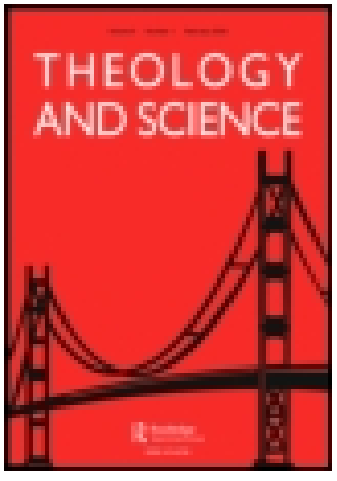


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Jordan Wessling & Joshua Rasmussen

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# Reasons for Randomness: A Solution to the Axiological Problem for Theists

JORDAN WESSLING and JOSHUA RASMUSSEN

**Abstract** *In this paper we bring to light several ways randomness—i.e., undetermined and unintended events—may contribute to our understanding of God's providence and personality. We begin by making clearer a certain problem that randomness has been thought to pose to theism. We then discuss recent criticisms of certain contemporary solutions to this problem that emphasize the value of an autonomous creation. From there, we propose a fresh way of understanding the value of a semi-autonomous creation that does not succumb to these recent critiques. Our end goal is to explore new reasons God might have to value randomness. In particular, we highlight two plausible, interrelated candidate values: (1) There are certain aesthetic properties that a partially random, self-forming creation enjoys; and (2) Such a creation grants God and creatures certain pleasures, such as wonder, anticipation, curiosity, surprise, and appreciation. In articulating our version of the autonomy defense, we position it within two opposing accounts of divine providence, specifically open theism and simple foreknowledge.*

**Keywords:** Randomness; Chance; Creation and Providence; Aesthetic; Autonomy of creation defense



Is randomness (or chance) allowed in a theistic world? Theologians of many stripes have traditionally insisted that God would never permit a "random" event in creation—where a "random" event is, roughly, an event that is both undetermined by antecedent causes and not selected for a specific purpose.[1] Even Jacob Arminius, who is known for his commitment to autonomy in creation, maintained that divine providence "preserves, regulates, governs and directs all things—for nothing in the world happens fortuitously or merely by chance."[2] Why resist randomness? Perhaps the most compelling motivation is based upon the common conviction that God cannot have a sufficiently good *reason* to permit random events. After all, such events are neither intrinsically nor extrinsically valuable—or so it is argued.[3]

But without random events, theists face a challenge from contemporary cosmology and biology. For now theism appears to be at odds with the apparent randomness that is thought to partially drive cosmic and biological evolution.[4] A popular contemporary response is to suppose that God has built into the created

order partially chance-driven processes that allow creation to enjoy the good of "making itself." Unfortunately, influential versions of this so-called *autonomy of creation defense* have recently come under trenchant critique.[5] In this paper, however, we present a species of this defense that eludes these recent critiques; moreover, we explain why a divine being might well prefer to have a natural world that is partially driven by randomness.

Our paper is structured as follows. In the first section, we distinguish different ways in which randomness might be thought to pose a problem to theism, and we identify what we deem to be the most significant problem. In the second section, we summarize three recent autonomy-of-creation defenses, as put forth by John Haught, John Polkinghorne, and Arthur Peacocke. We conclude that while the first two defenses suggested by Haught and Polkinghorne are not successful, Peacocke's proposal is more promising, albeit underdeveloped. In the final section, we seek to provide a fresh account of the autonomy defense that builds on the underdeveloped suggestions of Peacocke. Here we highlight two plausible, interrelated candidate values for why God may decide to create a world containing streams of randomness: (1) There are certain aesthetic properties that a partially random, self-forming creation enjoys; and (2) Such a creation grants God and creatures certain pleasures, such as wonder, anticipation, curiosity, surprise, and appreciation. In articulating our version of the autonomy defense, we position it within two opposing accounts of divine providence, specifically *open theism* and *simple foreknowledge*.



## The problem of randomness

Our goal is to elucidate plausible values that can explain, at least partially, why God *might* create a world wherein randomness occurs. By achieving this goal, we aim to solve an important problem that randomness poses for theism. (Whether or not God has *in fact* created a world with random events is a question that we do not address.)

So what, exactly, is the problem that randomness poses? To get a grip on the problem, we must first say a bit more about what randomness amounts to. Then we may examine why randomness might be thought to provide evidence against God's existence.

Randomness of the kind that appears within, say, orthodox interpretations of quantum mechanics might be understood in one of two basic ways. It may be understood as a genuine, mind-independent phenomenon that occurs within the natural world, or randomness might be conceived as a mere epistemic limitation of humans that is nevertheless fruitful for understanding the operations of nature. Presumably it would not be beneath the divine character to construct the universe such that certain goings-on merely appear random from the human vantage-point. For it is far from clear why it would be morally untoward for God to set up a world where humans, at least for a time, do not fully grasp the workings of his creation. If this is right, then the epistemic-limitation understanding of randomness poses no obvious problem for the existence of God. Thus, our

present concern is with genuine, mind-independent (or theory-independent) randomness.

How, then, should we understand such randomness? This is a difficult question to answer with penetrating precision. But the following definition will be adequate for our present purposes: an event *E* is random if and only if *E* is neither causally determined nor intentionally permitted or chosen for a specific purpose. So, for example, suppose *E* is a particular quantum event that has a 50% chance of occurring given the prior physical states together with the laws of physics. Suppose, also, that God has no particular reason to allow *E* to occur. When *E* occurs, its occurrence happens for no particular reason or purpose. Maybe God is unaware of *E*'s occurrence; or God is aware, but doesn't care one way or the other whether *E* occurs; or God cares about *E*, but has no particular reason for causing or not preventing *E*. In any case, God has no specified plan or purpose for *E*'s occurrence.

With this understanding of "randomness" in place, let us see if we can be more precise about the problem that randomness is thought to pose to theism. We find that there is not just *one* problem of randomness; there are several. We will consider a few of the most significant renditions of the problem.

First, one might think that the existence of genuine randomness in the world is at odds with some authoritative text, whether it be an official creed or a Holy Scripture. For example, St. Paul's claim that God "accomplishes all things according to his counsel and will" (Eph. 1:11), may be taken to preclude randomness.[6] To be sure, trying to square one's interpretation of authoritative religious texts with current scientific pictures of the world is rarely easy, albeit important for pious believers who seek a unified vision of reality. Nevertheless, our present concern lies elsewhere.

Some argue that there is a logical incompatibility between God intentionally creating specific entities—say, humans—and doing so via random or chance-driven processes. Consider Jacques Monod's routinely cited *Chance and Necessity*. Within this book Monod argues that "chance alone is at the source of every innovation, of all creation in the biosphere," and that because of this, "Man knows at last that he is alone in the universe's unfeeling immensity, out of which he emerged only by chance."[7]

Tracing the logical contours of Monod's bold claims within this book is no simple task. However, the gist of his reasoning seems to be that if the traditional God of the Abrahamic faiths exists, then he would intend for complex rational creatures such as humans to exist. Thus, any evidence that human existence was not planned is evidence against the existence of God. Unfortunate for God, though, the contemporary sciences reveal that human existence is just the outcome of a random—and therefore unguided and unplanned—evolutionary process.

Monod's objection (the notion that if humans emerged via random processes then they cannot be intended by God) might be labeled the *incompatibility of design and randomness thesis*—or, for short, *the incompatibility thesis*. What are the prospects for such a thesis?

Not good, in our estimation. Suppose we grant that humans did in fact arise through an undirected, random, evolutionary process. Does it follow from this that God didn't intend for human or otherwise intelligent life to exist? Not

clearly. Consider, first, a proposal offered by philosopher of science, Del Ratzsch.[8] According to his proposal, God, prior to the act of creation, possesses exhaustive knowledge not only of all possible outcomes of all genuinely random processes, but also what would in fact transpire from any given random process, were it to be instantiated. Should God enjoy such knowledge, God would be able to create a world wherein he gets precisely the kinds of creatures he would like, even though the process that produces them is partially or even completely random. To be clear, *particular* events in the long evolutionary processes could occur without being specifically intended for a purpose. There may be many possible evolutionary paths leading to human organisms, and particular steps along one path could be both undetermined and unintended, even if God intends that the *total* sequence has a particular result. So, Ratzsch's proposal rebuts Monod's objection: God can both plan for human existence and use random, undirected processes to achieve this goal.

Of course, Ratzsch's proposal is no more plausible than is the doctrine of middle knowledge—that God knows prior to his creative acts what events would indeterministically arise in any possible circumstance. Nevertheless, if this doctrine is at least epistemically plausible, then it serves to undercut simplistic appeals to the incompatibility thesis. What is needed instead for a rigorous defense of the incompatibility thesis is a demonstration of the implausibility of divine middle knowledge.

But let that pass and suppose God does not enjoy middle knowledge. Even without this knowledge, God may still use random processes to achieve his goal of realizing complex rational life. For example, as some writers have suggested, God may create a universe partially driven by stochastic laws, such that the emergence of complex life is highly plausible given enough time, even if not absolutely guaranteed. On this scenario, God uses a chance-driven process to accomplish the goal of complex life.[9] Although we might wonder why God would use such inefficient means to arrive at complex life, it is difficult to see why this scenario would be impossible for God to actualize.

We have seen two quite different responses to the incompatibility thesis.[10] Our point in raising these is not to endorse either one, but to illustrate why we believe that the incompatibility thesis is not where the true problem of randomness lies. There is a nearby problem, though, that is more substantial. We will develop that problem now.

In a dialogue concerning the existence of God, the philosopher and atheist Quentin Smith argues that the Big Bang theory provides evidence against theism. His reason is that the Big Bang cosmology requires an initial singularity, which, according to Stephen Hawking, emits "all configurations of particles with equal probability."[11] The implication, says Smith, is that the "Big Bang singularity is inherently unpredictable and lawless and consequently there is no guarantee that it will emit a maximal configuration of particles that will evolve into an animate state of the universe."[12] Smith believes that this result provides evidence against God's existence because God's benevolence, power and wisdom ensures that he would create a universe that either immediately contains animate creatures, or will *naturally* and *intrinsically* lead to the emergence of such creatures. But since

neither of these conditions are met, we have reason to think that God didn't create the universe, which provides indirect evidence for atheism (insofar as we think that if God exists, he is responsible for the state of the universe).

Smith is well aware that many theists will claim that God could intervene at the instant of singularity and perhaps intermittingly thereafter to ensure that the universe generates complex life. To this suggestion Smith rejoins as follows:

> I believe this objection is incompatible with the rationality of God. If God intends to create a universe that contains living beings at some stage in its history, then there is no reason for him to begin the universe with an inherently unpredictable singularity. Indeed, it is positively irrational. It is a sign of incompetent planning to create as the first natural state something that requires immediate supernatural intervention to ensure that it leads to the desired result. The rational thing to do is to create some state that *by its own lawful nature leads* to a life-producing universe.[13]

The thrust of Smith's objection, then, is that creation via random process is beneath the divine intelligence. To create in this way is "positively irrational" and a "sign of incompetent planning."

Much could be said about the theological assumptions that Smith's argument requires, but we want to focus our attention on just one. Note that Smith assumes that there is nothing particularly valuable about the instantiation of random processes within creation. For if there is something valuable about random processes—whether of intrinsic or extrinsic value—such that creating them is worthwhile (at least as a subsidiary goal of God's), then it would not be irrational of God to instantiate random processes. So, without the assumption that there is nothing valuable about random processes within nature, Smith's argument does not get off the ground.

It is therefore apparent that Smith assumes that God could have no reason for creating a world with the relevant kind of randomness because it has sufficiently minimal value. Let us call *this* problem *the axiological problem of randomness*. The problem arises from the assumption that random (or chance) processes described and/or presupposed by some of our leading scientific theories is of sufficiently minimal value so as to provide God insufficient reason to create a universe containing them. We may put the problem in the form of a question: What is so valuable about randomness that God should like to have it in his world?

The axiological problem of randomness has been noted by several theologians and scientists—at least implicitly. Take David Bartholomew as an example. After methodically refuting Monod's incompatibility thesis in the first several chapters of his book *God, Chance and Purpose: Can God Have It Both Ways?*, Bartholomew opens chapter 12 by explaining,

> It is one thing to argue that God *could* have created the world in a manner in which [God] allows chance a real and important role. It is another matter entirely to argue that he did actually do it in that way. There are many things that we *can* do but there are some which, our friends would argue, we would not have done on the grounds that it would simply be 'out of character' for us to behave in that way.[14]

Bartholomew's implicit point seems to be that it is one thing to discredit the incompatibility thesis, but it is quite another to provide reason to think that God would find sufficient value to create a world containing random processes.

A more famous illustration of the axiological problem of randomness comes from Albert Einstein, who claimed that the apparent indeterminism within the universe must be due to present human ignorance. For Einstein was convinced that "God does not play dice [with the universe]."[15] Whether or not Einstein intended his appeal to God to be understood as a mere *façon de parler* is neither here nor there. The point is that there would be something deeply untoward about a world containing genuine randomness—all the more so if the world is the product of a wise creator!

It appears, then, that there is an important difference between the incompatibility thesis and the axiological problem of randomness. Whereas the former concerns the alleged incompatibility between random processes and a divine intention for complex life, the latter concerns the *value* of divinely implanted random processes. We are primarily concerned in this paper with the axiological problem of randomness, not with the incompatibility thesis. In addressing the axiological problem, our goal is to highlight a few candidate reasons why God might wish to create a world containing cosmic and biological evolution that is in part driven by randomness; we make no attempt to put the axiological problem of randomness to rest. In particular, we will not address whether the values of randomness are worth *all* the potential problems and pitfalls that might arise from random processes.[16] We will focus instead on establishing that randomness may well be worth something, perhaps quite a lot.

## Autonomy of creation defenses

A currently popular view among those writing at the intersection of theology and science is that a creation that unfolds partially via chance processes allows creation to embody a valuable degree of independence, or autonomy. For example, John Haught writes,

> Cosmic and biological evolution instruct us as never before that we live in a universe that is in great measure not yet created. … Moreover, this is nobody's fault, including the Creator's. The only kind of universe a loving and caring God could create, after all, is an unfinished one. For God's love of creation to be actualized, the beloved world must be truly "other" than God. And an instantaneously finished universe … would in principle have been only an emanation or appendage of deity and not something truly "other" than God. A world that is not clearly distinct from God could not be the recipient of divine love. And an instantaneously completed world could never have established an independent existence vis-à-vis its creator. The idea of a world perfectly constituted *ab initio* would, in other words, be logically incompatible with any idea of a divine creation emerging from the depth of selfless love.[17]

In short, Haught believes that a universe that undergoes an evolutionary process allows it to be sufficiently distinct from God, and thereby a recipient of divine

love. Haught elsewhere appears to suggest that random processes are vital for preserving the distinction between God and creation. For absent genuine randomness within nature, all events would be the inevitable result of the divine will, which would constitute a "manipulative controlling" of creation.[18]

Not everyone is impressed with Haught's reasoning. For instance, the philosopher Michael Murray correctly notes that it is far from clear that a clean line between God and creation requires a somewhat autonomous, evolutionary process. After all, a human artist can create a painting that is sufficiently distinct from herself despite the fact that the painting is not self-actualizing. So, Murray asks, "Why must we think that if an agent directly actualizes a state of affairs then that state of affairs is not distinct from the agent?"[19]

One might respond to Murray by trying to find other values that God might actualize by creating a partially self-forming world. One such example comes from John Polkinghorne, who applies "a variation of the free-will defense … to the whole created world."[20] Polkinghorne urges us to realize that "A world allowed to make itself through the evolutionary exploration of its potentiality is a better world than one produced ready-made by divine fiat."[21] The basic idea at play is that the value of a self-actualizing universe via random processes is analogous to the value of humans endowed with the ability to form their moral characters through a history of free choices.

The benefit of Polkinghorne's account is that it does not clearly fall prey to Murray's objection to Haught. Instead of claiming that the universe must evolve by way of chance processes to be distinct from God and loved by God, Polkinghorne emphasizes the good of cosmic self-creation, something that is analogous to the good of humans intentionally choosing to develop their characters.

The trouble with Polkinghorne's emphasis, however, is that it is unrealistically anthropomorphic. Robin Collins explains,

> One outstanding problem with Polkinghorne's … explanation is that of understanding what is meant by creation 'making itself' or being 'autonomous.' The whole appeal of this idea, it seems, arises because the metaphors of 'making itself' and 'autonomy' tempt us to endow nature with the sort of will and choice we find in ourselves. Assuming that non-human creation does not have a will to decide its own destiny, it is hard to see what these concepts could mean when applied to the non-human world, other than that creation simply unfolds in accordance with the deterministic and statistical laws with which God endowed it. Clearly, merely to follow statistical laws is not the same as free choice: presumably, a radioactive atom that decays does not 'decide' to decay but merely follows the statistical rules of quantum mechanics.[22]

Collins's critique reveals why Polkinghorne's self-described "free-process defense" will provide few resources for answering the axiological problem of randomness.[23]

In light of these difficulties, we are motivated to consider a third, more promising, autonomy of creation proposal. In a number of works, Arthur Peacocke argues that cosmic and biological evolution is driven by a combination of stochastic and deterministic processes that affords God the opportunity to use the "potentialities of his universe to be developed in all their ramifications through the operation of

random events."[24] In other words, randomness is a means of exploring the range of inherent potentialities of created entities. Furthermore, Peacocke describes God as a composer who utilizes randomness and law to harnesses the inherent potentialities of entities within the world to create natural beauty and complex life.[25] Peacocke even depicts God as one who dances and plays with creation.[26] This latter suggestion is not that randomness occasions the opportunity to dance and play with creation through special acts of intervention that disrupt the universe's natural trajectory.[27] Rather, the idea appears to be that God creates the world freely and that he immanently sustains and causally works in and through natural processes, all the while allowing inherent potentialities of creation to transpire in genuinely random and surprising ways.[28] (Important for Peacocke's understanding of divine immanence is the idea of panentheism.[29] As fascinating and fruitful as this idea may be, both generally and certainly for understanding Peacocke's thought, we will not presently discuss this notion of the God's relationship with the world.)

Peacocke's metaphors suggest a fresh way of understanding the value of a moderately autonomous creation, a creation that partially unfolds in independence from outside causal control and contains streams of randomness. For Peacocke, the relevant randomness appears to bring about two interrelated values. On the one hand, Peacocke suggests that there is a certain *aesthetic value* that applies to a partially self-making, and thereby randomness-containing, creation. This is how we understand Peacocke's description of God as a grand composer. On the other hand, there is the suggestion that randomness within creation occasions the opportunity for God to delight and play with creation. Here we have what might be called *psychological values*, as it is randomness that provides God the opportunity for a certain kind of play or delight—a kind of play or delight that may not be possible without created, stochastic processes.

The kinds of values highlighted by Peacocke are provocative. There is, from our perspective, something enchanting about viewing the divine development of fundamental particles into complex life as analogous to a grand composer, who "beginning with an arrangement of notes in an apparently simple tune, elaborates and expands it into a fugue."[30] Likewise, it is inspiring to view divine creativity as something of a dance or an act of play. Nevertheless, Peacocke does not make explicit how the noted aesthetic and psychological values specifically attachment themselves to randomness. It is this lacuna we presently hope to fill.

## A fresh understanding of the autonomy of creation defense

We may better appreciate the aesthetic and psychological value of randomness by imagining a scenario where an artist creates a painting that "makes itself" via random processes. For example, suppose there is an artist who designs a complicated machine that sprays paint in a stochastic manner unto a large canvas. The color, density, timing, and allocation of paint operates at random within predetermined boundaries, but as certain configurations begins to arise, the machine selects specific probability distributions that make particular hues, patterns and so on

more likely. Let us further pretend that the machine's combination of law and chance renders it such that given enough time it is highly probable (though not guaranteed) that a juxtaposition of complex figures (such as animals, landscapes, and persons), complementary colors, and sophisticated patterns will emerge.

With this in place, imagine that the artist starts the machine. We watch as blue paint splatters here, and white and yellow trickle there. At the beginning there is only a chaotic mess. But as weeks, months, even years pass by, the painting takes shape. At first we see the makings of a starry sky; then a rushing river. One tree sprouts up, then another, and another. Animals come onto the scene: a squirrel, an owl, and then a wolf. With time, the forest is brimming with life. Finally, a grand forest landscape surfaces, complete with delicate shading and rich visual texture.

Perhaps the artist occasionally steps in and uses the existing colors and patterns to create something more complex, such as a mound of rocks, white caps on water, or leaves that are changing with the season. Or perhaps the artist simply leaves the machine to do its work. Either way, the painting would be bound to elicit widespread interest.

Think, in particular, of the affect the random processes would have on the viewers. As the painting develops, interested parties would be filled with wonder, curiosity, anticipation, surprise, and perhaps even admiration. "Will complex and complementary aesthetic properties emerge, or will the result be only a drab mixture of colors?" And if something as complex as a forest landscape begins to take shape, the onlookers will question what the final product will look like, sometimes even making predications. The viewers would also experience the delight of surprise: "Oh, is that a river?," "I can't believe the beauty of the skyline!," and "I never would have guessed that the painting would produce animals!" And if the observers of the painting are pleased with the final product, they may even be filled with a sense of appreciation, or thankfulness, for what has developed.

Clearly, the painting we have postulated would evoke a range of emotions. But what is the aesthetic significance of the artwork under consideration?

Arguably, *one* valuable feature of an art piece is its ability to arouse certain emotions in the perceiver.[31] Think, for example, of a film depicting the horrors of slavery in the American South. If the film is rightly executed, it will do much more than raise one's credence in the proposition that *slavery is wrong*. The film will instead awaken (or reawaken) the emotions that grab a hold of the truly satanic evil of one human treating another like an object, a mere agricultural or household tool. Empathy will be ignited, and the unity and value of all humans will be palpably experienced. Similarly, much of the power and value of music is its ability to amuse, enchant, and lift. The widespread appeal of Beethoven's Symphony No. 5 is doubtless due in no small part to this—in particular, the way in which the variation and recapitulation of the famous "Da da da dah" within the first movement draws the hearer into a developing story of tension and triumph.

How might the value of art's ability to arouse certain emotions in the perceiver apply to our painting produced by partially random processes? We believe there is a point of connection with both the film and music examples we provided. First,

consider the stated value and power of music. As Beethoven's famous "Da da da dah" draws the hearer into a story of tension and triumph, the painting invites the onlookers into a narrative that begins in chaos and ends in harmony. The random processes only heighten the drama, as the outcome is unpredictable and radically contingent. The viewer is caught in wonder, curiosity, anticipation, and surprise. Second, recall that part of the value of film is its ability to holistically communicate, whereby the mind and emotions of the viewer are brought into contact with reality. Our postulated painting likewise communicates, albeit indirectly, something of the preciousness of existence. Through the painting's random processes something beautiful emerges that very well could not have. One who appreciates the final product is thus all the more grateful for the beauty she beholds. The painting may even be said to point beyond itself: we and the cosmos are radically contingent. We exist when we need not have, and we observe a beautiful creation that could have been aesthetically arranged quite differently, or may not have existed at all.

No doubt the reader will foresee the point of application. Suppose God has created a world that develops in a manner similar to the painting—that is, through a combination of law and chance the cosmos unfolds and terrestrial life is gradually introduced. Like the painting, we suggest that the value of this mode of divine creation is multifaceted. (We will consider later how this vision of creation may be compatible with two theological models of providence.)

Consider, first, the ways in which the discovery of a creation that arose from chaos via law and chance might stir certain emotions in us. It should, we think, awaken within us the sense that we are part of great emerging drama. Similar to the tension and triumph of Beethoven's "Da da da dah," the interplay of randomness and law that develops the vast cosmos is awe inspiring. As we examine the history of the cosmos, we may even be struck by delighted surprise concerning the way things turned out, as we embody a beautiful world brimming with life. Furthermore, the discovery of the role of randomness can evoke a sense of the radically contingent nature of the cosmos and life as we know it. Not only are we and the world contingent, the particular complex life and environmental beauty that emerged from the initial conditions could have been quite different. This contingency, in turn, engenders a heightened sense of appreciation and thankfulness for a beautiful creation and the marvel of life.

Previously we suggested that onlookers of the developing painting might be filled with wonder, curiosity, anticipation, surprise, and appreciation. Similarly, it may be that onlookers of God's creation of a partially random, self-making universe benefit from the experience. In particular, it may be that angels enjoy these emotional states (i.e., wonder, curiosity, anticipation, surprise, and appreciation) as creation takes shape. For some theologians, the appeal to angels will feel theologically *ad hoc*; but others will discern that this reference to angelic hosts is consonant with classic Christian thinking. For within the Christian tradition, there is a view in which what happens within terrestrial creation involves angels and demons. Think, in particular, of the atonement theory, *Christus Victor*, where the crucifixion of Christ frees humans from Satanic captivity. One need not subscribe to this

understanding of the atonement to form the idea that God's creative activity is something "into which angels long to look" (1 Pet. 1:12, cf. Eph. 3:8–11).

Apart from angels and other creatures, it may very well be that the Supreme Being experiences a range of attitudes through a creation endowed with random processes. Perhaps God could be said to experience curiosity, anticipation, surprise, and appreciation over a creation in which random processes are present. This theory of God is perhaps easiest to develop on an *open theist* framework whereby God does not know future contingents, specifically, the future outcomes of genuinely random processes (although, as most open theists would have it, God knows all possibilities and objective probabilities concerning the natural world and beyond).[32] Thus, we'll first explore the value of random creation in relation to open theism. After doing this, we will consider a more traditional alternative.

Let us begin by agreeing that there is something worthwhile about curiosity, anticipation, surprise, and appreciation. The artist behind the proposed painting would likely be caught up in curiosity, anticipation, and surprise over what may and does happen; and this, it seems, would be a valued experience for the artist. And if the painting were to turn out well, the artist no doubt would be filled with immense appreciation for the beauty she beholds.

Now, suppose open theism is true and that God doesn't know exactly what will transpire within his randomness-containing creation. God may then engage in child-like curiosity and delight over his inherently unpredictable world. While God may know that it is highly probable that an intelligent species will emerge that can relate to him (given that he has constructed the world so), he may not know the species and behavior far in advance. Filled with anticipation, he may form guesses as to what his new friends will be like (without forming beliefs that might potentially be false), and he may be delighted with surprise by what transpires. Finally, God may immensely appreciate the astounding beauty of the cosmos, as well as the kinds of life that are produced by a partially chance-driven universe.

Additionally, random processes may provide God with the opportunity to "play" with creation. For if the natural world operates in a fully deterministic way, then there is no reason for God to "step in" and redirect the path of the cosmos. But if the natural world can go in any number of directions, then God, like a sculpture of clay, can work with, through, and maybe sometimes even against the developmental trajectory of creation. If God occasionally were to intervene in creation, he would be like the artist we previously envisioned, who takes up a brush to develop and accent the emerging image created by the painting machine that is guided by stochastic processes. Through divine intervention, there is a rich interplay of the natural and the supernatural to produce a masterpiece.

It is worth noting that this conception of an intervening God goes against the grain of much theological literature on randomness and chance. To give just one example, Robert Russell maintains that "since God's intervention breaks the very processes of nature which God created and constantly maintains, it pits God's special acts against God's regular action, which underlies and ultimately causes nature's regularities."[33] Russell's idea appears to be that there is something

untoward about the idea of God purposely initiating and sustaining a process and then periodically acting to change the natural trajectory of the process. But, as we have suggested, occasional divine intervention may not be untoward if doing so affords God certain creative pleasures.[34]

On open theism, then, God can be viewed as an artist who delights in his partially autonomous and unpredictable creation. He is like the painter we proposed, who uses chance and law to create something beautiful and evoke a range of emotions within himself and his creatures.

An objection immediately surfaces. One might contend that while curiosity, anticipation, and surprise are often valuable experiential states for humans, to suggest as much about God is simply too anthropomorphic.

At issue here are what might be labeled *psychological predicates*—attributes such as love, joy, hope, anticipation, and surprise—and which, if any, of these predicates can be correctly applied to God. Unfortunately, there is no agreed-upon way to adjudicate the ascription of the relevant predicates to the divine. Rather, the range of psychological predicates that are deemed worthy of God are often determined by one's overall conception of God. To see this, consider Brian Davies' classification of *classical theism* and *theistic personalism* as it appears within his introductory philosophy of religion text.[35] The former, which Davies believes is paradigmatically represented by Moses Maimonides and Thomas Aquinas, holds that God is maximally simple, immutable, and impassible; God is so vastly different from humans that the term "person" cannot be applied to God in any recognizable sense. Accordingly, those who adopt this conception of the divine nature typically maintain that few, if any, psychological predicates can be aptly applied to God without substantial qualification. By contrast, the theistic personalist, which is represented by several contemporary philosophical theologians (Davies names Alvin Plantinga and Richard Swinburne, among others), is one who takes divine personhood (or perhaps *tri*-personhood) with utmost seriousness. God is a personal being who genuinely and unqualifiedly knows, acts, and loves. As such, theistic personalist are often much more inclined to believe that there is an impressive overlap of psychological predicates that can be rightly applied to both God and humanity.

Both classical theism and theistic personalism have able defenders, and at present we cannot defend our preference for the latter. Suffice it to say that if theistic personalism is true, this by itself certainly does not entail that curiosity, playfulness and the like can be aptly ascribed to God, but theistic personalism does open the door to such divine attributes, since they can be viewed as valuable features of God's personality.

We furthermore hasten to add that most defenders of theistic personalism do not simply ascribe to God whatever psychological predicates he or she observes within humans. Rather, the theistic personalist typically utilizes perfect being theology to determine that which can and cannot be rightly attributed to God (where perfect being theology can be roughly characterized as the theological method that seeks to attribute to God the greatest possible collection of intrinsically valuable features). So, given this method, if it can be shown that it is intrinsically valuable for a being to experience curiosity, anticipation, surprise, and appreciation, and that such

valuable features do not conflict with the possession of other attributes that are of equal or greater intrinsic worth, then we have *prima facie* reason to ascribe these features to God.

We submit that the range of emotions we have underscored are intrinsically valuable. And we are not aware of any reason to suppose that these emotions conflict with a divine attribute of greater or equal worth. Thus, we believe that there is *prima facie* reason to suppose that God experiences curiosity, anticipation, surprise, and appreciation.

Even still, one might think that perfect being theology, far from supporting the picture of God we are offering, actually precludes the apt application of curiosity, anticipation, and surprise to God. After all, such features might be thought to be incompatible with divine omniscience (a perfection with intrinsic value that appears to outweigh the suggested psychological attributes). For to be surprised one must believe that such-and-such will be the case, when in fact something else happens. But God's omniscience entails that he never believes that which is false. Likewise, curiosity and anticipation seem to presuppose divine ignorance of what is come, and ignorance is often thought to be incompatible with omniscience.

To the objection to divine surprise, we respond as follows. We agree that any account of the divine mind that implies that God might form false beliefs is woefully inadequate. It seems, however, that surprise (or some mental state quite like surprise) does not require God to form false beliefs. Instead, God may simply know that $x$ is objectively improbable without believing that $x$ will in fact not happen. But then, God can learn that $x$ did happen, despite its objective improbability. And this knowledge that improbable events have in reality transpired appears to be a kind of surprise—a good surprise, if the outcome is welcomed.

Furthermore, those with only a rudimentary understanding of open theism will see how to respond to the objection from curiosity and anticipation. The proponent of openness will claim that God's omniscience entails that God knows all that is true (or some say that which is intrinsically knowable), but if the future is *open* in the sense that there are no true statements about future contingents (e.g., how some random process will unfold), then it is no limitation God's perfect knowledge that he does not know what will come.

It seems, then, that the openness conception of God affords him various psychological values that may contribute to why God might choose to create a world suffused with randomness. For in creating such an atheistically rich world, God enjoys certain valuable experiences, namely, curiosity, anticipation, and surprise.

Quite understandably, however, many are uncomfortable with the idea that God does not know an entirely settled future. How might such persons affirm that God experiences curiosity, anticipation, and surprise through random processes if God knows all that shall come to pass? To explain how, we must first understand the position which has been recently deemed *simple foreknowledge*.

Simple foreknowledge is best understood when contrasted with Molinism. According to Molinism, God's knowledge is divided up into three logical moments. Within the first of these moments, his "natural knowledge," God

knows all necessary truths as well as the full range of possibilities. Applied to quantum contingencies, God's natural knowledge grants God the ability to know all *possible* quantum events, including the full range of possible outcomes from an antecedent, indeterministic cause. This is in contrast with God's "middle knowledge," according to which God knows all contingently true propositions that would emerge should the relevant conditions be actualized. Via middle knowledge God knows not only all possible quantum events, but also what events *would* in fact transpire from any given random process. Both God's middle and natural knowledge are pre-volitional in the sense that God doesn't determine the truth value of the content of these two moments of knowledge. Finally, God enjoys "free knowledge"; that is, exhaustive knowledge of his freely generated creation, including subsequent contingents.

Simple foreknowledge can be understood as the view that God possesses natural and free knowledge, but not middle knowledge. Couched within the discussion of random quantum events, the simple foreknowledge proponent holds that God, logically prior to the decision to create, knows all possible combinations of random processes as well as all possible outcomes, but God does not know what any given random process will in fact produce until he creates. Once he creates, however, God knows all that will ever occur, including all outcomes of random processes. Creation, then, is what grounds a substantial portion of God's knowledge of what will come to pass.

William Lane Craig offers a helpful description of the relation between the simple foreknowledge position and notions of divine curiosity, anticipation, and surprise. Craig is particularly concerned with free creatures, but much of what he says applies *mutandis mutandis* to the present topic. He writes,

> The proponent of simple foreknowledge in the absence of middle knowledge has difficulty making sense of God's providential planning of a world of free creatures. For on this view, logically prior to the divine decree God has only natural knowledge of all possibilities, but no knowledge of what would happen under any circumstance. Thus, logically posterior to the divine decree, God must be *astonished* to find himself existing in a world, out of all possible worlds he could have created, in which mankind falls into sin and God himself enters human history as a substitutionary sacrificial offering to rescue them! Of course, one is speaking anthropomorphically here; but the point remains that without middle knowledge, God cannot know prior to the creative decree what the world would be like.[36]

Making the relevant adjustments, one might say that Craig is underscoring that without middle knowledge God does not pre-volitionally know with specificity the shape of creation that will emerge from random processes. To be sure, given God's complete knowledge of all possibilities and objective probabilities, God would not be entirely caught off guard by what transpires. But God may be genuinely surprised by what takes place.

The point of connection should now be apparent. If we suppose that simple foreknowledge is true, then prior to the decision to create, God doesn't know, in detail, what might come about. Thus God can be filled with something very much like curiosity (the pre-creative desire to see what might transpire) and anticipation

(the pre-creative desire to see certain outcomes realized). And when God discovers what the shape of creation will in fact be, there might be genuine elements of surprise and appreciation.

So, similar to the open theist, the proponent of simple foreknowledge can hold that creation grants God the pleasures of anticipation, curiosity, and surprise. And it might be that these pleasures help explain why God created a world that contains genuine randomness.

## Conclusion

Suppose much of the natural world is indeed governed by randomness. At first blush, one might think that such a world is not a happy place for the Abrahamic God, since a world that behaves in this manner has little to no value. In this paper, we have attempted to mitigate, if not entirely undercut, the relevant axiological assumption. For we have suggested that there may be something aesthetically wonderful about a creation that blends together law and chance to create a world filled with the beauty we currently observe. And, relatedly, creating a world that is informed by randomness allows both Creator and creature to enjoy rich emotional experiences, including the feelings of anticipation, curiosity, wonder, surprise, and appreciation. It seems, then, that God may have his reasons for randomness.



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## Endnotes

1 To avoid too much repetition, we use "random" and "chance" as synonyms. A more precise definition of "random" (and consequently "chance") will be subsequently provided.

2 W. Stephen Gunter, trans. and ed., *Arminius and His Declaration of Sentiments: An Annotated Translation with Introduction and Theological Commentary* (Waco, TX: Baylor University Press, 2012), 139.

3 For a list of quotes from theologians from the Reformed tradition that suggest that random events in creation have little or no value, see Heinrich Heppe, *Reformed Dogmatics: Set Out and Illustrated from the Sources*, rev. and ed. Ernst Bizer, trans. G.T. Thomson (Grand Rapids, MI: Baker Books, 1950), 253–256.

4 For well-known arguments that randomness (or chance) is incompatible with theism, see Jacques Monod, *Chance and Necessity* (New York: Vintage Books, 1972) and Quentin

Smith in William Lane Craig and Quentin Smith, *Atheism, Theism, and Big Bang Cosmology* (New York: Oxford University Press, 1993).

5 The "autonomy of creation" label comes from Robin Collins's "Divine Action and Evolution," in *The Oxford Handbook of Philosophical Theology*, eds. Thomas P. Flint and Michael C. Rea (New York: Oxford University Press, 2011), 241–261.

6 Quote take from the *NRSV*.

7 Monod, *Chance and Necessity*, 180.

8 Del Ratzsch, "Design, Chance & Theistic Evolution," in *Mere Creation: Science, Faith & Intelligent Design*, ed. William A. Dembski (Downers Grove, IL: InterVarsity Press, 1998), 289–312.

9 For a detailed discussion of approximately this model of creation see David Bartholomew's *God, Chance and Purpose: Can God Have It Both Ways?* (Cambridge: Cambridge University Press, 2008).

10 Trent Dougherty has recently suggested a third response to the incompatibility thesis, wherein he proposes that God can manipulate the environment in certain ways (e.g. causing climate changes or floods) to steer chance processes toward the production of complex life. Dougherty presented this idea in a paper, "Remarks on the Shönborn–Barr Discussion" at the *Randomness and Foreknowledge* Conference in Dallas, Texas, October 2014.

11 Hawking, "Breakdown of Predictability in Gravitational Collapse," *Physical Review* D14 (1976), 2460. Cited by Smith, *Atheism, Theism, and Big Bang Cosmology*, 198.

12 Smith, *Atheism, Theism, and Big Bang Cosmology*, 201. By "maximal configuration of particles," Smith means "a complete state of the universe, the universe as a whole at one time" (201).

13 Ibid., 203 (Smith's emphasis).

14 Bartholomew, *God, Chance and Purpose*, 196 (Bartholomew's emphasis).

15 From a letter of Einstein quoted in Max Born, *Natural Philosophy of Cause and Chance* (New York: Oxford University Press, 1949), 122.

16 Most significantly, we will not here tackle the most taxing question of all: Why would God use a random process that includes countless instances of apparently gratuitous human and animal suffering ? This immense topic is for another time.

17 John Haught, *Deeper than Darwin: The Prospect for Religion in the Age of Evolution* (Boulder, CO: Westview, 2003), 168.

18 Ibid., 78.

19 Michael J. Murray, *Nature Red in Tooth and Claw: Theism and the Problem of Animal Suffering* (New York: Oxford University Press, 2011), 173.

20 John C. Polkinghorne, *Science and Providence: God's Interaction with the World* (West Conshohocken, PA: Templeton Press, 1989), 66.

21 Polkinghorne, *Science and Theology: An Introduction* (Minneapolis: Fortress Press, 1998), 94.

22 Collins, *Divine Action and Evolution*, 247.

23 Polkinghorne does have a response to Collins's objection. He writes, "One might challenge the legitimacy of the use of the word 'free' in the free-process defence, seeing it as an abuse of language. Tectonic plates are not moral beings, requiring freedom from divine interference if they are to fulfil their nature. Nevertheless, humanity is so intimately connected with the physical world that gave it birth, that it might be thought that only a universe to which the free-process defence applied could give rise to beings subject to the free will defence" (*Science and Theology*, 4). Very briefly, the problem with this response is twofold: (1) as it stands, it is pure speculation; and (2) it fundamentally changes the nature of the free-process defense, from the good of a self-creating cosmos to the good of a cosmos that prepares the way for free creatures.

24 Arthur Peacocke, *Creation and the World of Science* (Oxford: Oxford University Press, 1979), 95.

25 A helpful survey of Peacocke's views on chance and necessity can be found in Gayle E. Woloschak, "Chance and Necessity in Arthur Peacocke's Scientific Work," *Zygon* 43 (2008), 75–87.
26 Arthur Peacocke, *The Palace of God's Glory: God's World and Science* (Hindmarsh, Australia: ATF, 2005), 33.
27 Peacocke, *Creation and the World of Science*, 60–61.
28 Ibid., ch. 3.
29 In particular, see Arthur Peacocke's "Articulating God's Presence in and to the Word Unveiled by the Sciences," in *In Whom We Live and Move and Have Our Being: Panentheistic Reflections on God's Presence in a Scientific World*, ed. Philip Clayton and Arthur Peacocke (Grand Rapids, MI: Eerdmans, 2004), 137–154.
30 Peacocke, *Intimations of Reality: Critical Realism in Science and Religion* (Notre Dame, IN: University of Notre Dame Press, 1984), 72.
31 After a brief historical survey of philosophical conceptions of beauty, Crispin Sartwell claims that "in almost all treatments of beauty, even the most apparently object or objectively-oriented, there is a moment in which the subjective qualities of the experience of beauty are emphasized: rhapsodically, perhaps, or in terms of pleasure." See Sartwell, "Beauty," in *The Stanford Encyclopedia of Philosophy* (Spring 2014), ed. Edward N. Zalta, available at http://plato.stanford.edu/archives/spr2014/entries/beauty/.
32 "Open theism," as we are presently using the label, contains three elements. First, it is a form of theism in that God is understood to enjoy the greatest possible collection of intrinsically valuable features ("great-making properties"), including omniscience, omnipotence, and omnibenevolence. As such, open theism is distinct from process theism, pantheism, and polytheism. Second, even though God is omniscient, he does not know future indeterministic events, since such events either have no truth value, are uniformly false, or are intrinsically unknowable. Finally, God is temporal and passible. For more on the conceptual core of open theism, see Alan R. Rhoda, "Generic Open Theism and Some Varieties Thereof," *Religious Studies* 44 (2008): 225–234.
33 Robert John Russell, "Quantum Physics and the Theology of Non-Interventionist Objective Divine Action," in *The Oxford Handbook of Religion and Science*, ed. Philip C. Clayton and Zachary Simpson (New York: Oxford University Press), 586.
34 It must be stated that supposing that God occasionally intervenes within creation to direct its development need not lead to a god-of-the-gaps methodology, provided that we do not quickly postulate divine action to fill gaps in our theological and scientific knowledge.
35 Brian Davies, *An Introduction to the Philosophy of Religion*, 3rd ed. (New York: Oxford University Press, 2004), ch. 1.
36 J.P. Moreland and William Lane Craig, *Philosophical Foundations for a Christian Worldview* (Downers Grove, IL: InterVarsity Press, 2003), 564, emphasis added.



## Biographical Notes

**Jordan Wessling** is Assistant Professor and Coordinator of Christian Liberal Arts at Arizona Christian University in Phoenix, Arizona.

**Joshua Rasmussen** is Assistant Professor of Philosophy at Azusa Pacific University, Azusa, California.