

# THE BLURRED LINE BETWEEN THEISTIC EVOLUTION AND INTELLIGENT DESIGN

*by Mikael Leidenhag*

*Abstract.* It is often assumed that there is a hard line between theistic evolution (TE) and intelligent design (ID). Many theistic evolutionists subscribe to the idea that God only acts through natural processes, as opposed to the ID assertion that God, at certain points in natural history, has acted in a direct manner; directly causing particular features of the world. In this article, I argue that theistic evolutionists subscribe to what might be called Natural Divine Causation (NDC). NDC does not merely provide a nonsupernaturalist and noninterventionist model of divine action, it provides a line of demarcation between TE and ID. I make the critique that NDC is philosophically untenable and argue, consequently, that the line between TE and ID is blurred.

*Keywords:* causal overdetermination; intelligent design; interventionism; supernaturalism; theistic evolution

---

In the apparent culture wars between science and religion, the relationship between theistic evolution (TE) and intelligent design (ID) is often framed in terms of a particularly decisive battle: a battle between *science* and *faith*, a battle between *Church* and *State*, a battle between *fundamentalism* and *liberalism*, and so on. Theistic evolutionists critique the proponents of ID for undermining the integrity of the natural sciences and misconstruing God's ongoing relationship with nature; and, likewise, those who favor ID critique those who align themselves with TE for sacrificing faith at the altar of secularism and naturalism. On this battle-framed picture, you choose either TE *or* ID. In this article, I will call into question this often-assumed dichotomy between these two positions in the ongoing dialogue between science and religion, and argue that the line between TE and ID is blurred.

My article will proceed in the following manner. First, I will introduce some of the central claims of TE and ID. Thereafter, I will scrutinize the claims that some theistic evolutionists make with regard to divine action

Mikael Leidenhag is research fellow at the School of Natural and Built Environment, Belfast, UK; e-mail: m.leidenhag@qub.ac.uk.

and God's activity within the natural domain. Notable proponents of TE subscribe to noninterventionist and naturalist notions of divine action, suggesting that God only works *through* natural processes and events. I will refer to this idea as *Natural Divine Causation* (NDC) throughout the article (which was also discussed in Leidenhag and Leidenhag 2018). I will argue that it is not only difficult to make conceptual sense of NDC, but that it more problematically introduces significant ambiguities into theistic evolutionism and that it makes God-talk redundant. My advice for those who subscribe to TE is to reject NDC in order to affirm a more robust notion of divine agency. However, as I will go on to explain, if the theistic evolutionists were to give up on NDC, then they would move their position significantly closer to ID.

After having critiqued the philosophical ambiguity of NDC, I discuss several different ways of defending NDC as both a position in the divine action debate and as a way to draw a line between TE and ID. It will be seen, however, that none of these lines of defense is successful. Hence, the line between TE and ID is blurred.

It should be stressed from the start that this is not an argument *for* ID. Indeed, I find the claims of ID theologically thorny, philosophically dubious, and scientifically problematic. My goal with this article is to shed light on and critique *one* commonly proposed way of framing the boundary line between ID and TE. This article leaves open, then, the possibility that there are other ways of highlighting the difference between TE and ID.

#### BRIEF SURVEY OF ID AND TE

Others have provided excellent overviews of both TE and ID and the relationship between them, so I will keep this section fairly short and to the point (see especially Kojonen 2013, 2016). Let us start off with what has become known as ID, as this will help us to understand the theistic evolutionist attempt at formulating an account of divine activity consistent with a modest form of naturalism that does not rely on gaps in scientific knowledge.

Historically connected to Young Earth Creationism or Biblical Creationism, the fundamental claim of ID is that “the best explanation for at least some of the appearance of design in nature is that this design is actual” (Menuge 2007, 32).<sup>1</sup> That is, contrary to the Dawkinsian idea that the biological world merely gives the *appearance* of having been designed (Dawkins 1986), the ID proponent maintains that design is a real feature of reality and that the “observed complexity and information-rich structures found in living systems and other features of life” require an intelligent cause or designer (Meyer 2017, 179). While “hard-core” creationism requires an outright rejection of the Darwinian synthesis (with the exception of small-scale microevolution), ID accepts important parts

of modern Darwinism. First, many people in the ID community accept the general idea that the Earth and its biological world is very old. Second, they accept the idea that “present species of living things have in some way descended from previous species over a very long period of time” (Griffin 2008, 271). This statement expresses the idea of macroevolution and the thesis of common ancestry. However, they call into question the sufficiency of a third key feature of Darwinian evolution: natural selection. Briefly put, natural selection filters through biological traits and “causes some genes and genetic combinations to be transmitted to the following generations with higher probability than their alternates” (Ayala 2008, 72). ID thinkers such as Stephen Meyer (Meyer 2009), Michael Behe (Behe 2006), and William Dembski (Dembski 1999) take issue with the Darwinian proposition that the “sole mechanism behind the enormous taxonomic diversity displayed by terrestrial life” is natural selection (van Inwagen 2003, 352). One can explain some parts or even large parts of the natural order through natural selection acting on random mutations, but those who favor ID argue that natural selection come up short against certain features of the natural order. Thus, on the ID picture, some (but not all) biological phenomena require for their instantiation a Designer.<sup>2</sup>

Given that both creationists and ID proponents think that evolutionary biology is based on a tacit adherence to naturalism, they celebrate the failure of Darwinism as a vindication against a naturalistic rejection of the supernatural. Whether evolutionary theory is *intrinsically* naturalistic is a matter of philosophical debate (Alvin Plantinga seems to think that it is: 2001; Peter van Inwagen rejects this association: 2003). Nevertheless, ID proponents maintain that the explanatory deficiencies of Darwinian evolution point beyond an exclusively naturalistic understanding of reality, whereby only natural/physical causes are operating in the natural order.

Let us now turn to theistic evolution (sometimes called evolutionary creationism). As we can see from the name, someone who adopts this perspective suggests that there is compatibility, and perhaps even theological congruency, between the belief in a real and active God and the core claims of modern evolutionary theory/Darwinism. It is a form of *theological compatibilism*, and it rejects what the theistic evolutionist Howard van Till has dubbed *episodic creationism*, whereby God occasionally suspends the laws of nature and produces events that go beyond scientific explication (Van Till 2001).

Of course, TE, like ID, comes in many flavors and contains within itself a variety of theological, philosophical, and scientific commitments. One area of disagreement among proponents of TE concerns the extent to which God is active in Creation, and whether God performs any special actions above and beyond *creatio continua*. For Van Till, God’s activity is contained in the formative stages of Creation: nature has been gifted with ontological potentialities and there is no need for any further special divine

action. I will evaluate Van Till's proposal later in this article as a possible way of articulating NDC. Denis Lamoureux seems to express something similar to Van Till when he argues that the emergence of humanity is contained within the initial act of creation (Johnson and Lamoureux 1999; Lamoureux 2008). The emergentist theologians, Philip Clayton and Arthur Peacocke, however, seek to preserve the language of special divine action, and they seek to achieve this by fusing divine action with a nonreductive version of naturalism (Peacocke 1993, 2001a, 2004; Clayton 1997, 2004).

If TE is construed as an alternative to ID, does this mean that the notion of "design" is unacceptable for the theistic evolutionist?<sup>3</sup> Those who seek to combine evolution with theism differ on this point. Van Till rejects the notion of design, preferring instead to conceptualize Creation as "optimally equipped." Denis Alexander utilizes the notion of "design" within his theology, arguing that a Christian evolutionist can perceive nature as both designed and as the product of evolutionary mechanisms (Alexander 2008). Lamoureux employs likewise the term "intelligent design" for his proposal. Del Ratzsch takes this idea further and maintains the stronger thesis that the concept of design is both scientifically legitimate and compatible with Darwinian evolution (Ratzsch 2001).

Finally, theistic evolutionists express different beliefs when it comes to the status of naturalism within theology and whether divine action can or should be framed in terms of naturalistic categories. For Robert John Russell, God acts in a hidden fashion through quantum events. Divine activity is objective and physically present but violates no natural law. Contrary, however, to the account under investigation in this article, Russell maintains that divine activity should not be framed in terms of natural processes or events, for such an understanding would naturalize divine action and consequently bring God down to the level of creatures. God's transcendence would be severely undermined (Russell 2008).

For Arthur Peacocke, Philip Clayton, Deborah Haarsma, David Ray Griffin, and Mark Johnston, science mediates a naturalistic understanding of nature, which excludes supernatural interventions, violations of natural law, and dualistic forms of causation within the natural. Thus, naturalism is here used as a bridge or a mediating discourse between Darwinian evolution and Christian theism. These naturalistic proposals will be the focus of this article. I will analyze the coherency of a naturalistic formulation of TE, and whether this can pass as a line of demarcation between TE and ID.

#### THE QUEST FOR NATURALISTIC DIVINE CAUSATION

From this brief survey, we can see that a common line of demarcation between ID and TE is a particular form of divine action, which I call "natural divine causation." NDC, as we will see, can be construed in a number of ways. Arthur Peacocke favors an emergentist conception of reality and

stresses in opposition to episodic creationism ontological continuity within the natural order: the world is “one,” and it requires no extra-natural ingredients for the realization of emergent realities and phenomena. God acts within the different levels of reality through top-down causation, in harmony with the laws of nature, not against them. It is a “layered physicalism,” not a reductive one, in the sense that the fundamental levels of reality have given rise to epistemologically and ontologically irreducible higher levels of reality (Peacocke 2001a, 471–86). As per the emergentist slogan, the whole is more than the sum of its parts, and Peacocke maintains that the whole exerts causal influence on its constituent parts. On a theistic reading of emergence, the whole–part influence in natural systems and environments can be interpreted as the “holistic effect of God on the world” (Peacocke 2006, 274). For Peacocke, a significant promise of emergence theory is that such an ontology allows for a naturalized form of special divine action as God works *through* and *within* the natural, and he further maintains that such a model of divine action is consistent with the growing view of the world as “a closed causal nexus” (Peacocke 2006, 274).

Evolution is for Peacocke a “disguised friend,” meaning that, contrary to some of the more hostile responses to the modern synthesis, Darwin’s framework provides excellent resources for articulating “an immanentist understanding of God’s presence” (Peacocke 2001a, 477). The united message of modern science is that there is no need to “invoke any non-natural causes” to explain reality and the workings of nature (Peacocke 2001a, 472). Theology should not be in the business of seeking out gaps in the causal processes of the world and then plugging those gaps with nonnatural explanations. Indeed, “The processes revealed by the sciences, especially evolutionary biology, are in themselves God-acting-as-Creator” (Peacocke 2001a, 474). Contrary to ID, there “is no need to look for God as some kind of *additional* factor supplementing the processes of the world” (Peacocke 2001a, 474). God acts within natural systems, and the world itself exists within the divine life. Theologically speaking, we need to conceptualize the God-world relationship in pantheistic terms (Peacocke 2006).

Philip Clayton, another champion of “emergent theology,” locates divine action within and not contrary to the natural processes of this world. In a similar way to Peacocke’s layered physicalism, Clayton argues that contemporary emergence theory takes us beyond the logic of reductionism and the notion that all events can be analyzed in terms of microphysical causes. Indeed, recent advances in neuroscience cast into doubt any type of strong dualism that posits a gap between the mental and the physical, as well as those crude forms of reductionism which seek to reduce human mentality to physical events in the brain (Clayton 2000). The mind supervenes on the physical but remains irreducible to it (Clayton 2004). This presents us not only with a nonreductionist view of the human person. A further promise

of emergence is that it paves way for an immanentist and noninterventionist conception of divine action. Like Peacocke, Clayton maintains that this lands us in a panentheistic notion of God. Taking this idea further, Clayton formulated his now infamous “panentheistic analogy”:

Just as human consciousness (mental properties and their causal effects) can lead to changes in the physical world, so also a divine agent could bring about changes in the physical world—if this agent were related to the world in a way analogous to the relationship of our “minds” to our bodies. (Clayton 1997, 258–59)

Mental causation requires no immaterial soul, nor does divine action require supernatural interruption of nature’s causal workings. In this way, a modest form of naturalism can be maintained and God’s action in the world can be rendered consistent with the essential claims of Darwinism.

Deborah Haarsma—the president of BioLogos—takes this idea further in a response to ID theorist Stephen Meyer. TE (or what Haarsma calls evolutionary creationism) requires no gap in the scientific picture of the world. We can, she argues, “perceive design in nature even when scientists have a complete natural explanation” (Haarsma 2017b, 222). Indeed, an evolutionary theist delights “in natural mechanisms as descriptions of the ongoing, regular activity of God in the natural world” (Haarsma 2017b, 222).<sup>4</sup> We need to search for natural mechanisms in the natural order and celebrate God as the author of those mechanisms (Haarsma 2017a, 132). This leads inevitably to a form of underdeterminism: what the atheist perceives as purely physical mechanisms, the theist views as “God’s creative handiwork” (Haarsma 2017a, 133). Thus, “God delights in working through systems . . .” and her form of theism accepts “that natural selection and other evolutionary mechanisms, acting over longer periods of time, eventually result in major changes in body structures” (Haarsma 2017a, 138, 139). We need to adopt an evolution-friendly account of divine action as the evidence from modern genetics “points strongly to God using the natural process of evolution to create *Homo sapiens* in common descent with other species” (Haarsma 2017a, 111).

We find a similar ambition toward theological compatibilism in the process theological perspectives of David Ray Griffin and Mark Johnston. According to Griffin’s Whiteheadian framework, it is the often-assumed materialistic reading of modern science and the supernaturalist assumptions of many religions—including the Christian faith—that should be blamed for creating unnecessary tensions between science and religion. On materialism, there is no subjectivity, no creativity within the natural, and no room for divine activity (Griffin 2000, 35–37). Science, according to this materialistic picture, is equivalent to atheism: the mechanical view of nature “meant the total exclusion of divine influence from the world” (Griffin 2000, 41).

As Griffin argues, this reductive conclusion follows from the commitment to “maximal scientific naturalism.” Instead, we can and should retain a commitment to “minimal scientific naturalism,” which means that supernatural causation is ruled out. Indeed, this sort of naturalism is compatible with the “most fundamental assumption of the contemporary scientific worldview” (Griffin 2000, 12), which is that “the world’s most fundamental causal principles are never interrupted” (Griffin 2000, 44). Neo-Darwinism is usually construed as the antithesis of divine guidance; that “biological evolution occurs *without any theistic guidance whatsoever*” (Griffin 2000, 247). This view is mistaken, and Griffin proposes instead a “wider naturalistic framework” for understanding the workings of evolution, one that allows for divine guidance within the natural. This model is, Griffin contends,

fully naturalistic. Divine influence in the world is a regular, necessary part of the normal causal process, not an occasional interruption of this process . . . divine influence is said to occur in basically the same way always and everywhere: by providing possible forms of actualization. The divine influence does vary in content, in that different forms are relevant for different occasions. (Griffin 2000, 292)

Griffin’s naturalistic process theism is, then, construed as a third possible way beyond both Neo-Darwinism (materialistically construed) and ID.

Johnston argues likewise for a third way beyond supernaturalistic theism—the belief in “invisible spiritual agencies whose putative interventions would violate the laws of nature”—and atheistic naturalism (Johnston 2009, 40). Supernaturalism is idolatry, and “true religion” requires us to adopt a naturalistic view of reality whereby the physical is causally closed. Through a panentheistic model, Johnston stresses the ubiquitous presence of God in all natural events and processes. Johnston’s God, however, should not be equated with the God of classical theism which pictures the divine as an “utterly transcendent unmoved mover, a being totally self-complete without creation” (Johnston 2009, 119). Instead, on his process panentheism, “God is partly *constituted* by the natural realm, in the sense that his activity is manifest in and through natural processes *alone*” (Johnston 2009, 119). This theological shift means that God is no longer in the category of substance, “but in the category of activity” (Johnston 2009, 120). Given this closer identification between the natural and God, there is no need of “dabbling in the shallow and murky waters of ‘intelligent design’ – that is, without adding a supercause to the already sufficient physical cause” (Johnston 2009, 50).

Contrary to ID, theistic evolutionists pride themselves on adhering to the full sufficiency of natural selection and other relevant evolutionary mechanisms for explaining the complexity and diversity of the natural domain. There is “no need to postulate any *special* action” of God to account

for the workings of nature; that is, a form of divine action that transcends natural causation (Peacocke 2001b, 83). God works solely *through* natural processes in an immanent and noninterventionist fashion. Indeed, as Clayton also puts it, this account of God's ongoing activity denies any "qualitative or ontological difference between the regularity of natural laws conceived as expressing the regular or repetitive operation of divine agency and the intentionality of special divine actions" (Clayton 2004, 84). In a previous article (Leidenhag and Leidenhag 2018), Joanna Leidenhag and I termed this ontological move in the divine action discussion *Natural Divine Causation*. Those who opt for NDC suggest that "a particular event, *E*, must be causally attributed to God's influence, *G*, and natural causation, *N*. That is *G* and *N* both (fully) explain *E*, as God only acts from within natural processes" (Leidenhag and Leidenhag 2018, 262). In this way, the interventionist supernaturalism of ID can be avoided. NDC provides a way in this discussion to demarcate TE from the claims of ID, and a model for picturing God's interaction with reality that is consistent with Darwinian evolution.

#### NDC AND THE CHALLENGE FROM CAUSAL OVERDETERMINATION

At first glance, NDC seems to offer a viable alternative for those who want to maintain the completeness of Darwinian evolution and the full sufficiency of natural selection, while affirming the sustaining and providential action of God. NDC paves way for not only a noninterventionist model of divine action, but it shows how Christians (and other theists) can consistently regard evolution as a "disguised friend."

Yet, NDC as a causal model for God's continuous guidance of the evolutionary unfolding of nature seems muddled and obscure. NDC represents a form of theological compatibilism, in the way that it stresses the coherency of holding together in ontological unity the purposeful activity of God and the mechanisms of evolutionary theory. I want to critique this form of compatibilism. I will draw here on some key issues in philosophy of mind regarding the issue of compatibilism between what might loosely be called "psychological explanations" and "mechanistic explanations." The question we will investigate is: Is it philosophically coherent to have "*multiple explanations of a single explanandum*"? (Kim 1993, 238).

A theist stresses that God brought humanity into existence: "God has created the world and it therefore exists for a reason, and God has also a special plan with the creation of human beings" (Stenmark 2012, 550). This is a teleological view of humanity as it holds that human existence is "not due entirely to chance and randomness" (Stenmark 2012, 551). A theistic explanation for why there are human creatures involve "psychological" or "agential notions"; meaning that the instantiation of humanity is explanatorily connected to the intention and desire of God. This is true



regardless of whether one opts for a special creation account—which holds that humanity and all life on Earth originated in its present form—or if one affirms the NDC idea that God created humanity through the mechanism of natural selection and other evolutionary forces over a long period of time.

In a compatibilist spirit, the proponents of NDC argue that we can, and indeed should, hold together agential/psychological explanations (i.e., divine intentionality) with mechanistic explanations (i.e., explanations through evolutionary mechanisms). But, is this possible? Philosopher Jaegwon Kim has critiqued such epistemic compatibilism in the arena of philosophy of mind, most clearly articulated in what he calls the explanatory or causal “exclusion principle” (Kim 1993, 1998, 2005). This principle states that two explanations cannot independently and sufficiently account for the same event or phenomenon. A robust explanatory realism cannot posit explanations *E1* and *E2* as sufficient explanations for a single event. Based on epistemic simplicity either *E1* or *E2* must go, otherwise we end up with the philosophical problem of overdetermination whereby we posit more causes than necessary for the event in question. If Peacocke, Clayton, Haarsma, Griffin, and Johnston argue that divine causation and natural processes are both sufficient causes for, in this case, the creation of humanity then this form of theological compatibilism seems to invite the problem of overdetermination. Thus, the problems that Kim has explored within philosophy of mind through the causal exclusion principle seem to be equally present within the theological area of divine action.

NDC pictures a strong ontic relation between divine action, *G*, and natural causation, *N*. How should we more precisely understand this relationship? One way to understand NDC is through the philosophical theory of “supervenience.” Roughly speaking, the theory of supervenience suggests that higher-level property *P* supervenes on physical base *B*, in the sense that any event at *P* must correspond to an event at *B* (Kim 1993). As per the supervenience slogan: No higher-level difference without a physical difference. With regard to the issue before us, we can construe the NDC claim as to be saying that divine activity—as it must always be mediated through natural processes—supervenes and depends on a natural base level. Thus, in order for *G* to produce *E* there needs to be a corresponding happening at natural base level, *N*. Indeed, in a previous exchange with David Bradnick and Bradford McCall, they seemed to be claiming something along those lines in their defense of Amos Yong’s emergentist articulation of Pentecostal theology. As I and Joanna Leidenhag argued in a response to Bradnick and McCall, such employment of supervenience and application on matters of divine action carry problematic consequences. Supervenience is a technical concept and difficult to grasp, but it can be formulated in a weaker and stronger version. In its weaker form, and applied on NDC, this model would say that *G* supervenes on *N* in the sense that divine activity within the natural order could not occur without some mediation

by the mechanisms of evolution. There is ontological dependency between divine action and natural processes. On a stronger version, lower levels *fix* the events at the higher levels, meaning that there is a relationship of determinism between the two. NDC based on either weak or strong supervenience undermines the causal efficacy of divine influence as, given the theory of supervenience, whatever happens on a higher level is already contained at the base level. That is, the causal contributions of God are already present at the physical level, but this means, as Kim explains with regard to the issue of mentality depending on the physical, that supervenience invites epiphenomenalism (Kim 2006, 557–59). It would lead to epiphenomenalism because it is unclear on NDC to what extent divine influence adds anything causally to our understanding of the natural order. If *G* depends on *N* in such a way that the causal contributions of *G* are already contained in *N* then the causal contributions of *G* seem epiphenomenal. If NDC is articulated through supervenience, then God's ongoing activity within the natural is rendered vacuous and ontologically superfluous. If this is the case, the ID critique of TE seems to be correct, namely, that TE has unwittingly embraced a fully secular model of evolution.

Perhaps these proponents maintain something stronger? They might mean that on NDC there is *no* ontological difference or distinction to be made between divine causality and natural causation. On this stronger view, it is not possible to distinguish divine influence or action from those processes under investigation in the natural sciences (although, it might be possible to maintain a linguistic difference between God's influence and natural processes). On this view, *G* and *N* somehow constitute each other; divine causation and natural causation "are mutually dependent upon one another for both their ontological existence and effectiveness" (Leidenhag and Leidenhag 2018, 263). This ontological move could easily avoid Kim's overdetermination problem, but the obvious risk is that it makes divine action, or God-talk, ontologically superfluous. Indeed, by simply equating divine activity with natural events "there would no longer be any reason to interpret it [an effect in the world] as an instance of divine action" (Clayton 2004, 193). We would no longer have any reason to invoke theological explanations in our epistemic pursuits. Again, those who worry that TE invites deism might be somewhat justified if NDC interpreted in this way forms the basis for a theistic accommodation of evolution.

#### PARTIAL CAUSATION AND THE DILEMMA FOR TE

Another, more promising, way of understanding NDC is in terms of what might be called "partial causation." This means that neither *G* nor *N* is explanatorily sufficient to explain the coming into being of humanity (*H*); instead, we need to invoke both factors for explaining why there are such things as complex human creatures. Kim explains partial causation in this

way: “We might explain why an automobile accident occurred by citing, say, the congested traffic, or the icy road, or the faulty brakes, or the driver’s inexperience, etc. depending on the explanatory context, even though each of these conditions played an essential role in causing the accident” (Kim 1993, 251). This causal picture does not involve two *complete* explanations for one event, but it aligns itself with a common assumption in many human practices, namely, that we need to invoke several factors to explain a range of phenomena. The promise of this approach is that we would avoid the problem of overdetermination. Another way of framing this is through the “dual explanandum strategy” (Kim 1993, 241–42). As a response to the problem of overdetermination within philosophy of mind, this strategy urges us to think of physical explanations and mental explanations as separate and autonomous causal lines that explain different properties of the same effect. Applied on the issue of NDC, we can imagine divine activity, *G*, and natural causation, *N*, being causally relevant to different aspects, properties, or features of the explanandum; hence, there is no epistemic competition. Although certainly more coherent, the idea of partial causation, or dual explanandum, is too dualistic for the NDC proponent, since partial causation posits two distinct and irreducible causes. That is, if *G* makes a causal contribution to *H* that is not reducible to *N* then *N* alone is insufficient for explaining *H*, in the same way as *G* alone would be insufficient (Leidenhag and Leidenhag 2018, 264). This means then that natural processes alone and the mechanisms of evolution are insufficient for explaining *H*, and that we need to supplement our explanatory framework with nonnatural factors and perhaps even a theological dimension. This would pull TE closer to the antinaturalistic assertions of ID, as the claim would now be that natural selection and other evolutionary forces are insufficient for explaining the emergence of humanity. If theistic evolutionists were to explicate NDC along the lines of partial causation then the boundary between TE and ID would be blurred, as they would now both concede the limits of Darwinian evolution for explaining why there are human creatures. This move toward partial causation would go against, for example, Haarsma’s compatibilist proposal which urges us to think of divine action as fully consistent with the completeness of naturalistic explanations. There remains here an ontological distinction that goes against the ambitions of those scholars who opt for NDC as the way forward in the science–religion debate, and against those who maintain that NDC might function as a line of demarcation between TE and ID.

Those who embrace NDC, and who emphasize God’s immanent influence within the natural in order to establish a line between TE and ID, face a dilemma: (1) NDC in a strong form entails causal overdetermination and makes God-talk superfluous, (2) NDC can avoid overdetermination by picturing *G* and *N* as partial causes, perhaps belonging to the same causal chain, but (3) the idea of partial causation is too dualistic and hence

incompatible with the ontological claims of NDC. In this way, NDC cannot serve as a demarcation line between TE and ID. Unless the theistic evolutionist wants to make God-talk superfluous, this type of theist needs to reject NDC as a proper formulation of divine action. Yet, if the theistic evolutionist were to reject NDC, then it is conceded that natural causes and evolutionary mechanisms are explanatorily insufficient. In this way, it becomes much more difficult to distinguish TE from the core claims of ID, at least with regard to the issue of explaining humanity in a natural world.

I believe that partial causation is the best way to frame the theological and philosophical claims of TE, and it is important to understand the metaphysical implications for science of such a view. On this view, if God accomplished a particular effect by means of natural causation, then we need to appeal to both divine activity and natural processes to account for the effect in question. Both bring something ontological to the picture. This means, then, that if God produced *E* via natural processes, then natural processes alone are insufficient to explain *E*. This is not to downplay the explanatory significance of science. Rather, it is to emphasize the explanatory value of both theology and science. As I argued for in a previous article with regard to the naturalistic models of divine action proposed by pantheists: “God must be allowed to make a causal difference in reality, and for this to be possible there needs to be some qualitative/ontological difference between God’s influence and natural laws. Of course, this would imply that from a theistic perspective, scientific causal explanations will always be incomplete” (Leidenhag 2015, 223). This implication has also been highlighted by Keith Ward: “If God’s intentions plus the physical laws do give a sufficient explanation of what happens in the world, whereas the physical laws do not, it is clear that the existence of God contributes substantially to an explanation of what happens in the world” (Ward 2007, 79).<sup>5</sup> Given this model of partial causation, we can make sense of God acting through natural processes, in comparison to NDC which makes God-talk superfluous and reducible to naturalistic categories.

#### POSSIBLE RESPONSES AND REFORMULATIONS OF NDC

NDC faces significant problems, but it is premature to rule it out as a suitable line of demarcation between TE and ID. There are four strategies, currently employed in the literature, for retaining the general model of NDC. If one of these can be employed by theistic evolutionists, then TE might achieve a more secure demarcation from ID. However, I will show that these too face significant challenges. The first strategy that I want to look at attacks the heart of the argument against NDC; namely, overdetermination. It has been argued that there are “innocent cases of overdetermination,” which, if true, would undermine the force of my case

against NDC. The second strategy utilizes a Thomist view of divine action in terms of the much-used model of “double agency.” The third strategy argues for the coherency of NDC based on Howard Van Till’s view of Creation as “gifted.” The fourth and last way of defending NDC is to appeal to the pragmatic necessity of NDC for defending the continuous functioning of modern science—and thus NDC would be the only scientifically responsible way to imagine divine action.

#### CAUSAL OVERDETERMINATION: NO PROBLEM!

The NDC proponent might respond to the critique made above by saying that overdetermination is not necessarily a problem. Are there not genuine cases of overdetermination, such that causes *C1* and *C2* intersect at a common event without one undermining the other? Imagine two assassins, both firing an arrow and simultaneously fatally hitting their target. In this case, being struck by one arrow is sufficient to account for the event, that is, the death of the victim. We have then a case of overdetermination, in the sense that each assassin’s arrow belongs to the causal ancestry of the victim’s death. It would then be wrong to claim that either of these causal happenings are ontologically redundant. Both assassins would be in some way causally and morally responsible for the outcome. Is it not possible to say something similar on behalf of the relationship between divine action and natural causation as it is portrayed by the NDC proponents? Can NDC be framed as an innocent form of overdetermination? Although plenty of philosophers believe that there are genuine cases of overdetermination, such belief can be called into question. Drawing on Martin Bunzl (1979), we might say that the causal contributions of Assassin1 is redundant because had Assassin1 not killed the victim, Assassin2 would have—and vice versa. Thus, both Assassin1 and Assassin2 are, in fact, causally redundant as neither are necessary for, nor properly hooked up to, the effect. As Bunzl intends, this is clearly an absurd conclusion. Bunzl goes on to explain that classic cases of overdetermination, when closer scrutinized, turn out to be either cases of joint causation or causal preemption, whereby *C1* instantiates the effect before *C2*.

If such philosophical considerations are correct, then this would carry some negative implications for the theory of NDC. That is, if we say that both divine activity, *G*, and natural regularities, *N*, both sufficiently produced *E*, then neither *G* nor *N* is explanatorily necessary for *E*. *E* would have obtained in the absence *G* and in the presence of *N*, or in the absence of *N* and in the presence of *G*. Depending on how one looks at the situation, either *G* or *N* would be redundant. Given that some NDC proponents, such as Clayton, rely on a counterfactual principle for evaluating theories of divine action, this implication should be unacceptable. For Clayton, this principle means that “*had God not acted* in helping to produce some

effect, the effect *would not have been identical* to the state of affairs we in fact observe” (Clayton 2008, 104). The problem, here, is that it is unclear on NDC to what extent divine activity contributes anything causally to the world. In order to avoid this dilemma, one needs to show that NDC can be a genuine case of overdetermination.

Even if one affirms that there are genuine cases of overdetermination, it should be noted that the assassin-case entails a picture of two separate and independent *causal chains* that, unfortunately for the victim, intersect at the same effect. This scenario is not, then, perfectly analogous to NDC given that this naturalistic model of divine action seems to maintain something stronger than the idea that two distinct causal chains coincide at  $t$  to produce  $E$ . NDC claims rather that  $G$  and  $N$  belong to the same causal chain as this model denies any form of dualism within the natural order, as well as any ontological separation between divine influence and the regularities of nature (Peacocke 2004, 9).

In the standard case of overdetermination, such as that of the two assassins, we have two independent causes that are individually sufficient “and hence individually unnecessary” (Moore 2012, 325). This is what Moore calls “independent overdetermination” (Moore 2012). In philosophy of mind, nonreductive physicalists typically argue for the idea that the mental supervenes on the physical and is necessarily brought about by the physical. On this picture, the mental and the physical are not independent of one another. The mental depends on the physical and is entailed by the properties and configurations of the physical level. As Moore goes on to explain, this “is clearly a different sort of overdetermination than independent overdetermination” (Moore 2012, 324). If we look at the discussion regarding NDC, we can say given this model of “dependent overdetermination” that if God,  $G$ , causes  $E$ , then the divine act is necessarily mediated by some physical mechanism,  $P$ . Thus,  $G$  and  $P$  do not independently and sufficiently cause  $E$ —an idea which encounters the causal exclusion problem—but given that God only acts through and within the natural,  $P$  will be accompanied by every act of  $G$ .  $P$  would be a necessary feature of God’s activity within the natural. However, this amounts to a very strong claim that proves difficult to justify. We can surely imagine a world in which God accomplishes certain purposes within the natural order in a nonphysical manner. Indeed, some of the strongest supporters of NDC admit that God can perform actions supernaturally—most Christians would want to point at Jesus’ resurrection as one such supernatural event. Thus, this way of framing NDC through “dependent overdetermination” is too strong.

Even if one frames divine action as intrinsically tied up with natural processes, this account entails a problematic dualism that is incompatible with the idea of NDC. If God produces  $E$  via  $P$ , then  $P$  alone is explanatorily inadequate with regard to  $E$ . That is, had God not willed  $E$  then  $E$  would not have obtained, but this conclusion goes against the NDC ambition

to uphold the completeness of the naturalistic story. Remember that for Clayton, Haarsma, Griffin, Johnston, and Peacocke, natural processes are explanatorily sufficient to account for events *within* the natural world. Yet, if *E* has its causal origin in divine agency, then this is tantamount to admitting that natural processes alone are insufficient for explaining *E*.

#### NDC AS NATURALISTICALLY TINGED THOMISM?

Given that NDC proponents seek to preserve the integrity of the natural world (in the sense that its daily functioning does not depend on supernatural interventions), maybe it would be fruitful to consider this model of divine action as a naturalistic accommodation of Thomism? What is the Thomistic conception of divine action? As Ignacio Silva helpfully explains, Thomas Aquinas's view on divine action can be summarized with four principles, "(1) God's omnipotence and transcendence": God can do anything that is logically possible; "(2) God's providential action": God not merely sustains the world but acts in it; "(3) the autonomy of natural causes": nature requires no extra-natural intervention; "(4) the success of reason and science": Science, and reason more broadly, can investigate the world empirically and offer naturalistic explanations for nature and its activities (Silva 2016, 66). The promise of Thomism, according to Silva, is that it can successfully hold together these principles: "Aquinas's doctrine, thus accounts for an autonomous natural causality that, at the same time, depends completely on God's causal powers" (Silva 2014, 285).

The Thomist argues on this model of double agency that God "acts in and through natural causes" and moves "created causes to cause" (Silva 2016, 66). So far, this sounds very similar to NDC and it could provide a way beyond ID. Thomism and NDC, however, seem to differ on a substantial issue. For a Thomist, "God and the natural agents act on two different levels" and "God and the evolutionary process are not on the same 'level'" (Silva 2016, 73, 77). This sounds too dualistic for NDC. Moreover, on this Thomistic view of divine action "God gives the power, sustains the power, applies the power to cause, and achieves effects *which go beyond that natural power*" (Silva 2016, 82; cf. Silva 2014, 282). The latter assertion seems, also, too supernatural for NDC as the divine effect exceeds the natural powers of the agent.

While this section merely seeks to test the compatibility between Thomism and NDC—and should not be understood as a rejection of a Thomistic view of divine action *per se*—I want to suggest that Thomism seemingly faces a similar overdetermination problem. Silva is clear on the fact that within Thomism "God acts as a sufficient cause" (Silva 2016, 73). God acts perfectly as first cause of all events, and "everything that the secondary cause is and does is caused by the primary cause" (Silva 2014, 280). Nevertheless, in order to avoid the occasionalist entailment,

the Thomist simply “holds that the secondary (or instrumental) cause determines the particular effect achieved by the action of the primary cause” (Silva 2016, 73). The secondary cause is necessarily involved in the causal chain.

Silva seems to make two claims in favor of this compatibilism, explaining why the secondary cause is not redundant despite God being a sufficient cause. (1) God wishes to perform actions through creatures, and so creatures are part and parcel of the causal chain. (2) The secondary cause determines the effect in the sense that the effect of the divine act will manifest itself in a manner according to the *telos* of the natural agent (Silva 2016, 74). Both claims fail to address the overdetermination problem. (1) Simply states that natural agents belong to the causal chain, without explaining *how* natural agents can causally contribute to *E* when *E* is sufficiently caused by God. (2), on the other hand, seems to confuse what might be called *ontological constraints* with *causal efficacy*. It might be the case, as is claimed on (2), that the manifestation of the divine will is constrained by the ontological makeup of the natural agent; the causal power “of the secondary cause is that which determines the production of this effect” (Silva 2014, 283). Nevertheless, this is different from the claim that the natural agent is contributing causally to the effect, and that the secondary cause is contributing to the world in a causal manner. The implication would seem to be that human agents (or any other creature) do not act or do anything, instead they only constrain God’s will and activity. Hence, (2) does not tell us how a natural agent can be causally efficacious or participate in a causal chain that is already sufficiently authored by God. In light of this issue, some Thomists simply state that the issue of how God “directs the actions of creatures through different modes of causalities . . . is part of the mystery of creation” (Austriaco 2003, 963. See also Austin Farrer’s more agnostic formulation of double agency, 1967).

To round this section off: Given that Thomism relies on a strong theological and causal dualism, NDC should not be construed as a naturalistic version of Thomism. Indeed, Thomism itself seems to face something akin to the overdetermination problem, and so offers no relief to theistic evolutionists who seek to go beyond ID through NDC.

#### THE “GIFTED CREATION” APPROACH TO NDC

Given that Thomism makes an ontological distinction between primary and secondary causation, with God and natural agents acting on different ontological levels, this model for divine action is incompatible with the overall logic of NDC. One way of preserving NDC, and hence the “completeness of the natural,” is to locate divine action solely in primary causation. This formulation of NDC brings us back to Howard van Till’s theological vision of the “Gifted Creation.” On Van Till’s divine action



model, we need to start with a robust formational economy principle, by which he means that the universe is gifted with the set of all dynamic capabilities in order to actualize both “inanimate structures and biotic forms” (Van Till 2001, 493). No divine intervention is necessary with regard to the “daily functioning” of the universe. Van Till recognizes that there are “epistemological gaps” in the scientific story about the world, but we should not commit the creationist/ID error of positing supernatural explanations or invoking extra-natural ingredients in order to address these gaps or anomalies. Instead, God has gifted creation both with a “rich potentiality space” and the “capabilities for realizing these potentialities by means of self-organization” (Van Till 2001, 508). The universe is, hence, “astoundingly robust and gapless” (Van Till 2001, 508). God’s action in this gapless world is manifested in the divine calling upon creation to employ or actualize its natural abilities. Divine providence is not distinct from creation (Stek 1990, 246), and we need to consider secondary causation as already contained in primary causation. There is no need to appeal to special divine action to account for natural phenomena (for a similar account to Van Till, see Knight 2009). Given its rich ontological resources, creation will produce novel phenomena over longer periods of time, through the interplay of chance, randomness, and various evolutionary mechanisms and factors. This could be one way of framing the compatibility thesis which the NDC adherent strives to uphold in opposition to the “gappy” account of ID.

Van Till’s theological model can be interpreted in a stronger and weaker form, both facing significant challenges. If we understand this view of divine activity in a stronger fashion, God would have set up the universe and its unfolding in a deterministic fashion. Like that of the relationship between a programmer and a software, God simply programmed the universe to produce certain things according to its own potentialities. While this model would make the world insulated from any additional supernatural interventions it seems, however, to entail a problematic determinism which, subsequently, undermines the causal efficacy of natural agents—including human creatures. If the universe is theistically determined, then how could human agents contribute anything to the world? As William Alston has commented with regard to the cost of a similar deterministic proposal: “The price of this would be not only an acceptance of complete determinism but also the inability to treat some events and not others as acts of God” (Alston 1994, 58). This may have severe consequences for Christian notions of special revelation. This view has no room for libertarian agency which would contradict, in particular, the ambitions of Peacocke and Clayton to articulate human agency through emergence theory. Although I do not have the space to develop this second concern, it can be said that such determinism would also render acute the problem of evil. God would be responsible for all natural events on this model,

including natural evils and moral evils. This is not to say that this model is entirely implausible, but it does produce some significant theological costs and concerns.

On a softer reading of Van Till's model, the universe is not pre-programmed in a deterministic fashion, but God "acts by calling upon the creation to employ its creaturely capabilities to bring about a fruitful outcome" (Van Till 2001, 509). This would avoid the strict occasionalism of the stronger reading. Yet, depending on how one interprets the phrase "calling upon," this idea seems to go against the logic of NDC and the ambition to avoid any ontological distinction between divine activity and natural processes. If this statement entails that God, *G*, calls upon a natural agent, *N*, to produce an event, *E*, then this leads to a dualistic picture whereby God makes a causal contribution to *E* that is not reducible to any natural process. *G* produces *E* via *N*; nevertheless, this means that *N* is explanatorily insufficient for explaining *E*. If one maintained, however, that *E* would have occurred regardless of *G*, then one is making divine activity explanatorily superfluous. The naturalistic story would in this way be complete, and there would no longer be any reason to invoke a theological or theistic framework for understanding the world. This would, indeed, be to sacrifice faith at the altar of naturalism. In the end, this articulation of NDC cannot function as a line of demarcation between TE and ID.

#### A PRAGMATIC DEFENSE OF NDC

The last defense is more pragmatic in nature. It does not claim that God cannot intervene in reality, and that the ID assertion that God sometimes acts in an interventionist manner is necessarily false. Rather, this argument is concerned that the notion of an "interventionist God" undermines the practice and rationality of modern science. According to Clayton, we need to base our epistemic projects on the "presumption of naturalism," meaning that "for any event in the natural world, that its cause is a natural one as opposed to a supernatural one" (Clayton 1997, 171). If we do not assume this naturalistic view, "science as we know it would be impossible. Scientific activity presupposes that causal histories are reconstructible in principle, which they would not be if the cause of some specific phenomenon lay outside the natural order altogether" (Clayton 2004, 163).

A pragmatic defense of NDC states that we need to articulate divine action in such a way that it can be rendered consistent with the naturalistic assumption that "the world's most fundamental causal principles are never interrupted" (Griffin 2000, 44). Such a defense admits that it is logically possible for God to intervene in reality; it is God's creation after all. Nevertheless, such interventions would undermine the rationality of science. Scientists must assume in their work that reality is predictable—at least to

a great extent. However, if God were to intervene, then the world becomes irregular and perhaps even chaotic. Science, we are told, would be impossible in such an interventionist world, as God directly causing and bringing about certain outcomes would make reality unpredictable. In this way, a theist who values modern science needs to account for divine action in noninterventionist and naturalistic terms, and this makes ID unacceptable as it invokes nonphysical categories to explain physical features. Regardless of the causal problems facing NDC, this pragmatic argument says that we still need *something like* NDC in order to uphold the general reliability and epistemic value of modern science.

This argument seems rather strange and it makes some drastic leaps. It might be the case that *some* happenings in the universe are causally inexplicable (or inexplicable in terms of scientific categories), but that does not mean that reality in its entirety becomes unpredictable and wholly chaotic. Some degree of unpredictability should not lead us to conclude that reality as a whole is unpredictable. Some instances of causal inexplicability do not mean the death of modern science (indeed, otherwise quantum mechanics would pose a serious threat to the well-being of science). As Alston notes in relation to this issue, it happens that medical professionals are surprised by remarkable recoveries by patients; recoveries that they lack good explanations for. Yet, “the conduct of medical science is not at all affected by these inexplicable happenings” (Alston 1994, 49). An instance of divine action that goes contrary to the logic of NDC does not necessarily pose a threat to science.

Clayton’s worry becomes even more perplexing when one considers the essential message of his own emergence theory. On Clayton’s emergence, which seeks to steer a path between both dualism and reductive physicalism, human consciousness depends on natural configurations while being unpredictable and irreducible to anything physical. Although the emergence of mind is a philosophy extrapolated from chemical and biological models of emergence, it is essential to Clayton’s strong emergence theory that science is *not* able to deliver a full account of human agency. Mental states are both epistemologically and ontologically irreducible, such that the phenomenon of mentality cannot be explicated in terms of natural laws. Thus, if Clayton’s emergence theory is true in that it provides a good description of the relationship between mind and matter, then a human being causally contributing to the world would have to be seen as a form of interventionism—that is, a causal event for which we can provide no full scientific account. Nevertheless, Clayton does not seem to think that human agency poses a problem for the practice of science. This, of course, begs the question: why is it that irreducible divine causality causes a problem for science if irreducible human causality does not? In the end, this pragmatic defense of NDC seems unsuccessful, and we need to look for (should we desire one) another line of demarcation between TE and ID.

## CONCLUSION

In the fight to hold together belief in God and Darwinian Evolution, ID and TE have been presented as two competing perspectives, and the war between them has been bitter. Several notable theistic evolutionists present their view that God only acts through natural causes as both theologically and scientifically superior. However, as I have argued in this article, the often-assumed line of demarcation between TE and ID is blurred. The central line of demarcation is often presented as differing models of divine action, with ID supporting supernatural intervention and TE supporting what I have called *Natural Divine Causation*: God only acts through and within natural phenomena. On this compatibilist model, God's action never competes with the workings of nature. In the dialogue between science and religion, NDC has been construed as a way to distinguish the framework of TE from the core claims of ID.

I critically evaluated the NDC account through the causal exclusion principle and argued that NDC encounters the philosophical problem of overdetermination; we cannot posit two sufficient explanations for one single event. It was seen that NDC runs the risk of making God-talk superfluous. I then investigated if NDC could be understood in terms of partial causation (a view of causation able to avoid overdetermination), but it was seen that partial causation is incompatible with the kind of ontological unity that NDC-supporters seek to uphold between natural processes and divine action.

I then investigated four possible ways of defending NDC: by articulating genuine cases of overdetermination, by construing NDC through Thomism, by conceptualizing NDC through Van Till's view of creation as "optimally equipped," and by arguing for the pragmatic necessity of NDC. While some of these lines of defense could avoid the problem of causal overdetermination, they produced other costly philosophical and theological consequences. The conclusion has been that NDC cannot function as the desired line of demarcation between TE and ID.

## ACKNOWLEDGMENTS

I would like to thank two anonymous reviewers for their many helpful comments and suggestions.

## NOTES

1. I will not discuss whether ID is a religious hypothesis. In Barbara Forrest's treatment of the intelligent design movement, it is claimed that ID is intrinsically religious due to the history of this movement and the motivation behind many proponents of intelligent design (see, for example, Forrest 2004). However, I am inclined to agree with those that argue that the thesis of intelligent design is not *intrinsically* religious, but that it potentially carries religious and metaphysical implications (see Meyer 2009, 441–48).

2. Although most (if not all) ID proponents would take the Designer to be the God of the Bible, ID as a thesis remains agnostic regarding the nature of the Designer. However, as Monton argues, given this agnostic stance it is a tricky affair to pin down the exact claim of intelligent design (see Monton 2009, 11–46).

3. Closely related to the issue of design is the question whether God's guidance is logically compatible with an evolutionary emphasis on randomness. For this issue, see van Woudenberg and Rothuizen-van der Steen (2015).

4. It should be noted, however, that Haarsma affirms the miraculous involvement by God in the life of Jesus Christ: "Yet evolutionary creationists also affirm that God chose at times to act supernaturally. God acts outside his usual patterns to accomplish his kingdom purposes in human history, most powerfully in the incarnation and resurrection of Jesus Christ" (Haarsma 2017a, 133).

5. This assertion raises the much feared "God of the Gaps problem." Broadly speaking, those who reject the notion that God acts directly in nature fear that the interventionist view of God entails the fallacy of the "God of the Gaps," whereby one takes gaps in science as evidence of divine intervention. This is the fallacy of "*argumentum ad ignorantiam*, i.e., an appeal to ignorance" (Larmer 2002, 129). However, as Robert Larmer argues, those who argue for specific cases of divine intervention within the natural do not typically do so only on the basis of ignorance; indeed, they often make positive arguments for divine agency based on what we know and the probability of something occurring in the presence of only natural causes.

## REFERENCES

- Alexander, Denis R. 2008. *Creation or Evolution: Do We Have to Choose?* Oxford, UK and Grand Rapids, MI: Monarch Books.
- Alston, William P. 1994. "Divine Action: Divine or Substance?" In *The God Who Acts: Philosophical and Theological Explorations*, edited by Thomas F. Tracy, 41–62. University Park: The Pennsylvania State University Press.
- Austriaco, Nicanor P. G. 2003. "In Defense of Double Agency in Evolution: A Response to Five Modern Critics." *Angelicum* 80:947–66.
- Ayala, Francisco J. 2008. "From Paley to Darwin: Design to Natural Selection." In *Back to Darwin: A Richer Account of Evolution*, edited by John B. Cobb Jr., 50–75. Grand Rapids, MI: William B. Eerdmans.
- Behe, Michael J. 2006. *Darwin's Black Box: The Biochemical Challenge to Evolution*. New York, NY: Free Press.
- Bunzl, Martin. 1979. "Causal Overdetermination." *Journal of Philosophy* 76:134–50.
- Clayton, Philip. 1997. *God and Contemporary Science*. Edinburgh, UK: Edinburgh University Press.
- . 2000. "Neuroscience, the Person, and God: An Emergentist Account." *Zygon: Journal of Religion and Science* 35:613–52.
- . 2004. *Mind and Emergence: From Quantum to Consciousness*. Oxford, UK: Oxford University Press.
- . 2008. "Towards a Theory of Divine Action that Has Traction." In *Scientific Perspectives on Divine Action: Twenty Years of Challenge and Progress*, edited by Robert John Russell, Nancy Murphy, and William R. Stoeger, 85–110. Vatican City State: Vatican Observatory, and Berkeley, CA: Center for Theology and the Natural Sciences.
- Dawkins, Richard. 1986. *The Blind Watchmaker: Why the Evidence of Evolution Reveals a Universe without Design*. New York, NY: W. W. Norton.
- Dembski, William A. 1999. *Intelligent Design: The Bridge between Science and Theology*. Downers Grove, IL: InterVarsity Press.
- Farrer, Austin. 1967. *Faith and Speculation: An Essay in Philosophical Theology*. New York, NY: New York University Press.
- Forrest, Barbara. 2004. *Creationism's Trojan Horse: The Wedge of Intelligent Design*. Oxford, UK: Oxford University Press.
- Griffin, David R. 2000. *Religion and Scientific Naturalism: Overcoming the Conflicts*. Albany: State University of New York Press.

- . 2008. "Neo-Darwinism and Its Religious Implications." In *Back to Darwin: A Richer Account of Evolution*, edited by John B. Cobb Jr., 268–87. Grand Rapids, MI: William B. Eerdmans.
- Haarsma, Deborah B. 2017a. "Evolutionary Creation." In *Four Views on Creation, Evolution, and Intelligent Design*, edited by Ken Ham, Hugh Ross, Deborah B. Haarsma, and Stephen C. Meyer, 124–53. Grand Rapids, MI: Zondervan.
- . 2017b. "Response from Evolutionary Creation." In *Four Views on Creation, Evolution, and Intelligent Design*, edited by Ken Ham, Hugh Ross, Deborah B. Haarsma, and Stephen C. Meyer, 221–26. Grand Rapids, MI: Zondervan.
- Johnson, Phillip E., and Denis O. Lamoureux. 1999. *Darwinism Defeated? The Johnson-Lamoureux Debate on Biological Origins*. Vancouver, Canada: Regent College Publishing.
- Johnston, Mark. 2009. *Saving God: Religion after Idolatry*. Princeton, NJ: Princeton University Press.
- Kim, Jaegwon. 1993. *Supervenience and Mind: Selected Philosophical Essays*. New York, NY: Cambridge University Press.
- . 1998. *Mind in a Physical World*. Cambridge, MA: MIT Press.
- . 2005. *Physicalism, or Something Near Enough*. Princeton, NJ: Princeton University Press.
- . 2006. "Emergence: Core Ideas and Issues." *Synthese* 151:547–59.
- Knight, Christopher C. 2009. "Theistic Naturalism and 'Special' Divine Providence." *Zygon: Journal of Religion and Science* 44:533–42.
- Kojonen, Erkki Vesa Rope. 2013. "Tensions in Intelligent Design's Critique of Theistic Evolutionism." *Zygon: Journal of Religion and Science* 48:251–73.
- . 2016. *The Intelligent Design Debate and the Temptation of Scientism*. New York, NY: Routledge.
- Lamoureux, Denis O. 2008. *Evolutionary Creation: A Christian Approach to Evolution*. Eugene, OR: Wipf & Stock.
- Larmer, Robert. 2002. "Is There Anything Wrong with 'God of the Gaps' Reasoning?" *International Journal for Philosophy of Religion* 52(3):129–42.
- Leidenhag, Mikael. 2015. "Is Pantheism Naturalistic? How Pantheistic Conceptions of Divine Action Imply Dualism." *Forum Philosophicum* 19:209–25.
- Leidenhag, Mikael, and Joanna Leidenhag. 2018. "The Unsuitability of Emergence Theory for Pentecostal Theology: A Response to Bradnick and McCall." *Zygon: Journal of Religion and Science* 53:258–73.
- Menuge, Angus. 2007. "Who's Afraid of ID? A Survey of the Intelligent Design Movement." In *Debating Design: From Darwin to DNA*, edited by William A. Dembski and Michael Ruse, 32–51. Cambridge, UK: Cambridge University Press.
- Meyer, Stephen C. 2009. *Signature in the Cell: DNA and the Evidence for Intelligent Design*. New York, NY: HarperCollins.
- . 2017. "Intelligent Design." In *Four Views on Creation, Evolution, and Intelligent Design*, edited by Ken Ham, Hugh Ross, Deborah B. Haarsma, and Stephen C. Meyer, 177–208. Grand Rapids, MI: Zondervan.
- Monton, Bradley. 2009. *Seeking God in Science: An Atheist Defends Intelligent Design*. Guelph, Canada: Broadview Press.
- Moore, Dwayne. 2012. "Causal Exclusion and Dependent Overdetermination." *Erkenntnis* 76:319–35.
- Peacocke, Arthur. 1993. *Theology for a Scientific Age: Being and Becoming—Natural, Divine, and Human*. Minneapolis, MN: Fortress Press.
- . 2001a. "Welcoming the 'Disguised' Friend—Darwinism and Divinity." In *Intelligent Design Creationism and Its Critics: Philosophical, Theological, and Scientific Perspectives*, edited by Robert T. Pennock, 471–86. Cambridge, MA: MIT Press.
- . 2001b. *Paths from Science towards God: The End of All Exploring*. Oxford, UK: Oneworld Publications.
- . 2004. "Naturalism, Theism, and Religion." In *All That Is: A Naturalistic Faith for the Twenty-First Century*, edited by Philip Clayton, 5–11. Minneapolis, MN: Fortress Press.
- . 2006. "Emergence, Mind, and Divine Action: The Hierarchy of the Sciences in Relation to the Human Mind-Brain-Body." In *The Re-Emergence of Emergence: The Emergentist Hypothesis from Science to Religion*, edited by Philip Clayton and Paul Davies, 257–78. Oxford, UK: Oxford University Press.

- Plantinga, Alvin. 2001. "When Faith and Reason Clash: Evolution and the Bible." In *Intelligent Design Creationism and Its Critics: Philosophical, Theological, and Scientific Perspectives*, edited by Robert T. Pennock, 113–45. Cambridge, MA: MIT Press.
- Ratzsch, Del. 2001. *Nature, Design, and Science: The Status of Design in Natural Science*. Albany: State University of New York Press.
- Russell, Robert John. 2008. *Cosmology: From Alpha to Omega*. Minneapolis, MN: Fortress Press.
- Silva, Ignacio. 2014. "Revisiting Aquinas on Providence and Rising Challenge of Divine Action in Nature." *Journal of Religion* 94:277–91.
- . 2016. "Divine Action and Thomism: Why Thomas Aquinas's Thought Is Attractive Today." *Acta Philosophica* 25:65–84.
- Stek, John H. 1990. "What Says Scripture?" In *Portraits of Creation: Biblical and Scientific Perspectives on the World's Formation*, edited by Howard J. Van Till, Robert E. Snow, John H. Stek, and Davis A. Young, 203–65. Grand Rapids, MI: William B. Eerdmans.
- Stenmark, Mikael. 2012. "Theories of Human Nature: Key Issues." *Philosophy Compass* 7/8:543–58.
- van Inwagen, Peter. 2003. "The Compatibility of Darwinism and Design." In *God and Design: The Teleological Argument and Modern Science*, edited by Neil A. Manson, 348–63. London, UK: Routledge.
- Van Till, Howard J. 2001. "The Creation: Intelligently Designed or Optimally Equipped?" In *Intelligent Design Creationism and Its Critics: Philosophical, Theological, and Scientific Perspectives*, edited by Robert T. Pennock, 487–512. Cambridge, MA: MIT Press.
- van Woudenberg, René, and Joelle Rothuizen-van der Steen. 2015. "Both Random and Guided." *Ratio* 28:332–48.
- Ward, Keith. 2007. *Divine Action: Examining God's Role in an Open and Emergent Universe*. West Conshohocken, PA: Templeton Press.