John Polkinghorne on Divine Action

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Abstract

This essay investigates John Polkinghorne’s concept of divine action. I argue that one of Polkinghorne’s key innovations was to introduce the paradigm of ‘information-input causation’ into the theory of divine action. However, despite this achievement, I show that Polkinghorne’s approach is trapped in an insuperable dilemma: it either can be reduced to classical non-informational causal accounts of divine action or turns God into a cause among others.

Keywords: John Polkinghorne, divine action, information-input causation, chaos, complex dynamical systems, God as a cause among others.

1. Introduction

In this essay, I analyze Polkinghorne’s view on divine action. This theme has a long history in the theological and philosophical thinking and has puzzled both past and present writers. The topic of divine action occupied the minds of most Christian thinkers, who, starting with the Early Christian period2 up until Thomas Aquinas3 and Gregory Palamas4 provided various solutions to this problem. Contemporary approaches of this issue, like that by Polkinghorne, which strongly take into account modern advances of science when dealing with divine action, encountered wider audience with the development of Divine Action Project, sponsored by the Vatican Observatory and the Centre for Theology and the Natural Sciences in Berkeley.5 The basic hypothesis this project started from was that causal gaps in nature seem to be necessary in order to accommodate the concept of divine action to restrictions imposed by modern

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1 CELFIS, University of Bucharest.
5 See for details, the following entry: http://www.ctns.org/research.html#project (last accessed at 12.04.2014).
science. A second hypothesis was that divine action should be proved non-interventionist for otherwise it would be contradictory to conceiving of God as perfectly designing the world and its laws from the beginning and afterwards wishing to suspend them. This demand for non-interventionist, objective, divine action was shared by Polkinghorne together with many others, though his approach could be singularized as an endeavor to look for causal gaps within complex dynamical systems and information theory instead of searching for traditional energy based or matter-type models for divine causality.\(^6\) The innovative way in which Polkinghorne reframed the approach to the issue of divine action has been widely acknowledged by nowadays scholarship and the aim of this paper is to give a conceptual analysis of this theory.\(^7\) Despite its achievements, I hold that this theory could be faced with a serious dilemma: it either can be reduced to classical non-informational causal accounts of divine action or turns God into a cause among others. Yet, as it will come up from the subsequent arguments, Polkinghorne designed his theory to specially avoid these conclusions. My strategy is to start from some of Polkinghorne’s general reflections on God (section 2). Following, I will question the natural processes in which God may act according to Polkinghorne (chapter 3). In chapter four I discuss the mechanism of this action and draw on some of its misinterpretations. Finally, Polkinghorne’s theory of divine action is faced with the dilemma mentioned above (section 5).

2. Personal God

On a classical reading, the world could be considered as a result of God’s will. Thus, God could be seen as acting upon it whenever he wants and without being constrained by anything. According to this picture, God could change or break the laws of nature because they all depend on his absolute will. Once he is endowed with an absolute power, nothing could resist his will, even when he

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7. For a biographical sketch and recent survey of the work by John Polkinghorne and its relevance for the dialogue between science and religion, see Christopher C. Knight 2012, 622-632. Knight starts his essay by portraying Polkinghorne as being “one of the most significant figures in the dialogue between science and theology in the last two decades of the twentieth century and the first decade of the twenty-first…”
may want things which seem irrational to us. For Polkinghorne, this (classical) conception of God “is not one that commends itself to Christian theology”. God as a supernatural agent appears to him as an old fashioned view. Most importantly, he thinks it inadequately represents God as a ruler of the universe, who acts intermittently or even capriciously. This probably fits better than anything else with the traditional position designating the universe by using the clock metaphor, that is, the universe behaves like a mechanism which needs restarted at a certain period of time. Nevertheless, the idea of the universe as a mechanism which sometimes needs an ‘impulse’ from God is repugnant to Polkinghorne. His reason for this is that this view actually limits God’s activity only to the preservation of the world: “The outdated mechanical universe of pre-twentieth century physical science would not have been the fitting creation of the Christian God, though it could certainly be said to exhibit his economy and acquiescence” (Polkinghorne 1989, 9). As we will further see, Polkinghorne emphasizes that the world is actually much more complex than the clock metaphor suggests and this allows him to explore a different approach to divine action. It seems his theory was also motivated by his commitment to a theistic picture about God, that is a view which supports the hypothesis that God must enter in a relationship with humans and his creation. Being a God who bestows his love to human persons, he must be able to act and react continuously and not only for adjusting the clock of the world. The Christian God is conceived in this context as one we cooperate with by asking and praying. Of course, a detailed explanation of this interaction is difficult to provide though Polkinghorne considers there is room for both our freedom and for God’s will to meet in a personal interaction (1989, 70). Polkinghorne thinks God’s special interaction with the world must be accepted by all who contemplate on divine action, otherwise our prayers and our hopes would be in vain. For a Christian believer, this is not an absurdity since for such a person God is a living being, open to the beings he has created: “He is not just the abstract God of natural theology but he is also the living God… He is the one who is worshipped by the elders in the Book of Revelation…” (1989, 10). In this context, Polkinghorne also emphasizes how unsuitable the concept of demiurge is in general, because it actually suggests only the idea of God as the cause of the universe. Albeit this picture gives God a superior power and intelligence, it appears to Polkinghorne as an awkward attempt to portray God as a cause among others, that is, the work

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9 J. Polkinghorne *Science and Providence*, SPCK, 1989, p. 6. From now on I will refer to this book by the abbreviation: Polkinghorne (1989) and I will follow below similar abbreviations for all the references to Polkinghorne’s works.


11 See ch. 9.
of God would be comparable with any work performed by a cause in the world which continuously sustains its effect (Polkinghorne 1988, 55). For example, think of the force of gravity that permanently maintains the planets in a particular position in the universe. For Polkinghorne and for most Christians, God must perform special works different in their character than those performed by common causes for this is the way in which he makes himself known to humans. Thus, for the Anglican theologian God could not be confused with other causes, he is the God of Jews and Christians, which uniquely shares in both a transcendent and an immanent status. God is behind anything conceivable by men, being somehow totally incomprehensible, though he revels himself and enters a kind of dialogue with every person (Polkinghorne 1989, 17). Undoubtedly, prayer is here taken as one of the most straightforward means through which this meeting can be reached. According to Polkinghorne, between human’s wishes and God’s will there has to be a point of intersection and prayer seems to be the perfect place for this crossing because due to prayer we can align to God’s will (1989, 70). Polkinghorne emphasizes that in the act of praying we somehow engage in accomplishing God’s will but also open ourselves for finding a possible answer to our wishes because he is the God of love (Polkinghorne 1988, 54) and the God “who suffers when his people suffer…” (Polkinghorne 1989, 19). Undoubtedly, this is a complex process but what Polkinghorne suggests is that it is impossible to think about this in terms other than co-operation. In the act of praying both men and God act and ‘react’ and so “both contribute” to this meeting (Polkinghorne 1989, 70-71). As a result, for Polkinghorne, the Christian God interacts with humans and he is not acting only for sustaining the universe. He is a theistic God, open to listening to our wishes and acting in response to them. We need now investigating what are the processes in nature identified by Polkinghorne which may suggest the possibility of such a special divine providence, according to which God interferes with his creation and not only acts through a general divine providence for just preserving it in existence. As for Polkinghorne and all other contributors to the theory of divine action, the proviso should always be the following: special divine action should not run God into inconsistency or irrationality. In other words, it has to be in line with the general divine providence through which God made the world and through which he continuously maintains it for it can be easily inferred from the Christian representation of God that he must be consistent with all his actions.

3. Complex Dynamical Systems

Polkinghorne states that the perfect ‘place’ where we could find traces of God’s action in nature is the complex dynamical process. He introduces the idea by taking the analogy between us and our bodies, respectively God and the material world. In this approach, humans are seen as “mind/matter amphibians”,
where the mental component can be considered as emerging at an “indeﬁnitely ﬂexible degree of organization of the matter” (Polkinghorne 1989, 26). Within this complementary couple, the mind can be taken as somehow interacting or acting upon the body. Polkinghorne thinks the material processes of the body show a high ﬂexibility and this could ﬁt for the conditions deﬁning such an interaction (1989, 26). In analogy with this, Polkinghorne suggests we might contemplate the idea that the ﬂexibility within the matter of the universe might allow for the divine action upon it. However, he also emphasizes the limits of the analogy: God does not act as the mind does because He is not an “amphibian” but is always free from matter (1989, 27).

The British theologian also explores the possibility of ﬁnding the cause of the ﬂexibility of matter in the well-known quantum phenomena. These matters are purported to be good candidates in fulﬁlling the task of openness marked by the ﬂexibility of matter.12 At least, at ﬁrst sight, this is what their random character might suggest to us.13 One may think it is in their purported uncaused behavior where we could ﬁnd the soil ﬁtting to God’s action. Yet, Polkinghorne casts serious doubts on the validity of this proposal. He ﬁrst recalls us that quantum uncertainties, if interpreted ontologically, are valid only for individual quantum events. But at the level described by Newtonian mechanics or at common sense level, they bear low relevance since there everything is described classically.14 Moreover, the British physicist emphasizes that quantum processes imply an indeterminist description only when measurements occur. The corollary of this for the interpretation of divine action through quantum gaps is that this approach would licenses to limiting God’s action only to cases of measurements, a conclusion that would not be acceptable at a theological level (Polkinghorne 1989, 24). It turns out that, for Polkinghorne, the best place where we can ﬁnd the ﬂexibility in nature that might allow for God’s action should be rather occupied by the domain of complex dynamical systems.15 And it seems to me the most important part of Polkinghorne’s originality to the

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12 One of the ﬁrst advocates of the idea of using quantum gaps as the medium for God’s action, a point against which Polkinghorne provided several arguments across time, is Robert Russell; see, for details, Robert Russell et al. (eds.) (1988). Physics, Philosophy and Theology, Vatican Observatory, 1988 and T. Peters & N. Hallanger (eds.) (2000). God’s Action in Nature’s World. Essays in Honour of Robert John Russell, Ashgate.


15 One of the ﬁrst systematic accounts of the issue of chaos, complex dynamical systems and divine action has been given in R.J. Russell, N. Murphy and A.R. Peacocke (eds.), Chaos and Complexity. Scientiﬁc Perspectives on Divine Action, Vatican Observatory Publications, Vatican City State and the Centre for Theology and the Natural Sciences, Berkeley, California.
interpretation of divine action lies exactly in this proposal. The essential feature of complex dynamical systems that Polkinghorne uses in this context is their unpredictability. These systems have the special property of having a behavior very sensitive to the circumstances. One can think there actually is an infinite variety of circumstances and this makes the prior prediction of their evolution simply impossible. To follow one of Polkinghorne’s simple examples: take many billiard ball-like objects and then (continuously) collide them successively. The many-particle system only appears as being indeterminist but actually the trajectories of every ball depend upon the details of every local collision. These small uncertainties add up in the end in “exponentially diverging consequences” (Polkinghorne 1989, 28).

This kind of processes, for which Polkinghorne produces many examples impose a certain limit in the power of prediction. Thus, they seem to grant us with that kind of openness and flexibility which cannot be found in the classical clockwork metaphor of the universe. And furthermore, what proves to be highly relevant here is that they are neither separated systems nor self-contained. Moreover, they show a remarkable capacity of generating new order even if given their chaotic behavior we might be tempted to deprive them of any structural characteristic. They rather share in an oxymoronic order-disorder having “the character of a kind of structured randomness” (Polkinghorne 1994, 25). Polkinghorne emphasizes the possibility to extend the chaotic behavior within macroscopic systems we are acquainted with. He furthermore notes how improbable is to find many systems lacking this behavior and thus announces the death of the clockwork universe (Polkinghorne 1989, 33). Most of all, the above mentioned statement according to which the chaotic behavior can be restrained within certain (structural) limits does not prevent our author to make a further important step in his argumentation. He therefore maintains that there is an ontological correlative for the unpredictable character of complex dynamical systems. This different facet of the epistemological limits mentioned above is expressed through the conjecture of a ‘true becoming’ reality, which in itself becomes a principle according to which – as Polkinghorne likes to say – ‘epistemology models ontology’. To put it simply, it signifies that physical processes are open but not predetermined; in order words, the present is not uniquely implied in the past. Remarkably, the disordered character of the dynamical complex processes leaves to Polkinghorne the space for speculating about an intrinsic openness of these systems. He thus invites us to conceive of the possibility God may interact with the cosmos due the intrinsic complexity of the structure of nature, which nonetheless assures its openness and true becoming (Polkinghorne 1989, 29-30). Polkinghorne thinks that only in such a complex open world, submitted to a continuous transformation, the idea of God who interacts with the universe can be rationally accepted and it is his merit of bringing to light this important hypothesis. One should further ask for an
explanation of the nature of this interaction and for the arguments Polkinghorne provides in its support.

4. Information-Input Causation

Polkinghorne is careful in ascertaining the limits of the analogy between mind-matter interaction and God-universe interaction. As I have previously mentioned, for Polkinghorne God’s status is not that of an “amphibian” and, hence, He cannot act as being present in matter as our mind ‘is’. Polkinghorne rather thinks that God *in*-forms, *i. e.* gives form to matter than energetically acting upon it: “If God acts in the world through influencing the evolution of complex systems, he does not need to do so by the creative input of energy.” (Polkinghorne 1989, 32).

The British physicist considers that accepting the traditional idea of material or energetic influence will raise at least three problems for conceptualizing God: first, God is not embodied in the universe in order to fulfill such a task; second, any energetic influence is constrained by conservation of energy and thermodynamic relations and this would implicitly impose many restrictions on God’s action, and third, this kind of interaction would hardly help us in discerning God from “an agent among other agents” (1989, 32-33).

Polkinghorne’s notable proposal is therefore to think of God as operating non-mechanically/energetically. More exactly, God is taken by him to act through inserting information in the initial conditions of a system, an event which further determines dynamical systems to take one path from mere other possible ones:

> Read from the bottom-upwards, physics provides us with no more than an envelope of possibility, within which future development is constrained to lie. Within that envelope, the path actually taken depends upon the realization of a specific set of options selected from among proliferating possibilities. These different possibilities are not discriminated from each other by energetic considerations… but by something much more like an information-input (this path rather than that one). (Polkinghorne 1994, 25-6).

Most important, Polkinghorne states that this kind of interaction precludes us from confusing God with a common agent from whom we would expect a kind of mechanical action. Still, it allows us to coherently conceive God as causally influencing the evolution of complex dynamical systems. Unfortunately, Polkinghorne makes no comments on the concept of information he uses here. However, it seems plausible to understand the concept as being similar with the one used by D. Bohm, an author Polkinghorne largely quotes with other occasions (Polkinghorne 2001, 101). Bohm postulated that the quantum

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16 The information-input is also seen by N. Saunders, *Divine Actions & Modern Science*, 2002, ch. 7 as lying at the foundation of Polkinghorne’s original contribution to the topic.
potential – a kind of force that in his opinion defines a non-classical “implicit order” and connection between the quantum entities – does not steer the particles through a mechanical influence. It rather imparts some information to them such that it determines their trajectories. For Polkinghorne too, the input of information seems to determine one trajectory among many possible paths and thus it merely in-forms the evolution of a system. Now, what Polkinghorne seems to say is that one should apply this picture to God’s action. The natural conclusion of this would be that God’s information-input steers one physical system until it gets one of the multiple available paths such that in the end its evolution takes a specific form.  

A problem raised here by some of Polkinghorne’s critics regards the relationship between the chaotic-unpredictable character of complex dynamical systems and their deterministic evolution. Essentially, chaos theory is a deterministic theory and the question now turns out to be where one can actually find room in it for the openness required by a theory of divine action? Thus, Polkinghorne would conflate the epistemic unpredictability with the indeterministic evolution of systems. And this would probably be determined by his conjecture (mentioned above) that there is a correspondence of unpredictability in ontology: “Such a view is congenial to the critical realist for whom epistemology and ontology are always closely linked” (Polkinghorne 1988, 43). But as N. Saunders rightly remarked, Polkinghorne is careful in not dropping the deterministic element from the picture (Saunders 2002, 190). Polkinghorne’s move is rather to forbid any ontological inference from the deterministic character of mathematical equations. The British physicist is therefore reluctant to identifying the mathematical models with reality itself and he freely postulates reality is richer than we can grasp through mathematical models. Saunders points out this is a metaphysical principle which lies at the base of Polkinghorne’s argumentation for this particular point and because of failing in taking this into account, Polkinghorne’s critics misunderstood the originality and force of his view. The metaphysical claim Polkinghorne makes is that the world is essentially indeterministic, but at a lower level it allows a coherent deterministic description in terms of mathematical equations. It seems Polkinghorne firstly talks in terms of emergent open/chaotic behavior of the physical systems: initially isolated systems reach a certain level of complexity where they will purport an indeterministic description. But it seems that

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17 See also Saunders 2002, 193.
19 Recall Polkinghorne’s above mentioned principle: ‘epistemology models ontology’.
20 Saunders 2002, 186-96 and especially 190-3. Saunders also considers Polkinghorne’s view rests on a specific relation epistemology-ontology.
afterwards, Polkinghorne turns “the standard notion of ontological emergence on its head” (Saunders 2002, 191) and suggests the nature of reality is inherently indeterministic and mathematics only catches a “downward emergent determinism”, as Saunders sharply pointed out:

Essentially what Polkinghorne’s scheme amounts to is the claim that mathematical chaos theory does not fully represent reality. Implicit in his understanding is an assertion about the reality of real world indeterministic chaotic phenomena that operate in nature over and above their mathematical representations… This metaphysical assertion that nature is inherently flexible cannot be caught by any simplistic critique on the basis that mathematically chaos theory is fundamentally deterministic. The choice between these two metaphysical interpretations of nature is one which Polkinghorne elsewhere likens to the decision between adhering to Heisenberg or Bohm’s interpretation of quantum mechanics… (Saunders 2002, 191).

Therefore, it seems one is asked to choose between two options: an intrinsically deterministic world that allows the emergence of chaotic phenomena when a level of certain complexity is reached; and, on the contrary, a world inherently indeterministic that purports to a deterministic description of phenomena at one emergent downward level. The question to be reflected upon seems to be a twofold one: the meaning of the notion world/reality needs to be addressed in relation with the concept of (upward and downward) emergent phenomena. Also, one should inquire the nature of the link mathematics can have with reality. As Saunders has noted already, the decision upon all such difficult solutions is a metaphysical one, in the sense that there are no empirical or rational decisive constrains for adopting one or other of the options.

In conclusion, no matter whether one sees it as an incomplete proposal or not, Polkinghorne’s view certainly represents a new and attractive contribution for the understanding of the concept of divine action. However, I will now show that this theory has to be confronted with an important quandary.

5. The Dilemma

As stated above, Polkinghorne pays much effort to assure us of the uniqueness of God’s action in order to distinguish him from other agents. This feature is meant to be guaranteed by Polkinghorne’s innovative idea of divine information-input causation. The interpretation proposed was that Polkinghorne uses information in a sense close to David Bohm’s use of quantum potential. However, nowadays followers of Bohm’s interpretation provided important
arguments for the dispense with the quantum potential. More exactly, their theses proved the equivalence between the results obtained by invoking the existence of a “rather strange and arbitrary” quantum potential and those following from imposing a specific quantum equilibrium condition on the probability distribution of (space representation of) particles (which is similar in its character with the classical thermodynamic equilibrium condition). Thus, one can conclude that information as encapsulated in the quantum potential could be reduced to the distribution of probability of energy states of quantum particles. Hence, the first horn of the dilemma for Polkinghorne is that the job of information-input causation could be done with traditional tools and therefore divine causation will not be differentiated from other types of causation. The other horn of the dilemma starts with acknowledging that a different reading of information-input causation could be proposed than that focusing on Bohm’s theory of the quantum potential. For example, there are voices which state that information must be the first category of ontology – everything that exists is information! In this approach, matter and energy should be treated as kinds of (quantum) information and any physical interaction should be seen as a process of information change. But in such worldview, God’s informational-input would no longer profess the unparalleled status assigned to it by Polkinghorne. God will then act as any other physical system because any interaction within the physical world is based on the change of information. Hence, in contrast to Polkinghorne’s declared intention, God would be seen here as an agent among other agents. Therefore, Polkinghorne’s novel proposal to interpret divine action in terms of information-input causation must confront the two horns of a quandary: information-input causation is either reducible to classical accounts using matter or energy based interactions or fails to avoid making God a cause among others. Support for the first comes from recent interpretations of the quantum potential and for the second from new proposals for interpreting information as the basic ingredient of ontology. In conclusion, despite its innovations and merits, Polkinghorne’s theory of divine action must come up with further arguments for explaining divine action in terms of information and overcoming the horns of the dilemma.


23 See, for more details, Goldstein, art. cit., chapter ‘quantum randomness’.

6. Conclusions

This study presented some key aspects of John Polkinghorne’s theory of divine action. The aim was to provide an analysis of Polkinghorne’s major contribution to the field as encapsulated in his interpretation of divine action in terms of information-input causation. Although this interpretation was recognized as an important development of conceptualizing divine action, I argued it cannot avoid a serious plight: it is either reducible to classical accounts of divine action which use matter or energy based interactions instead of information or fails to avoid making God a cause among others. The argument started with an overview of Polkinghorne’s concept of God and his support for a theistic interpretation of divine action, one which presupposes a personal contact and relationship with God. Then, I presented Polkinghorne’s key idea that complex dynamical systems could be the means through which this action could be performed. I emphasized that Polkinghorne makes an important analogy between information-input causation and the action performed by the quantum potential in David Bohm’s interpretation of quantum mechanics. I finally faced Polkinghorne’s theory with the two horns of a quandary: on the one hand, in general, the results obtained with the quantum potential could be gained with some tools which directly approximate classical thermal equilibrium theory and hence information-input causation is proved reducible in this context to matter-energy type of causation. On the other hand, if one prefers a more robust interpretation of information as providing the basic ‘block’ of ontology, then all physical interactions within the created world become characterized by information-input causal relations. Unavoidably, this would make God’s information input-causation one among others and hence God one cause among others, a conclusion against which Polkinghorne explicitly designed his theory of divine action. Thus, despite its achievements, Polkinghorne’s theory of divine action must provide us with further arguments for explaining divine action in terms of information and overcoming the horns of the dilemma. However, the approach by John Polkinghorne remains one of the most important attempts to interpret the issue of divine action with the tools of contemporary physics and will certainly contribute to open new paths and questions to the modern theories of divine action.

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REFERENCES


—— (1989). *Science and Providence.* SPCK.


—— (2005). *Quarks, Chaos and Christianity.* SPCK.


