The Quest for the Causal Joint

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http://hdl.handle.net/2144/3977
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This study is an examination of three proposals for a "causal joint" model of God's action in the world. Adapting the thought of Austin Farrer and David Burrell, the author seeks to show how these hypotheses are theologically flawed. The flaws stem from an overemphasis on the doctrine of creatio continua. Without an affirmation of both creatio ex nihilo and creatio continua, the latter is mistakenly removed from its theological context and adds unnecessary incoherence to the doctrine of creation.

Seven-year-old Amy asked her Sunday School teacher, "How did God make the universe?"

Her teacher answered, "God said, 'Let it be' and there it was."

Not satisfied Amy retorted, "All right then, but how does God keep it all going?"

Her teacher responded, "Well, I guess God hasn't stopped saying 'Let it be' yet."

In this exchange, Amy distinguishes between God's creative action and God's subsequent sustaining activity. Unknowingly, Amy stumbled upon the traditional distinction between the doctrine of creatio ex nihilo (creation out of nothing) and the doctrine of creatio continua (continuing creation).

The dialogue between science and religion, though still acknowledging the importance of creatio ex nihilo, currently focuses almost exclusively on creatio continua. Much of the current discussion addresses the question of God's action in the world. Namely, how may God's activity in the world be understood without reducing God to a deus ex machina or a god-of-the-gaps?

Some key participants in this dialogue consider the search for the mode of divine action a quest for a "causal joint" between God and the world. These thinkers look for physical processes open to God's non-energetic influence and capable of accounting for large-scale changes in the course of the world. The scientists and theologians involved in this quest insist that nothing less than the rationality of theology is at stake. Polkinghorne states it this way:

[Understandings of divine action will have about them the common feature that they are not irrational accounts of the whimsical acts of a celestial conjurer, but they are deeper manifestations of God's utter faithfulness and consistency....]

Thus, to avoid the impression of irrationality, theology must explain how God acts in the universe within the divinely created natural laws. For Christian theologians and scientists involved, the causal joint appears to represent the best chance of harmonizing the discoveries of contemporary natural science with traditional Christian theology.

Yet, does a successful causal joint proposal truly solve the problem of harmony between natural science and Christian doctrine of God? It is my contention that the causal joint quest is influenced by an overemphasis on creatio continua, thus compromising the traditional Christian doctrine of God. In this
study, I shall first examine the causal joint hypotheses offered by John Polkinghorne, Nancy Murphy, and Arthur Peacocke. Then, I shall look at Austin Farrer’s rejection of the causal joint argument. Finally, I shall explore how an affirmation of creatio ex nihilo and creatio continua can prevent placing the Christian doctrine of God in jeopardy.

**Divine action according to chaos theory**

John Polkinghorne contends that chaos theory presents a viable solution to the causal joint quest. Chaos theory is a mathematical explanation of hypersensitive nonlinear systems passing through a strange attractor, with the effects amplified into macrophysical events. In other words, chaos theory is an effort to explain systems that are effected by the minute changes in their initial conditions and are thus magnified as different possibilities on the macrophysical level. Chaos theory mathematics may seem to create the impression that these systems are entirely deterministic if only the entire detail of their initial conditions is known; however, Polkinghorne asserts that chaos theory does not represent deterministic events but rather an ontological openness in nature.

The basis for Polkinghorne’s contention for the ontological openness of nature lies in the Heisenberg uncertainty principle. Heisenberg’s uncertainty principle, which made the epistemological assertion of the simultaneous unknowability of both position and momentum, has been widely interpreted as a principle of indeterminacy, with the ontological implication that quantum entities do not possess at all times definite positions and momenta.

Polkinghorne argues that the world has an indeterminate character. This background material informs his concept of chaos theory as it relates to divine causality.

As explained above, a chaotic system passes through the strange attractor’s phase space (its range of future possible states) and thus manifests itself in a physical event. The different trajectories through the attractor all correspond to the same total energy level. So, the radically different forms present at the macrophysical level are understood to have arisen from the smallest disturbances that push a system through one path instead of another at the initial condition level. Polkinghorne explains:

> It is this sensitivity that produces the intrinsic unpredictabilities. In a critical realist re-interpretation of what is going on, these epistemological uncertainties become an ontological openness, permitting us to suppose that a new causal principle may play a role in bringing about future developments.

This leads Polkinghorne to two critical conclusions. First of all, since there is no input of energy into the system that affects paths through the strange attractor, something else must be the distinguishing factor for their development. Polkinghorne describes this factor as an information input. Secondly, even though the system is being nudged at the smallest level possible, its effects are seen at the largest physical level. Polkinghorne says that this forces the entire system to be viewed in a holistic manner, because “the systems’ vulnerability to disturbance means that they can never be isolated from the impact of their total environment.”

If the behavior observed in nature is interpreted in an ontological manner, an open-
ness in which God may act within creation can be seen. This openness operates at the level where the strange attractor needs an information input to choose one path over another. According to Polkinghorne, this is where God supplies an input of information. Polkinghorne calls this divinely supplied input “active information.” It can best be explained by a human analogy. The mental intention a person has to raise an arm is the active information that causes the person’s arm physically to move. For Polkinghorne, then, this interpretation allows God to act providentially in creation without creating an additional input of energy into the world.

The physical world is subtle and supple in its constitution. It is open to causal influence by the exchange of energy between its constituent parts (as described by physics) and also to the operation of holistic pattern-forming agencies which can be thought of as ‘active information’ (presently not described in detail). The quantum mechanical alternative

For another causal joint hypothesis, I shall now turn to Nancey Murphy. Like Polkinghorne, she interprets the Heisenberg uncertainty principle in a manner that allows for an indeterminate view of nature. Unlike Polkinghorne, however, she explains God’s divine activity in the world through the use of quantum mechanics. She argues that quantum events may be amplified by quantum mechanics in such a way that they may be seen at the macrophysical level.

According to the Heisenberg uncertainty principle, events at the quantum level cannot be predicted. Probabilities of quantum events can be predicted, but not the specific times of their occurrence. Since the time when a quantum event will occur cannot be predicted, Murphy asks whether there are factors that influence when an event will actualize:

Is the when: (1) completely random and undetermined; is it (2) internally determined by the entity itself; is it (3) externally determined by the entity’s relations to something else in the physical system; or, finally (4) is it determined by God?

To help distinguish these options more clearly, Murphy presents the analogy of Buridan’s ass. Buridan, the medieval philosopher, hypothesized that if a starving donkey stood equidistant between two equal piles of hay, it would starve to death, because it could not decide which pile to eat. No external factors can help the donkey make its decision because the piles are equal, and no internal factors can tilt the decision one way or the other. What factors, then, motivate a quantum event to “choose” its actualization?

No scientific considerations point to internal or external factors that nudge quantum entities to choose one actualization over another. Thus, Murphy eliminates options 2 and 3, concluding that only 1 and 4 are truly viable options. Buridan believed the donkey would starve to death if not provided a sufficient reason to pick one pile over the other. Murphy asserts that science holds the same “sufficient reason” intuition and, hence, has problems accepting randomness as the determining factor of quantum events. Therefore, Murphy contends that God is the determining factor between the quantum level “piles of hay.” “To put it crudely, God is the hidden variable.”

Murphy argues:

God’s governance at the quantum level consists in activating or actualizing one or another of the quantum entity’s innate powers at particular instants, and that these events are not possible without God’s action.

Through a scientific bottom-up rendering of nature, Murphy concludes that since God governs at the quantum level, God must also be involved in all events at the macro level. In other words, these quantum level events accumulate in such a way as to “perform” the divine intention.

Peacocke’s holistic approach to divine action

Although Arthur Peacocke views the universe in the same open manner as those in the above discussion, he does not explicitly settle on a causal joint. He makes this argument:
Defining the problem as that of the ‘causal joint’ between God and the world is inappropriate, however, for it does not do justice to the many levels in which causality operates in a world of complex systems multiply interlocking at many levels and in many modes. Therefore, Peacocke describes the interaction between God and the world as a “whole-part influence.” By this Peacocke means that the state of the system-as-a-whole could itself properly be regarded as a causal factor influencing events in the “lower” subsystems, constraining them to follow one course rather than another.

In other words, God interacts with the world in such a way that the world system as a whole is in God, and, thus, also its constituent parts. Peacocke’s model denies pantheism and embraces panentheism. Although the world lives in God, it is still “ontologically distinct from God.” Because God interacts with the world at “this supervenient level of totality,” God acts in the world in “whole-part” or “top-down” manner, without disrupting physical laws found at any level of the universe.

Since seeking for a causal joint makes less sense in a holistic framework, Peacocke develops a whole-part analogy of divine agency modeled on human agency. For Peacocke, hence, just as we consider ourselves personal agents who exhibit a unifying type of influence over our bodily actions, so too should we think of God as “a unifying, unitive source and centered influence on events on the world.”

Although he says that a causal joint is not visible from humanity’s viewpoint, Peacocke asserts that there must be a divine transfer of information to the world in an analogous manner to the brain directing the body. Information transfer can be considered non-energetic, and therefore avoids the problem of an interventionist God. In fact, Peacocke argues that to affirm this non-energetic transfer is “to accept the ultimate, ontological gap between the nature of God’s own being and that of the created world, all-that-is apart from God.” So, while using language that suggests he is not searching for a causal joint, Peacocke has still described the means by which he understands God must interact with creation and, thus, has joined the quest for the causal joint.

What does all this mean?

What, then, do these three causal joint hypotheses describe? They offer an account of an open universe. In other words, these thinkers have completely rejected the notion of a universe that is ruled by a deistic God or an interventionist God. The idea of an open universe, they assert, helps with an understanding that the world, in a sense, “makes itself.” This understanding allows an accommodation to the current evolutionary model presented by modern natural science. These thinkers argue that the universe must in some manner be open, if God is to interact immanently with creation. God does not intervene in the world, though, because no energy is added to it. Instead, they maintain that God transmits information to the world in a non-energetic manner that in turn manifests the divine will.

To a scientist, the notion that science might allow a recognition of the means by which divine action directs the world is intoxicating.

then, the way the human brain works in influencing the whole body at the level of the individual neurons to produce bodily actions is comparable to the way God influences the world system.

According to this suggestion the state of totality of the world-as-a-whole (all-that-is) would be known maximally only to the omniscience of God and would be the field of the exercise of the divine omniscience at God’s omnipotent level of comprehensiveness and comprehension.
The divine will, however, at no time compromises the freedom God has given creation. Polkinghorne writes:

God interacts with the world but is not in total control of all its process. The act of creation involves divine acceptance of the risk of the existence of the other, and there is a consequent kenosis of God’s omnipotence.24

Polkinghorne is swift to observe that creation does not impose this kenosis upon God, but rather that God chooses self-limitation. Also, because the universe makes itself, Polkinghorne says that there is a kenosis of divine omniscience. Peacocke explains what this means with the following example. He says that if there are a million radium atoms set to disintegrate in the next 10^3 seconds, God does not know exactly which or how many atoms will remain intact after that. God, like us, knows only the probability of how many atoms will remain after the given time.25

The self-limitation concept has led Peacocke to argue that God is “an Improviser of unsurpassed ingenuity.”26 God allows the universe to unfold freely, yet non-energetically directs its actions. At the same time, God, as an improviser, must be willing to change or, in some sense, is subject to change since the Creator respects the freedom bestowed upon creation. Therefore, God must also limit the divine freedom so that creation may enjoy its own freedom.

A prior rejection of causal joint hypotheses

To a scientist (I, myself, spent my undergraduate years in a biology laboratory), the idea of unraveling the causal joint mystery is terribly exciting. The notion that science might allow a recognition of the means by which divine action directs the world is intoxicating. The idea of a recognition of the means by which divine action directs the world is intoxicating. Scientists contend that the quest for the causal joint seeks only to sharpen human awareness and appreciation of how God works within the creation. As stated above, those involved in the quest feel a strong need to show that God rationally works within creation according to divinely established natural laws. Yet, is it necessary for scientists to demonstrate the rationality of God’s interaction within creation? To discern this, I shall examine Austin Farrer’s objection of the use of the physical sciences to model divine action. Then I shall examine the concept of God that Farrer says follows a divine causation model.

To determine whether or not physical sciences are up to the task of modeling divine action, the first question to ask is: What is the goal of the physical sciences? Since Francis Bacon, the physical sciences concentrate on performing experiments with the intent of objectively describing observations. The descriptions are written in the language of mathematics. Moreover, because of the physical sciences’ use of mathematics as their descriptive language, observable events must be quantifiable and repeatable. In other words, the physical sciences describe the data of repeatable events in such a way that they can be summarized by mathematical equations. After these equations are accepted as accurate, scientists construct models that help predict future natural events. These models are accepted as true explanations for how nature works, unless and until another set of events and related equations prove them false.27

So Austin Farrer asks: Can the physical sciences model divine action? To do so would seem to argue that divine action is both quantifiable and repeatable. Farrer says that this is absolutely untrue. In a detailed explication he maintains:

The inapplicability of the model offered by physical method seems scarcely to need demonstration. By systematic physical interference we obtain knowledge of the habitual action of natural agents, a habitual action grounded in their determinate constitutions; it is only in so far as their constitutions are determinate and their action consequently uniform, that we can discover anything about them by the physical method. Unless God is a finite determinate force, bound by natural law, he cannot be known in this sort of way. Experience of the physical type can never tell us anything about him....28

Therefore, if a physical model is constructed that describes divine action, Farrer...
says that God is made out to be one force among the many possible natural physical forces. Thus, he argues that this is not the notion of God maintained in the Christian tradition, for this is a god whose causality is explained, whose mysteries have been solved, and whose sovereignty has been breached. Hence, Farrer declares that the "physical model reveals its inadequacy by blotting out the very subject we come to study, the divine."19

Secondly, Farrer argues that the physical sciences severely limit our model of God. According to Farrer, the god described by science is a finite force defined by created laws of nature. Also, if God works through a causal joint, divine power will be limited in order to leave space for creation to act freely, for God has to restrict the divine power and divine knowledge so that creation’s freedom might remain unfettered. In other words, creation limits God. We are supposed to take comfort, however, in the thought that the God’s limitation is self-imposed.20 How is it comforting, though, if God has to reduce the divine being in order to interact with a free creation? Does this not imply that human freedom and divine freedom are in competition? Farrer has rejected the quest for the causal joint because he understands it to change radically the Christian doctrine of God. By blotting out the divine, the physical sciences have replaced God with a force that has limited power over creation. Consequently, human freedom and divine freedom are left to compete. Yet, this is not what either Christian theologians or scientists involved in the causal joint quest are seeking to describe. Therefore, it must be shown how a proper understanding of both creatio ex nihilo and creatio continua will not compromise the traditional doctrine of God.

What do we mean by creation?

When seeking to discern the fundamental relationship between the Creator and creation, one turns to the Christian distinction between creatio ex nihilo and creatio continua. Creatio ex nihilo articulates the Christian idea that God created the world out of nothing—not a pool of some kind of nothing, but nothing at all, creatio ex nihilo thus implies creation’s dependence upon God for every moment of its existence and, simultaneously, the affirmation that “God is no more God for creating.”31 This qualification is essential to creatio ex nihilo, because the world’s dependence on God for existence alone could be misinterpreted as creation being an eternally necessary emanation out of God. So, creation must be regarded as a divine gift of grace rather than something that occurred necessarily. Yet concurrently, creation does not take away from or add to God’s perfection, “though it adds to what there is—as in transfinite arithmetic, where infinity plus a definite amount equals infinity.”32 Although creation is a free choice by God, it is not an arbitrary one. Christian theology maintains that God’s decision to create the universe is consonant with the divine nature, but not necessitated by it.

Hence creation can be utterly gratuitous without its needing to be conceived as a “free choice”, as though “God could have done otherwise.”33 Creatio continua “encompasses not only the idea that the act of creation is a continuing process, but also the continuing sustenance and involvement of the Creator in regard to the physical world.”34 This, however, cannot be separated from creatio ex nihilo. Ted Peters contends that a healthy Christian theology needs both creatio ex nihilo and creatio continua.35 Wolfhart Pannenberg explains:

The creatio continua formula presupposes the strict conception of creation as creatio ex nihilo inasmuch as it characterizes God’s preserving activity as the continuation of the creation out of nothing. For this reason alone the idea of a continuing creation cannot be set in opposition to the creatio ex nihilo formula.36

Peters says that the contemporary science-and-religion discussion has led many theologians to concentrate more heavily on creatio continua than creatio ex nihilo, leading some to forsake the latter.37 Theologians use the modern scientific interpretation of the universe as dynamic and continually evolving to
reenergize and concentrate solely on the doc-
trine of creatio continua. Peacocke says:

The scientific perspective on the world
and life as evolving has resuscitated the
theme of creatio continua and consider-
ation of the interplay of chance and law
(necessity) led us to stress the open-
ended character of this process of the
emergence of new forms.38

Does the divine action of conserving cre-
atu, though, fundamentally differ from the
action of creating out of nothing? David Burrell,
relying on Thomas Aquinas, helps in understand-
ing what it means to say that "God creates."

Aquinas offers us a handy formula:
there is no difference between God's
conserving activity and God's creating,
other than the proviso that creating
presumes nothing at all to be already
present (ST 1.104.1).39

In other words, divine activity is defined by
divine creating. Burrell says further that if
this formula is added to Thomas’ theorem,

“...the proper effect of the universal
cause of all things is things’ existing” (ST
1.45.5), then God’s activity in the world
is ever an instance of or a consequence of
bestowing existing (esse).40

By creating, therefore, God gives existence
to something; and by conserving it, God con-
tinues to give it existence.

In causal joint hypotheses, though, God’s
conserving action is not characterized by cre-
atu, but by an input
of information. This
information does not
bestow continued ex-
istence on creation, but
seeks, rather, to offer it
direction. This divine
input of information
may be depicted as
non-energetic inter-
vention. Burrell, however, says that God
should not be thought of as intervening, “since
creating cannot be represented as another vec-
tor added to the configuration of forces in the
universe.”41 Therefore, without asserting that
God’s conserving action is the same as the
divine creating action, causal joint support-
ers imply that existence is the “floor” upon
which the Creator works.42

To do this, though, would be to deny the
fundamental proposition of creatio ex nihilo.
Creatio ex nihilo says that the world is con-
tingent upon God for its being—it does not
exist at all on its own. Causal joint propo-
nents do not deny this. Nevertheless, when it
is argued that God’s creative and conserving
action are not the same, the doctrine of creatio
ex nihilo is jeopardized by implicitly positing
that God interacts with a world that is not com-
pletely under divine control. In other words,
when creatio ex nihilo is compromised, God
is made to work on the floor of existence and
consequently compelled to input information
into a world that is independent of the divine
being for its existence. Therefore, God is
forced to improvise with the materials pro-
vided by creation.

The consequence of misconstruing creatio
ex nihilo is to cause God’s freedom to com-
pete with creation’s freedom. Polkinghorne
argues:

This gift of creaturely freedom is costly,
for it carries with it the precariousness
inherent in the self-restriction of divine
control.43

Is self-limitation, then, the only option for
God? Instead of focusing their efforts on de-
picting divine freedom, theologians should

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concentrate energy on understanding
creation’s freedom. Creation’s freedom is a
contingent freedom and, therefore, a limited
freedom. Yet, as T. F. Torrance says, “It is no
less free because it is limited. Unlimited free-
dom of a contingent universe would be a con-
tradiction in terms.”44 Creation’s freedom is
contingent on God and consequently is limited only by the divine freedom. If creation’s freedom exists only because of divine freedom, how are they in competition? To imply that God limits the divine freedom in order to make creation truly free is to deny that creation’s freedom is contingent upon the Creator.

Where has this led?

The goal of the causal joint argument is to clarify an understanding of God. Causal joint proponents argue that scientific findings can complement traditional Christian theology about God. Further inquiry shows that this is not accurate. Firstly, a review of Austin Farrer’s objection to the causal joint debate showed that the physical sciences cannot model divine action without reducing God to a quantifiable, repeatable, and finite force. Secondly, I have shown that the causal joint quest relies much too heavily on a truncated notion of creatio continua. This then leads to the exclusion of fundamental parts of creatio ex nihilo. As a result, creation no longer depends completely on God for existence, but waits, rather, for occasional divine inputs of information. The uncertainty of creation’s contingency upon God, then, has caused subsequent confusion about the relationship between creation’s freedom and divine freedom. This confusion has led causal joint supporters to argue for a self-limited God. Ultimately, then, causal joint insights have been shown not to clarify the doctrine of God, but rather to render it incoherent.

Where then has this led? Is the causal joint question truly insoluble? While this may be, as Polkinghorne states, “too intellectually despairing an attitude to take,” it may be the only acceptable attitude if one is truly concerned with maintaining the core of the traditional Christian doctrine of God. For both creatio ex nihilo and creatio continua must be affirmed; any understanding of God as the Creator is dependent upon it. God the Creator creates by bestowing existence and conserves creation by continuing that original bestowal of existence—God does not merely input information into an already existing system. Undoubtedly, this is a very difficult pill to swallow for some involved in the science-and-religion dialogue. Yet, they should take comfort in the idea that the God who remains mysterious is the God who should be praised. Therefore, no one should disparage Amy’s teacher for a seemingly naive attitude; instead, one should be joyfully consoled by those wise words, “I guess God hasn’t stopped saying ‘Let it be’ yet.”

Works cited:

Peacocke, Arthur. Theology for a Scientific Age: Being and Becoming—Natural, Di-


Endnotes:


3. Polkinghorne, Belief in God an Age of Science, p. 53.

4. Ibid., p. 62.

5. Ibid.

6. Ibid.


8. Ibid., p. 247.

9. Southgate, p. 254. According to Southgate, the same position is represented by Nancy Murphy, Thomas Tracy, and George Ellis.

10. Murphy, p. 341.

11. Ann Bersky aptly illustrates the ineffectiveness of the Buridan’s ass analogy, because “[h]aving assumed no ‘sufficient reason,’ external or internal, for any subatomic entity to act, Murphy presents the false dichotomy of ‘complete randomness or divine determination.’ Any notion of choice that might have been extracted from the analogy of the Buridan’s ass is nixed. Murphy’s subatomic particles are allowed no choice, no chance to respond to each other or to the environment, like a leaf in the wind. Complete randomness is rejected simply because it is counter-intuitive.” See Bersky, p. 123.

12. Murphy, p. 342.

13. Ibid.

14. Murphy, however, does not make it clear whether God determines when every quantum event will actualize, or determines only when important events will actualize. This would seem to make a distinction between everyday “ordinary” events and important “providential” events.


16. Southgate, p. 257. Peacocke originally termed this phenomena “top-down causation” (Theology for a Scientific Age, p. 157) and

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then renamed it “whole-part constraint” ("God’s Interaction with the World," p. 272).

17. Peacocke, Theology for a Scientific Age, p. 157.


22. Peacocke, "God’s Interaction with the World, p. 287.


24. Ibid., p. 81.

25. Peacocke, Theology for a Scientific Age, p. 155. Murphy disagrees with Peacocke’s model of divine self-limited omniscience, arguing that her proposal “evades this difficulty since by hypothesis these [quantum] events are not random; they are manifestations of divine will” (Murphy, p. 355).


27. Doran, p. 169.


29. Ibid., p. 48.

30. Ronald Highfield argues, in his unpublished manuscript, that the idea of self-limi-
tation cannot be applied to God because it presupposes “a prior essential limitation,” for the notion of a limitation immediately evokes the concept of possibilities beyond that limit. And if this is true, the realm of possibilities which exists beyond the limitation is actually the controlling factor of that which is self-limited. In other words, God cannot be self-limited, unless theology is willing to posit a realm of possibilities greater than the knowledge and power of God.


32. Ibid.

33. Ibid.

34. Worthing, p. 113.

35. Peters, p. 274.

36. Pannenberg, quoted in Worthing, p. 113.


38. Peacocke, God and the World of Science, p. 75.


40. Ibid.

41. Ibid., p. 70.

42. Ibid., p. 68.


44. Torrance, p. 107.


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