. God's willing that x exists at t brings about x 's existing at t , and there is some t' prior to t such that x exists at t' .

Quinn characterizes the *bringing about* relation used in this account as involving totality (God's causal contributions are, by themselves, sufficient for their effects), exclusivity (God is the sole cause of the effects – they are not causally overdetermined), activity, immediacy, and necessity. For convenience's sake, I will refer to the above theory simply as CC.

Following Jonathan Kvanvig and Hugh McCann, we can understand occasionalism as the conjunction of CC and O, where F is a variable ranging over properties:

- O Necessarily, for all x , t , and F, if x is contingent and x is F at t , then God's willing that x is F at t brings about x 's being F at t .⁸

In order to support the inference from CC to O, Malebranche argues that God cannot will that some contingent individual exist without willing that it exist with determinate properties. Malebranche makes this point using the example of a chair and its location: God cannot will that this chair exist without willing that it exist in some determinate place, be it here or somewhere else.⁹ It is a simple matter of the law of excluded middle that for any property and any given moment, either an individual has that property at that moment or it does not. Moreover, in the case of creation in the narrow sense (i.e. of bringing about the existence of a *new* entity *ex nihilo*), it seems obvious that it must be God who causes the individual to possess the properties it has at the moment of its creation. After all, if t is the first moment of x 's existence, then there was no opportunity prior to t for anything else to act upon x and cause it to possess the properties it has at t , and since God creates *ex nihilo*, x 's properties are not determined by the nature of any pre-existent stuff out of which it is formed. The only viable explanation of x 's possessing the properties it has at t seems to be that God causes x to possess them – this is simply part of what is involved in God's creating x .

Thus, Malebranche assumes what I will refer to as the principle of creation with determinate properties, or CrD:

CrD Necessarily, for all x and t , if x is contingent and God creates x at t , then for any property F , if x has F at t , then God's willing that x has F at t brings about x 's having F at t .

In Malebranche's *Dialogues*, Aristes willingly grants this much, but he denies that occasionalism follows, arguing that 'once the moment of creation has passed ... [b]odies dispose themselves haphazardly, or according to the law of the strongest'.¹⁰ However, it is at this point that Theodore relies upon continuous creation, for as he tells Aristes, 'if this moment [of creation] does not pass, then you are in a spot, and will have to yield'.¹¹ That is, if God's act of conserving x is intrinsically indistinguishable from the act of creating x , then Aristes' acceptance of CrD commits him to an analogous principle of conservation with determinate properties, or CoD:

CoD Necessarily, for all x and t , if x is contingent and God conserves x at t , then for any property F , if x has F at t , then God's willing that x has F at t brings about x 's having F at t .

This premise clinches Malebranche's argument: CC, CrD, and CoD together entail O. The implication of accepting these two principles together with CC is that God is the cause not only of the existence of every contingent individual at every moment but also of every property possessed by those individuals at every moment. Thus, even if contingent individuals did have active causal powers, continuous creation would leave nothing behind for them to do.

Two strategies for avoiding occasionalism

Since CC, CrD, and CoD together entail O, the only way to maintain CC without accepting O is to modify or reject CrD and/or CoD. I will focus my attention here upon CoD rather than CrD for two reasons. First, CoD covers all but the very first moment of any individual's existence, so it plays a more significant role in the discussion. Second, CrD strikes me as an eminently plausible principle. It is exceedingly difficult to see how secondary causes could make any contribution to the features of individuals at the very first moment that God creates them, and so the most plausible explanation of why individuals have the properties they do at the moment of their creation seems to be that God creates them with those properties.¹²

So I will assume that God *creates* all individuals with determinate properties; the question is whether God must *conserve* them in such a determinate way at subsequent moments. Once contingent individuals exist, can they causally interact with each other, or does God's continuous conservation of them preclude

such interaction? In the sections that follow, I will examine two attempts to reconcile continuous creation with secondary causation: strong concurrentism, and weak concurrentism. Strong concurrentism modifies CoD by weakening the *bringing about* relation, while weak concurrentism rejects CoD altogether.

Strong concurrentism

The most minimal departure from Malebranche's view would be to allow that secondary causes are over-determining causes, which would simply require removing the characteristic of exclusivity from the original *bringing about* relation in CoD and O. However, causal overdeterminism is an inherently unsatisfactory view; an adequate strategy for resisting occasionalism will have to assign secondary causes some non-superfluous role. This will require removing, in addition to exclusivity, the characteristic of totality – call the resulting relation 'bringing about₁'.

CoD could then be replaced with CoD₁,

CoD₁ Necessarily, for all x and t , if x is contingent and God conserves x at t , then for any property F , if x has F at t , then God's willing that x has F at t brings about₁ x 's having F at t .

This slight change blocks the inference from CC to O. What follows now is,

O₁ Necessarily, for all x , t , and F , if x is contingent and x is F at t , then God's willing that x is F at t brings about₁ x 's being F at t .

But the conjunction of CC and O₁ does not amount to occasionalism because O₁ does not preclude the possibility that x 's being F at t is jointly caused by the (non-superfluous) causal contributions of both God and secondary causes. On this view, God and secondary causes somehow work together to bring about the states or properties of things. Secondary causes make genuine contributions, although they would not be efficacious if God did not co-operate or concur with them. Thus, this view is often referred to as *concurrentism*; I will use the label *strong concurrentism* to distinguish the view from a weaker form of concurrentism I will discuss in the next section.

Strong concurrentism was the standard view in the medieval and early modern periods, especially among scholastic philosophers and theologians. When Malebranche defended occasionalism, he was well aware that strong concurrentism was a popular alternative and he went out of his way to demonstrate the extent to which his own views agreed with those of the scholastics. But he also pointed out that the scholastics could not agree among themselves concerning the exact nature of divine concurrence, adding that he could not 'conceal the fact that their language appears to me to be quite equivocal and confused'.¹³

Unfortunately, Malebranche wasted little effort explaining what exactly was objectionable about strong concurrentism, apparently judging a clear exposition of his own view to be of more value.¹⁴

My own difficulty with strong concurrentism stems from two seemingly conflicting claims it makes about secondary causes. On the one hand, it affirms that:

SC1 Secondary causes make genuine, non-superfluous causal contributions.

On the other hand, it also insists that:

SC2 Secondary causes can accomplish nothing at all without God's specific concurrence.

On the face of it, these two claims seem to be at odds with each other; if their contributions really are genuine, it would seem secondary causes should be able to accomplish *something* without assistance or concurrence.

One way to approach this difficulty is to consider the various ways in which one causal agent can require the assistance or concurrence of another. Three basic possibilities come to mind. First, an agent may lack a *kind* of causal power needed to bring about an effect and so require the assistance of another agent that possesses that sort of causal power; e.g. in order to cut down a tree, I require the assistance of a chainsaw, axe, or some other such tool. Second, an agent may possess all the kinds of causal power needed, but be for some reason unable to exercise them all; e.g. I can hold two items in their proper positions and I can operate a screwdriver, but I cannot simultaneously hold them in their positions and operate a screwdriver, and hence, I require assistance if I am to fasten them to one another. Third, an agent may possess the kinds of causal powers needed to bring about an effect, but not possess them to the requisite degree; e.g. I possess the kinds of causal powers required to lift things, but not to the degree required to lift a piano. Obviously, there are more elaborate cases in which an agent needs the co-operation of another, but I suspect that they will all involve some more complex combination of: (a) lacking necessary kinds of causal power, (b) being unable to exercise causal powers one possesses, and (c) not having a causal power to the requisite degree.

But do any of these types suggest a model of co-operative action appropriate for strong concurrentism? Surely when strong concurrentists affirm that secondary causes are in essential need of divine concurrence, they do not mean that secondary causes have all the requisite kinds and degrees of powers needed for their effects but are systematically prevented from simultaneously exercising them all. So we can set aside type (b).

What about type (a)? Perhaps what strong concurrentists mean to affirm is that secondary causes lack some particular kind of causal power that is necessary for any effect, some special power that only God can contribute. This would plausibly

explain why secondary causes have an essential need for divine concurrence and it would also seem to explain why the contributions of secondary causes are not superfluous: God and secondary causes each exercise different kinds of causal powers, both of which are necessary in order to produce the effect.

However, this model draws too sharp a distinction between the contributions of divine and secondary causes. Distinct kinds of causal powers are differentiated by the kinds of effects they produce. Thus, the claim that God and secondary causes each exercise different kinds of causal powers seems to imply that God is responsible for certain aspects of the overall effect and secondary causes are responsible for others. But strong concurrentism does not want God's contribution to be limited to certain aspects of the effect; it wants God to be involved in *all* aspects of the effect, including the specific aspects that are brought about by secondary causes. Thus, type (a) is not an appropriate model of co-operative action for strong concurrentism.¹⁵

The fact that strong concurrentism wants God to be involved in all aspects of the effect, including those that secondary causes contribute to, suggests that type (c) might be a better model. Perhaps secondary causes simply do not have their causal powers to the degree needed to achieve their effects, so divine concurrence is always needed to fill in what is lacking.¹⁶ However, this model of co-operative action is incapable of satisfying both SC1 and SC2. If we suppose that secondary causes really do make genuine, non-superfluous causal contributions, this model offers no reason for thinking that God's specific concurrence would *always* be required, *contra* SC2. That would be like claiming that I have all of the causal powers needed to lift things, but that there could never be anything, no matter how light, that I could lift without assistance; a claim that seems flatly self-contradictory. If secondary causes have genuine causal powers, then they should not always require concurrence in bringing about the aspects of the effect their powers contribute to. Conversely, if they do always require such specific concurrence, it is hard to see why we should think their causal contributions are genuine, *contra* SC1.

It seems that the only way to maintain that secondary causes make genuine contributions *and* ensure that divine concurrence is always necessary is to adopt the model of co-operative action suggested by type (a). But as we have seen, this model is incompatible with strong concurrentism; it requires drawing a sharper distinction between the contributions of divine and secondary causes, attributing some aspects of the effect to God and other aspects to secondary causes.¹⁷

Weak concurrentism

The position I will refer to as *weak concurrentism* (sometimes referred to as *mere* conservationism) draws just such a distinction: God causes the *existence*

of things, while secondary causes are entirely responsible for causing (at least many of)¹⁸ the *properties* of things. Unlike strong concurrentism, weak concurrentism was not a popular position in Malebranche's time.¹⁹ Although he rejected the view, his reasons were primarily theological; from a conceptual standpoint, Malebranche regarded weak concurrentism as involving 'fewer difficulties' than strong concurrentism.²⁰

One of the reasons that weak concurrentism seems to involve fewer difficulties is that it takes a simpler, more decisive approach to resisting Malebranche's argument for occasionalism. Unlike strong concurrentism, which invokes a weakened 'bringing about₂' relation in order to sustain a weakened version of CoD, weak concurrentism blocks Malebranche's inference from CC to O by rejecting CoD outright. *Contra* Malebranche, weak concurrentists maintain that God can cause individuals to exist without causing all of their states or properties. In defence of this position, weak concurrentists often simply point out that CC does not entail CoD; one can consistently affirm that God causes the existence of things without affirming that God causes all of their properties.²¹ Of course, the legitimacy of such a distinction depends upon the answers to fundamental metaphysical questions about the nature of particulars and universals. Nominalist approaches to these questions seem to offer no metaphysical grounding for a sharp distinction between causing the *existence* and causing the *properties* of things, so weak concurrentism seems to require some form of realist approach to these issues.

However, even if the *existence/properties* distinction can be justified, this minimal defence of weak concurrentism remains somewhat unsatisfying because it fails to address the full force of Malebranche's argument. Part of its intuitive appeal is that if God is continually creating everything, then it is exceedingly hard to see how secondary causes could get in on the action. Philip Quinn, a weak concurrentist himself, clearly identifies the tension in his position:

Let us imagine that the world of contingent things is partitioned into time-slices by the relation of absolute simultaneity. If the contingent things that exist at a time-slice depend for their existence solely and totally on God's creative activity at that time-slice, then except for connections among time-slices made from outside nature by divine activity, what exists contingently at one time-slice within created nature is completely independent of what exists contingently at any other. But this appears to leave little or no room for what happens at one time-slice to exercise any influence on what happens at any other by means of a path that remains wholly internal to the created realm. So there seems to be a problem of trans-slice causation, and the possibility of there being secondary causes in nature appears threatened.²²

What weak concurrentism needs is something like a positive theory of secondary causation that can be shown to be consistent with CC.

Weak concurrentism and the nature of secondary causation

Quinn's argument

Philip Quinn has argued that CC can be consistently conjoined with regularity, counterfactual, and necessitarian theories of secondary causation, and hence that, regardless of how debates over the nature of causation turn out, there is no reason to worry that CC entails occasionalism. To make this case, Quinn considers simple versions of each theory and then argues that they can be conjoined with CC without yielding any inconsistent or otherwise problematic implications. For example, he formulates a simple version of the regularity theory:

- (1) i_1 's being F at t_1 is a cause of i_2 's being G at $t_1 + \Delta t$ iff:
- (i) i_1 's being F at t_1 occurs,
 - (ii) i_2 's being G at $t_1 + \Delta t$ occurs,
 - (iii) for all t , if, for some x , x is similar to i_1 and x 's being F at t occurs, then, for some y , y is similar to i_2 and y 's being G at $t + \Delta t$ occurs.²³

What are the consequences of conjoining (1) with CC? First, we seem to get the favourable consequence that there are many instances of secondary causation – billiard balls striking other billiard balls cause motion in them, flying rocks cause windows to break, and so on. Thus, there will be many true statements of the form,

- (2) i_1 's being F at t_1 is a cause of i_2 's being G at $t_1 + \Delta t$.

Secondly, there simply does not appear to be a way to derive any contradictory or otherwise problematic consequences. If we make the plausible actualist assumption²⁴ that,

- (3) Necessarily, for all x , t , and F, if x 's being F at t occurs, then x exists at t .

Then, from statements of the form of (2) we can derive,

- (4) i_1 exists at t_1 ,

and,

- (5) i_2 exists at $t_1 + \Delta t$.

And from (4), (5), and CC it follows that,

- (6) God's willing that i_1 exists at t_1 brings about i_1 's existing at t_1 ,

and,

- (7) God's willing that i_2 exists at $t_1 + \Delta t$ brings about i_2 's existing at $t_1 + \Delta t$.

However, these consequences are perfectly innocent – indeed, they are precisely what we would expect from CC. To get a contradiction, we would need to be able derive something like,

(8) God's willing that i_2 be G at $t_1 + \Delta t$ brings about i_2 's being G at $t_1 + \Delta t$.

(8) would be problematic because it contradicts (2) – if God is the total and exclusive cause of i_2 's being G at $t_1 + \Delta t$ then i_1 's being F at t_1 could not be a cause of that event. But it simply does not seem to be possible to derive (8), nor is there any way to derive anything like CoD or O. Thus, Quinn concludes that, since CC and (1) are consistent, weak concurrentists who are attracted to the regularity theory have little reason to worry about being committed to occasionalism.²⁵

Quinn offers similar arguments for the compatibility of CC and the counterfactual and necessitarian approaches to secondary causation. In light of the preceding summary of his argument concerning the regularity theory, the gist of those arguments should be tolerably clear.

The problem with Quinn's method

While I grant that CC is formally consistent with each of the theories of causation Quinn considers, I will argue that this fact alone cannot assure us that CC is compatible with genuine secondary causation. After all, even Malebranche would have agreed that the regularity theory's definition of causation is formally consistent with continuous creation; Hume's regularity theory is essentially what Malebranche had in mind when he spoke of mere *occasional causes*.²⁶ In other words, Malebranche allowed that we can continue to speak of secondary 'causes', so long as we are clear about the fact that they are mere occasional causes and do not really produce any effects. What Malebranche would have rejected is Quinn's apparent assumption that the regularity theory identifies true causes rather than mere occasional causes.

The fundamental problem with Quinn's argument is that formal consistency alone does not distinguish between genuine and mere occasional causes: for all we know, a definition of causation may identify nothing more than the *occasions* upon which God brings about effects. In order to demonstrate that continuous creation is compatible with secondary causation, weak concurrentists must somehow show that continuous creation is consistent with a definition of causation *and that definition identifies real rather than occasional causes*.

How to distinguish between real and occasional causes

An adequate theory of genuine secondary causation ought to be able to pass a simple test: it must be able to distinguish between occasionalist possible worlds and weak concurrentist possible worlds. Applying the test will be easiest if we narrow our focus to two worlds that are highly similar; thus, let us consider

one weak concurrentist world, W_{wc} , and one occasionalist world, W_{oc} . Furthermore, let us stipulate that both are as similar to the actual world as possible (identity with the actual world being the obvious limiting case of similarity). We can characterize these two worlds as follows:

- W_{wc} As similar to the actual world as is compatible with CC being true and O being false; there are genuine secondary causes of (at least some) contingent events.
- W_{oc} As similar to the actual world as is compatible with both CC and O being true. God is the total and exclusive cause of every contingent event, and hence there are no genuine secondary causes.

We can now state the test more precisely:

- (9) An adequate theory of genuine secondary causation must properly distinguish between W_{wc} and W_{oc} – that is, it must imply both that W_{wc} does contain secondary causes and that W_{oc} does not contain secondary causes.

If a theory falsely implies that W_{oc} contains secondary causes, it cannot credibly claim to offer a definition of genuine causation; such a theory would not recognize occasionalism even if it were, so to speak, right in front of it. Thus, a theory that fails this test cannot serve Quinn's purpose of demonstrating that CC is compatible with genuine secondary causes. In the following sections I will apply this test to each of the causal theories Quinn defends. I will argue that the regularity and counterfactual theories fail the test, and I will suggest that any reductionist approach to causation will fail for similar reasons. However, I will argue that non-reductionist approaches have the resources to pass the test.

The regularity theory

It is pretty clear that Quinn's regularity theory does not pass the test of (9). We stipulated above that W_{oc} is as similar to the actual world as is compatible with God's bringing about all the states or properties of things. Creating a world that, in terms of the regularities involved, is a perfect replica of the actual world would pose no difficulty for God. W_{oc} and W_{wc} will contain precisely the same regularities, and that means that the regularity theory will fail the test. For suppose that it correctly identifies a causal regularity in W_{wc} – say, that whenever a rock with a certain mass and velocity collides with a window of a certain size and thickness, the window breaks. Then, since W_{oc} will contain the very same regularity, the regularity theory will falsely report this as an instance of secondary causation there. In general, any instance of secondary causation that the

regularity theory correctly reports in W_{wc} , it will falsely report in W_{oc} as well. Thus, although CC and the regularity theory are formally consistent, the regularity theory fails to distinguish between genuine secondary causes and mere occasional causes.

The counterfactual theory

The second theory Quinn discusses is a simple version of the counterfactual approach to causation popularized by David Lewis.²⁷ The theory states that,

- (10) The event of i_2 's being G at $t_1 + \Delta t$ depends causally on the event of i_1 's being F at t_1 iff:
- (i) i_1 's being F at t_1 occurs,
 - (ii) i_2 's being G at $t_1 + \Delta t$ occurs,
 - (iii) i_1 's being F at t_1 and i_2 's being G at $t_1 + \Delta t$ are distinct events,
 - (iv) if i_1 's being F at t_1 were not to occur then i_2 's being G at $t_1 + \Delta t$ would not occur.²⁸

Does the counterfactual theory pass the test of (9)? W_{oc} clearly contains pairs of events that satisfy conditions (i), (ii), and (iii) of (10), but it is less obvious whether any of these pairs would also satisfy (iv), the counterfactual condition. Among the pairs of events that satisfy the first three conditions, is there a pair, e_1 and e_2 , such that if e_1 were not to occur, e_2 would not occur? According to the standard possible worlds analysis of counterfactuals, the answer to that question depends on what happens in the possible worlds most similar to W_{oc} in which e_1 does not occur. If e_2 does not occur in the nearest such world(s), then the counterfactual analysis gets W_{oc} wrong, but if e_2 does occur in those worlds, then the counterfactual analysis gets W_{oc} right.

A failed attempt to pass the test There is a tempting line of reasoning for the conclusion that the counterfactual analysis does get W_{oc} right, and hence passes the test of (9). It begins by noting that the fact that God is the total and exclusive cause of everything that occurs in W_{oc} seems to be a very important feature of that world – a feature that all the worlds most similar to W_{oc} would share. That is, since W_{oc} is an occasionalist world, all of the worlds most similar to W_{oc} will be occasionalist worlds as well. Moreover, in occasionalist worlds, events are directly related only to God; thus, the occurrence or non-occurrence of one event has no direct connection to the occurrence or non-occurrence of any other. So among occasionalist worlds, it seems natural to suppose that comparisons of overall similarity should be a simple matter of setting two worlds side by side and counting how many events God brings about in both worlds and how many events God brings about in one but not in the other.

Consider two worlds, W_1 and W_2 , defined as follows:

- W_1 exactly the same as W_{oc} , with the exception that God does not bring about e_1 .
- W_2 exactly the same as W_{oc} , with the exception that God does not bring about either e_1 or e_2 .

Judged simply by the events God brings about in them, W_1 seems to be more similar to W_{oc} than W_2 is. If that is right, then the counterfactual account of causation correctly implies that in W_{oc} , e_1 is not causally dependent on e_2 because they do not satisfy condition (iv).

Unfortunately, this tempting line of reasoning is flawed. For one thing, it is a mistake to think that similarity among occasionalist worlds would simply be a matter of tallying up the number of differences in the events God brings about. There are other significant respects in which occasionalist worlds might differ. For example, suppose that e_1 and e_2 fall under certain event-types, type-1 and type-2 respectively; moreover, suppose that in W_{oc} God determines to bring about a type-2 event immediately following every type-1 event. In that case, the claim that W_1 is more similar to W_{oc} than W_2 is should strike us as less plausible, for W_2 is compatible with such a divine determination, while W_1 is not. Thus, similarity comparisons for occasionalist worlds would need to take into consideration not only which events God brings about, but also how God determines which events to bring about.

Secondly, there is another, much deeper flaw in the above reasoning. The fundamental difficulty is that it appeals to causal facts about the various worlds in order to make judgements of overall similarity between them. But since the counterfactual theory analyses causation in terms of counterfactuals, and analyses counterfactuals in terms of overall similarity between worlds, it cannot appeal to facts about causation to make those similarity judgments. To do so would be viciously circular.²⁹

Why the counterfactual theory fails the test Let us suppose that e_1 and e_2 are the following events: e_1 = one billiard ball's striking a second, and e_2 = the second billiard ball's rolling away from the first. We have stipulated that W_{wc} contains genuine secondary causes, so we may suppose that in W_{wc} e_1 causes e_2 . If the counterfactual analysis is correct, that means that the worlds most similar to W_{wc} in which e_1 does not occur are worlds in which e_2 does not occur either. In order for an account of similarity among worlds to yield this result, it cannot simply tally the number of differences between the events in the worlds, for then a world in which e_1 did not occur but e_2 still did would be more similar. So an adequate account of similarity must take some other factor(s) into account as well, and since we have already seen that causal facts are off limits, the only obvious candidates are facts about the regularities that obtain in various worlds.³⁰ If in W_{wc} events of type-2 are always preceded by events of type-1, then other things

being equal, we would expect the same regularity to obtain in the worlds nearest to W_{wc} . Since e_1 and e_2 fall under such event types, an approach to similarity that factors in such regularities would yield the right result for W_{wc} – i.e. it will imply that e_2 is causally dependent on e_1 .

But does this approach to similarity get things right when it is applied to W_{oc} ? That is very doubtful. As we already saw when we discussed the regularity theory, all of the events and regularities found in W_{wc} are found in W_{oc} as well. So if the counterfactual analysis yields the correct result in W_{wc} (viz. that e_2 is causally dependent on e_1), then it seems that it will unavoidably yield the wrong result in W_{oc} – that is, it will (falsely) imply that e_2 is causally dependent on e_1 there as well.

Of course, things are somewhat more complicated in W_{oc} because it contains additional events and regularities that are not included in W_{wc} . Since every event in W_{oc} is brought about by a divine volition, there will be a divine volitional event that corresponds to each regular event. That is, corresponding to e_1 , there will be event v_1 , where $v_1 = \text{God's willing that } e_1 \text{ occur}$; corresponding to e_2 , there will be event v_2 , where $v_2 = \text{God's willing that } e_2 \text{ occur}$; and so on. Furthermore, for any event-types and regularities that obtain among the regular events, corresponding event-types and regularities will obtain among the divine volitional events. If e_1 and e_2 are instances of a lawful regularity, then v_1 and v_2 will instantiate a corresponding regularity. There will also be regularities between the divine volitional event-types and regular event-types – e.g. events of e_1 's type will always be preceded by (or simultaneous with) divine volitional events of v_1 's type.

However, although these additional events and regularities complicate matters in W_{oc} , they do not provide the counterfactual analysis with the means of getting W_{oc} right. The problem is that the additional divine volitional events that are present in W_{oc} (and the regularities that obtain between them) exactly mimic the events and regularities present in W_{wc} . In the occasionalist world, only the divine volitional events are true causes, but the counterfactual theory is incapable of recognizing this fact because it has no means by which to separate the genuinely causal regularities from the non-causal ones – no means of recognizing that v_2 (and not e_1) is the true cause of e_2 in W_{oc} .³¹

Thus, although CC and the counterfactual theory are formally consistent, the counterfactual theory fails the test of (9) just as the regularity theory did. In hindsight, this failure seems predictable. Since the counterfactual theory depends upon regularities in order to make comparisons of overall similarity, it should not be surprising to learn that it fails in much the same way that the regularity theory did. In fact, I suspect that attempts to conjoin CC with *any* reductionist theory of causation will fail for essentially the same reason. The problem, simply put, is that in terms of their non-causal features, W_{wc} and W_{oc} resemble each other far too closely. Any theory that analyses causation entirely in terms of non-causal features of the world will, it seems, be bound to appeal to features found

equally in both worlds, in which case it will get W_{oc} wrong and hence fail the test of (9).

Non-reductionist theories

Although non-reductionist theories of causation constitute a rather diverse family, they nevertheless share enough in common to allow Quinn's simple necessitarian theory to serve as their family representative. The theory claims simply that a necessitation relation holds between causally related events. Quinn formulates the theory using a modified version of the *bringing about* relation used in CC; since secondary causes often bring about effects, not immediately, but by means of causal chains and/or by using other things as causal instruments, Quinn takes away the characteristic of *immediacy*. To mark this difference from the other *bringing about* relations discussed earlier, I refer to this modified version of the relation as *brings about₂*. The theory analyses causation as follows:

- (11) i_1 's being F at t_1 brings about₂ i_2 's being G at $t_1 + \Delta t$.³²

Why non-reductionist theories pass the test This simple necessitarian theory does pass the test posed by (9); unlike reductionist theories, which attempt to analyse causation in terms of more basic non-causal facts, the necessitarian theory takes causal facts to be fundamental features of the world. If events in W_{wc} stand in the *brings about₂* relation (a primitive necessitation relation) to one another, the theory will imply that they are instances of secondary causation. However, since none of the events in W_{oc} will stand in this relation to each other, the theory will correctly identify W_{oc} as an occasionalist world, devoid of secondary causes.

Moreover, although the details will differ from case to case, any non-reductionist theory will pass the test for essentially the same reason. However the details of a non-reductionist theory are filled in, the fact that two events in W_{wc} are related to each other as cause and effect will express or be explained by some sort of primitive causal fact(s) about W_{wc} . If a non-reductionist theory of causation is correct, then no matter how perfectly W_{oc} may mimic W_{wc} 's non-causal features, they will differ vastly when it comes to their primitive causal features. Thus, regardless of exactly how the details get fleshed out, it seems that non-reductionist theories of causation will have the resources to properly distinguish between W_{wc} and W_{oc} . They pass our test for theories of genuine secondary causation.

A lingering worry But although such theories pass the test of (9), it remains rather mysterious how they can be conjoined with CC. According to Quinn's necessitarian theory, events that occur at one moment (e.g. i_1 's being F at t_1) are related to events that occur at subsequent moments (e.g. i_2 's being G at $t_1 + \Delta t$) by *brings about₂*, a primitive relation of causal necessitation. But in light of

CC, is this alleged necessitation credible? In order for i_2 to be G at $t_1 + \Delta t$, it must *exist* at $t_1 + \Delta t$. But of course, i_1 has absolutely nothing to do with whether or not i_2 will exist at $t_1 + \Delta t$ – that depends entirely upon whether God chooses to conserve i_2 at that moment. If i_1 's being F at t_1 does not even necessitate i_2 's *existing* at $t_1 + \Delta t$, how could it possibly necessitate i_2 's being G at $t_1 + \Delta t$?

An initially attractive thought is that weak concurrentists could overcome this problem by claiming only that secondary causes *conditionally necessitate* their effects. In other words, perhaps what i_1 's being F at t_1 necessitates is something like the following conditional: if God conserves i_2 at $t_1 + \Delta t$, then i_2 will be G at $t_1 + \Delta t$. Unfortunately, this does not seem to be an adequate solution either. Suppose that God has some reason to want i_2 to be non-G (or to have another property that cannot be co-instantiated with G), and so God wills, 'Let i_2 exist and be non-G at $t_1 + \Delta t$ '. In that case, i_2 would not be G at $t_1 + \Delta t$, notwithstanding i_1 's having been F at t_1 . Thus, i_1 's being F at t_1 does not even conditionally necessitate i_2 's being G at $t_1 + \Delta t$. Of course, this problem could be remedied by adding yet another condition. Perhaps what i_1 's being F at t_1 really necessitates is something like the following conditional: if God conserves i_2 at $t_1 + \Delta t$, and if God does not actively prevent i_2 from being G at $t_1 + \Delta t$, then i_2 will be G at $t_1 + \Delta t$.

Of course, even if some such conditionalized version of the necessitarian theory would be technically adequate, the alleged necessitation remains rather mysterious. But this point applies more generally to non-reductionist theories of causation, even apart from discussions of continuous creation. All such theories posit the existence of some type of thing – *bringing about* relations, causal powers, dispositions, modal relations between universals, etc. – that is primitive and fairly obscure. Nevertheless, there has been something of a revival of non-reductionist theories in recent years, driven by a growing conviction that the problems facing the reductionist approach are irremediable. Many now regard the attempt to analyse causation in terms of less mysterious features of the world – spatial and temporal contiguity, regularities, counterfactual dependence, and so on – as futile.³³ In light of the persistent failures of reductionism, perhaps a non-reductionist approach to causation is our best option, even if it is bound to remain fairly mysterious.

Conclusion

Malebranche's continuous creation argument makes a powerful, but not irresistible, case for the incompatibility of continuous creation and secondary causation. I have argued that for continuous creationists who wish to avoid occasionalism, weak concurrentism is a more promising approach than strong concurrentism. Further, I have argued that non-reductionism is the only approach to causation open to weak concurrentists: in addition to being formally

consistent with CC, non-reductionist theories are also capable of distinguishing between genuine and merely occasional causes. Thus, for theists who wish to uphold the traditional doctrine of continuous creation, a non-reductionist version of weak concurrentism seems to be the most plausible alternative to occasionalism.

Although my goal in the preceding arguments has been to determine what theories of causation are open to weak concurrentists, it is worth noting that the arguments have much broader implications. Any traditional theist, weak concurrentist or not, must acknowledge that occasionalist worlds are metaphysically possible – i.e. that God could have created W_{oc} . Thus, assuming that an adequate theory of causation should accurately describe any possible world, it follows that non-reductionism is the only legitimate approach to causation for traditional theists. In fact, the argument extends even to some non-theists. Those who regard God's non-existence as a contingent rather than a metaphysically necessary fact must also acknowledge that occasionalist worlds are metaphysically possible; hence, the argument applies to them as well. Put simply, anyone who acknowledges the metaphysical possibility of the existence of a being like the God of traditional theism must acknowledge that W_{oc} is possible, and anyone who acknowledges that is, I contend, thereby committed to a non-reductionist approach to causation.³⁴

Notes

1. I hope to examine the first objection on some later occasion. In an earlier essay I defended continuous creation against William Lane Craig's accusation that it fundamentally misconstrues the distinction between creation and conservation; see my 'On the distinction between creation and conservation', *Religious Studies*, 45 (2009), 471–485.
2. Nicholas Malebranche *Dialogues on Metaphysics and on Religion*, Nicholas Jolley and David Scott (eds) (New York NY: Cambridge University Press, 1997), 106–111. Malebranche, of course, presented the argument not as an objection to continuous creation, but as an argument for occasionalism.
3. This is a historical oversimplification; many of the Cartesians applied the occasionalist analysis to some types of causal interactions (most commonly, interactions between material bodies) without extending it to others. Nevertheless, many of the arguments the Cartesians used to defend an occasionalist analysis of one type of causal interaction seem to establish it for the others as well. It is a curious fact that Malebranche never explicitly stated the continuous creation argument using a mind as his example instead of a material object, but there is no obvious reason for him not to do so, since nothing in the argument seems to depend upon differences between minds and bodies. However, Malebranche's views on the mind's causal abilities pose difficult interpretive issues; for an excellent recent discussion of these issues in connection with his continuous creation argument, see Sukjae Lee 'Necessary connections and continuous creation: Malebranche's two arguments for occasionalism', *Journal of the History of Philosophy*, 46 (2008), 539–565.
4. Malebranche *Dialogues*, 115–116.
5. To my knowledge, Malebranche never explicitly discusses the possibility that secondary causes are overdetermining causes. Such a view would seem to be incompatible with Malebranche's understanding of God's infinite wisdom, which requires that God do things in the simplest possible way.
6. Alfred J. Freddoso draws a distinction between a *no-action theory* of occasionalism (creatures have causal powers but can never exercise them) and a *no-nature theory* of occasionalism (creatures simply have no causal powers); see his 'Mediaeval Aristotelianism and the case against secondary causation in

nature', in Thomas V. Morris (ed.) *Divine and Human Action: Essays in the Metaphysics of Theism* (Ithaca NY: Cornell University Press, 1988), 74–118. Since the continuous-creation argument grants at the outset that creatures have causal powers, what it establishes, strictly speaking, is only the *no-action theory*. But Theodore clearly expects Aristes to reject the notion of causal powers that can never be exercised and accept the *no-nature theory*.

7. This formulation is based upon the theory Philip Quinn develops in his 'Divine conservation, secondary causes, and occasionalism', in Morris *Divine and Human Action*, 72–73; see also *idem* 'Creation, conservation, and the big bang', in John Earman (ed.) *Philosophical Problems of the Internal and External Worlds: Essays on the Philosophy of Adolf Grünbaum* (Pittsburgh PA: University of Pittsburgh Press, 1993), 598. Quinn's own wording is slightly different, but equivalent.

To avoid saddling the theory with unnecessary metaphysical complications (e.g. problems of material constitution), it will be useful to suppose that the individuals God creates and conserves are simple (i.e. non-composite, atomic) individuals. Cf. Peter van Inwagen 'The place of chance in a world sustained by God', in Morris *Divine and Human Action*, 211–235. Quinn vacillates concerning whether to include composite entities or restrict the theory to simple individuals; for the former position see his 'Conservation and occasionalism', 51; for the latter see his 'Conservation and the big bang', 596.
8. Hugh J. McCann & Jonathan L. Kvanvig 'The occasionalist proselytizer: a modified catechism', *Philosophical Perspectives*, 5 (1991), 592.
9. Malebranche focuses on the properties of location and movement because they are so fundamental to his Cartesian conception of material bodies, but his point does not depend in any essential way upon this conception of matter. As I understand it, his reasoning is perfectly general and applicable regardless of what properties bodies possess. For an alternative interpretation, see Andrew Pessin 'Does continuous creation entail occasionalism? Malebranche (and Descartes)', *Canadian Journal of Philosophy*, 30 (2000), 413–440.
10. Malebranche *Dialogues*, 112.
11. *Ibid.*
12. Peter van Inwagen suggests that God could issue indeterminate creative volitions; he believes, for example, that God could issue decrees of the form 'let either x or y exist', leaving the specific outcome of such decrees entirely up to chance. If that is possible, then it would also seem to be possible for God to decree that a specific individual should come into existence, but leave the properties of that individual entirely to chance; and if that is possible, then CrD might be false.

I do not find the motivation for this position convincing; van Inwagen supposes that a sort of Buridan's ass situation might arise in which God is indifferent between two incompatible creative options. Since van Inwagen finds the suggestion that God might choose arbitrarily offensive, he prefers to think that God would simply issue indeterminate volitions and leave the outcome to chance (see his 'Place of chance', 228–229). However, I find nothing particularly problematic about God's choosing arbitrarily if genuinely indifferent about the options. Fortunately, settling this issue is unnecessary for present purposes. We are concerned to determine whether it is possible for *secondary causes* to contribute to the properties possessed by individuals. Whether it is possible for the properties of individuals to be uncaused, or left entirely to chance, is a separate issue.
13. Malebranche *Search*, 678 ff.
14. *Ibid.*, 680.
15. Freddoso discusses matters closely related to those of this paragraph in Alfred J. Freddoso 'God's general concurrence with secondary causes: pitfalls and prospects', *American Catholic Philosophical Quarterly*, 68 (1994), 142–145.
16. I illustrated this model above using the example of needing assistance lifting a piano; Freddoso discusses an analogous example in which two friends jointly lift the back of a car. Furthermore, Freddoso endorses the model as 'a fitting one for the [strong] concurrentist, since according to [strong] concurrentism neither God's concurrence nor the secondary cause's influence can effect anything, or even exist, in the absence of the other. So the [strong] concurrentist must hold that in their cooperative actions God and the secondary cause constitute a single total cause that produces the relevant unitary effect by means of a single, undivided, action'; *ibid.*, 153–154. By contrast, Louis Mancha denies that such a model is suitable for strong concurrentism; see Louis A. Mancha *Concurrentism: A Philosophical Explanation* (unpublished doctoral dissertation, Purdue University, 2003), 166.

17. Freddoso comes close to this conclusion, but tries to stop short by proposing that 'certain features or aspects of the unitary effect are traceable *primarily* to God and that certain other features of the unitary effect are traceable *primarily* to the secondary agents'; see his introductory essay, 'Suarez on metaphysical inquiry, efficient causality, and divine action', in Francisco Suarez *On Creation, Conservation, and Concurrence: Metaphysical Disputations 20, 21, and 22*, trans. Alfred J. Freddoso (South Bend IN: St Augustine's Press, 2002), xcvi, emphasis added. Freddoso tries to illustrate the suggestion with the example of using a pen to write a letter, claiming that some aspects of the effect (e.g. that it is in black ink rather than blue) are attributable *primarily* to the causal powers of the pen, while other aspects of the effect (e.g. that 'philosophy', rather than some other word, appears in the letter) are attributable *primarily* to the causal contributions of the author; see his 'Suarez on God's causal involvement in sinful acts', in Elmar J. Kremer and Michael J. Latzer (eds) *The Problem of Evil in Early Modern Philosophy* (Toronto: University of Toronto Press, 2001), 14–15; cf. Mancha *Concurrentism*, 193. However, I do not find this example helpful because I see no reason why 'primarily' in the above claims should not be replaced with 'entirely'; e.g. apart from the author's prior choice of pens (which Freddoso himself acknowledges is not pertinent), the fact that the letter is in black ink rather than blue is *entirely* attributable to features of the pen. Likewise, the fact that 'philosophy', rather than some other word, appears in the letter is *entirely* attributable to the author. Cf. Mancha *Concurrentism*, 196–197.
18. Weak concurrentists need not claim that *all* properties are caused by secondary causes. They might, for example, think God causes things to exist with their essential properties and/or their causal powers, leaving other features of them to be determined by secondary causes. Peter van Inwagen seems to have something like this in mind in 'Place of chance'.
19. The only weak concurrentist Malebranche mentions by name is Durandus of Saint-Pourçain (c.1270–1334).
20. Malebranche *Search*, 680.
21. See, e.g. Jonathan Kvanvig & Hugh J. McCann 'Divine conservation and the persistence of the world', in Morris *Divine and Human Action*, 16; cf. Pessin 'Does continuous creation entail occasionalism?'. Later, in 'The occasionalist proselytizer', McCann and Kvanvig reject weak concurrentism and defend occasionalism.
22. Quinn 'Conservation and occasionalism', 55.
23. Quinn notes that condition (i)–(iii) must be interpreted in terms of a *ceteris paribus* clause; see 'Conservation and occasionalism', 57. The ' Δt ' in the formula indicates a small temporal increment.
24. I refer to this as an *actualist* assumption because I take it to entail that nothing ever instantiates such dubious properties as *nonexistence* or *being impossible*. Hence, such properties cannot constitute counter-examples to (3). Quinn simply treats such substitutions for F as 'peculiar' exceptions that can be noted and henceforth ignored; see 'Conservation and occasionalism', 57.
25. Of course, Quinn recognizes that the simple regularity theory stated in (i) is vulnerable to familiar counter-examples involving merely fortuitous, non-causal regularities. Nevertheless, he correctly notes that a strengthened analysis, 'no matter how complicated and sophisticated it may be, will still comport well with my theory of creation and conservation, provided the Humean pattern is followed to the extent of using only de facto regularities in the analyses'; see his 'Conservation and occasionalism', 61.
26. It is no secret that Hume owed a great debt to Malebranche for his views on causation. For a detailed discussion of Malebranche's influence on Hume see Charles J. McCracken *Malebranche and British Philosophy* (Oxford: Clarendon Press, 1983), ch. 7.
27. See David Lewis 'Causation', *The Journal of Philosophy*, 70 (1973), 556–567.
28. Quinn 'Conservation and occasionalism', 63. Although Quinn acknowledges that simple versions of the counterfactual account such as (10) are susceptible to some well-known counter-examples, he professes his confidence that the more sophisticated counterfactual analyses designed to avoid these counter-examples will also be consistent with CC as long as they start from similar definitions and assumptions; *ibid.*, 67.
29. This point is noted by E. J. Lowe in *A Survey of Metaphysics* (New York NY: Oxford University Press, 2002), 186–188.
30. Lewis treated the similarity relation as primitive, noting that the relevant factors are 'many and varied'. However, the two factors he specifically draws attention to – 'similarities in particular matters of fact' and 'similarities of law' – are closely related to the factors I have mentioned above. According to Lewis, these factors 'trade off against' each other; considerations of similarities in the laws or regularities are

crucial, although they must be weighed against similarities in the particulars; Lewis 'Causation', 560. Lewis later offered a more specific ranking (from most to least important) of various types of similarity: (1) 'avoid big, widespread, diverse violations of law'; (2) 'maximize the spatiotemporal region through which perfect match of particular fact prevails'; (3) 'avoid small, localized, simple violations of law'; and (4) 'secure approximate similarity of particular fact'. See David Lewis 'Counterfactual dependence and time's arrow', *Nous*, 13 (1979), 472.

31. It might be objected at this point that I have too quickly dismissed all causal facts from consideration. After all, Quinn's attempt to marry CC with the counterfactual theory involves accepting two disparate kinds of causal relations: the primitive necessitarian *bringing about* relation that holds between divine volitions and the events they bring about and the counterfactual dependence relation that holds between events involving contingent individuals. Perhaps facts about where the primitive *bringing about* relation obtains could be included in comparisons of overall similarity between worlds without falling into a vicious circle. In other words, perhaps the only causal facts that are off limits are the causal facts the theory is intended to analyse – namely, facts about secondary causation. That may be right, but even if it is it cannot solve the counterfactual theory's problems. The counterfactual theory has the false consequence that e_2 is causally dependent on e_1 in W_{oc} because of the regularities that e_1 and e_2 exemplify. Including facts about divine causation in the similarity comparisons would in no way change or eliminate those regularities. Of course, one could always rig the theory's definition of causation in a way that would make facts about divine causation more helpful. For example, (10) could be modified by adding a fifth condition that states: i_2 's being G at $t_1 + \Delta t$ was not *brought about* by a divine volition. Thus modified, (10) would correctly describe W_{oc} as an occasionalist world, and so it would pass our test for theories of causation. However, it would accomplish this only by adding a condition that seems objectionably ad hoc.
32. Quinn 'Conservation and occasionalism', 69.
33. See, for example: R. Harré & E. H. Madden *Causal Powers: A Theory of Natural Necessity* (Totowa NJ: Rowman and Littlefield, 1975); G. E. M. Anscombe 'Causality and determination', in Ernest Sosa (ed.) *Causation and Conditionals* (New York NY: Oxford University Press, 1975), 63–81; Fred Dretske 'Laws of nature', *Philosophy of Science*, 44 (1977), 248–268; Michael Tooley 'The nature of laws', *Canadian Journal of Philosophy*, 7 (1977), 667–698; *idem* *Causation: A Realist Approach* (New York NY: Oxford University Press, 1987); *idem* 'Causation: reductionism versus realism', *Philosophy and Phenomenological Research*, 50 (1990), Supplement, 215–236; D. M. Armstrong *What is a Law of Nature?* (New York NY: Cambridge University Press, 1983); *idem* 'Going through the open door again: counterfactual versus singularist theories of causation', in John Collins, Ned Hall, & L. A. Paul (eds) *Causation and Counterfactuals* (Cambridge MA: The MIT Press, 2004), 445–457; Nancy Cartwright *Nature's Capacities and their Measurement* (Oxford: Oxford University Press, 1994); *idem* 'Where do laws of nature come from?', *Dialectica*, 51 (1997), 65–78; Richard Swinburne 'The irreducibility of causation', *Dialectica*, 51 (1997), 79–92; and Brian Ellis *The Philosophy of Nature: A Guide to the New Essentialism* (Ithaca NY: McGill-Queen's University Press, 2002).
34. I am grateful to my audience at the 2007 Pacific Conference meeting of the Society of Christian Philosophers, as well as to Monte Cook, Reinaldo Elugardo, Jim Hawthorne, Linda Zagzebski, and an anonymous referee for this journal for their helpful feedback on earlier drafts of this essay.