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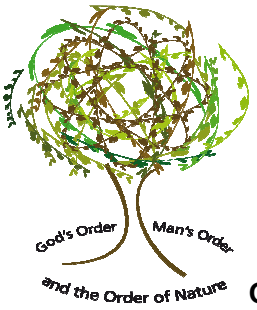

ORDER: GOD'S, MAN'S AND NATURE'S

God as a natural cause: John Polkinghorne and the NIODA project

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Intro

The basic question which John Polkinghorne and Robert Russell address is God's action in the natural world, in terms that it is not intrusive but complementary to the grain of nature. Causal gaps seem necessary in nature to allow God's interaction with creation, and contemporary science appears to provide such a view of nature.[1] Thus, since the causal chain in the world is not a closed one, there is space for God to act. This is necessary to save the notion of a self-consistent God. Were God to intervene suspending the laws He created, He would be inconsistent.[2] This is the programme that Russell named NIODA: the search for a non-interventionist, objective, divine action. With many others, Polkinghorne belongs to this programme, although his account is very different from Russell's, who looks for causal gaps found in quantum mechanics,[3] while Polkinghorne looks at chaos theory. I will offer a philosophical comparison of their arguments and evaluate whether both account render God to be a cause among causes. Finally, with his turn into kenotic theology, Polkinghorne will agree with this conclusion.

John Polkinghorne on Divine Action and Chaos Theory

Polkinghorne argues that the study of exquisitely sensitive dynamical systems by chaos theory shows that most of what we have to deal with in macroscopic physics is

[1] By special divine action, defined against general divine action, it is understood those actions of God which pertain to a particular time and place in the world as distinct from another. See 2000, 124.
[2] Smedes 2004, 39.
[3] Polkinghorne would reject this option for many reasons, among others that, theologically, it renders God's action episodic, and scientifically, the idea of chaotic amplifiers of quantum events does not seem promising, given the unresolved difficulties of relating quantum theory to chaos theory. See Polkinghorne 1988, 340; Polkinghorne 1995, 152; Polkinghorne 2001a; and Polkinghorne 2006.

intrinsically unpredictable, even though the equations are strictly deterministic. This makes him ask for the significance of this depiction of the world and question: Is the future determined or, on the contrary, is the world open in its process? Thus he asks: 'if apparently open behaviour is associated with underlying apparently deterministic equation, which is to be taken to have the greater ontological seriousness – the behaviour or the equations?'[4] This principle is what would be well known as 'epistemology models ontology'. Polkinghorne interprets chaos theory through a critical realism, following the principle of 'epistemology models ontology', explaining that the universe presents an open grain towards the future.[5]

Polkinghorne continues: the same total energy would correspond to the myriad possible trajectories through the range of the system's future possible states (strange attractors). It does not matter which option the system follows, for the energy is the same: the different possibilities are not discriminated from each other by energetic considerations.[6] This means that, given the principle of sufficient reason, new top-down organising causal principles must be at work in order to bring about the future by complementing and completing the energetic causality.[7] The character of these new principles is twofold: In the first place, they do not act through energetic causality, but only through input of active information; in second place, they operate holistically: the chaotic systems are to be given a holistic treatment, since because of their vulnerability to disturbances they can never be isolated.[8] The term 'active information' is being used to represent the influence which brings about the formation of a structure pattern of future dynamical behaviour.[9] Thus, 'active' is used to describe its causal efficacy and 'information' to describe the pattern-forming behaviour.[10]

This new ontology allows Polkinghorne to use the notion of information-input (necessary to resolve what actually occurs) as the vehicle for top-down operating causality and as a possibility to accommodate human and divine agency.[11] Here Polkinghorne claims that, even though these ideas are speculative, 'we have to be bold enough to make some

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[4] Polkinghorne 1991, 41.

[5] For a very good analysis of Polkinghorne's ideas on critical realism and his interpretation of chaos theory see Saunders 2002. He concludes that 'there are interesting technical reasons why we may claim that chaos theory is ontologically indeterminate and these serve to support Polkinghorne's interpretation.' Saunders 2002, 206.

[6] Polkinghorne 1991, 45; Polkinghorne 1997, 26; Polkinghorne 1998a, 61, Polkinghorne 2000, 112.

[7] Polkinghorne 1995, 83; Polkinghorne 1997, 77; Polkinghorne 1998b, 42; Polkinghorne 2000, 121.

[8] Polkinghorne 1998a, 62. Also Polkinghorne 1991, 45; Polkinghorne 1995, 83; Polkinghorne 1997, 77; Polkinghorne 2000, 123.

[9] Polkinghorne 1998a, 72.

[10] Polkinghorne 1995, 83; Polkinghorne 1998b, 42. This information is to be distinguished from information stored in a CD or transmitted in a telephone conversation. A closer analogue is provided by the guiding wave of Bohm's interpretation of quantum mechanics, which encodes information and influences the motion of the quantum entity associated to it without transfer of energy. The key issue here is the energetic exchange which Polkinghorne claims not to be there in his notion of input of active information. See Polkinghorne 1998a, 72; Polkinghorne 2000, 125; Smedes 2004, 60. On a lengthier analysis of this notion see Saunders 2002, 197-199.

[11] Polkinghorne 1991, 2; Polkinghorne 1998a, 63; Polkinghorne 2000, 114.

venture in the matter',[12] to add finally that 'it is entirely conceivable that God might interact with the world in the form of information input.'[13] There is a flow of information from God to the universe by which God guides it providentially.[14]

This being said, God's activity is conceived as pure information input and thus it involves absolutely no exchange of energy. God's causality is not energetic causality simply because of God's immateriality. (Only material, or may be better non-spiritual, things act energetically.) This stems from the rejection of any account of divine action that would violate the conservation of energy principle.[15] Thus, this account delivers 'the concept from the theologically unacceptable character of making God just an invisible cause among physical causes'.[16]

From 2000 onwards, the idea that 'divine kenosis can then be understood as having four dimensions – relating to the self-limitation of divine power, of divine eternity, of divine knowledge, and of divine participation in the causal nexus of creation', led him 'to question the theological assumption that it is improper to consider divine providence as acting as a cause among causes.'[17] He states his new proposal with no further preparation: 'I am now suggesting further that divine self-emptying extends to a kenosis of the status of agency, so that the special providence is exercised as a cause among causes.'[18]

Polkinghorne is very careful to make clear the risk of this theological move. He shows how the main idea of his previous period was to preserve 'the unique character of deity in the exercise of special providence' and to avoid 'the charge that it [chaos divine action] had reduced God to the role of a mere cause among other competing causalities' by locating 'the Creator/creature distinction in the contrast between God's acting through *pure* information input, while creaturely acts involve a mixture of energetic and informational causalities, corresponding to the embodied status of creatures.'[19]

However, Polkinghorne warns us that kenotic theology can lead us to unimaginable places: In a 'theological consideration of divine action… in relation to special providence… and in particular in relation to a special providence exercised in a kenotic mode, the issues are more perplexing.'[20] Then explains that the interweaving of providential and creaturely causalities 'is located within the cloudiness of intrinsic unpredictabilities… Such a picture corresponds to God's loving choice to be, in the evolving history of creation, a present cause

[12] Polkinghorne 1991, 46.
[13] Polkinghorne 1991, 45; Polkinghorne 1997, 77.
[14] Polkinghorne 1991, 2.
[15] Saunders 2002, 194.
[16] Polkinghorne 1998b, 89.
[17] Polkinghorne 2001b, xii.
[18] Polkinghorne 2000, 127.
[19] Polkinghorne 2001c, 101.
[20] Polkinghorne 2001c, 101.

among causes. If this idea is accepted it would become possible to conceive that this kenotic providential causality is also exercised energetically as well as informationally.'[21]

This is certainly a surprising statement: it goes against the principle of conservation of energy! Nevertheless, Polkinghorne warns us against rejecting these conclusions too fast: 'Kenotic theology is inevitably paradoxical theology, for it is founded on the concept of the humility of God.'[22] My question is: 'Does Polkinghorne need to accept energetic divine action for it to be considered a cause among causes?'

Robert Russell on Quantum Divine Action

Russell proposes the view that God acts through the indeterminacies of quantum mechanics.[23] Given that modern science is viewed as embracing an absolutely deterministic world, every state of the universe is the effect of the preceding state and the cause of the following one. Then, there is nothing left free to randomness and no special divine action is possibly admitted.[24] With the arrival of quantum mechanics, the modern view of nature changed. Nature, according to science, is not an entirely closed causal system. The laws which science discovers suggest that nature is open, and the dilemma of divine action is diluted: in an indeterministic universe God could act within nature, without breaking or suspending any natural law: a non-interventionist objective divine action (NIODA) account. A short corollary of this, Russell admits that theology could motivate scientific research programs, such as a research for indeterminacies in nature to allow God to act. This search would be purely scientific, though theologically motivated.

The question, then, is: how does God act through quantum events? The standard interpretation of quantum mechanics[25] is that known as the Copenhagen interpretation, which explains the collapse of the wave-function to be of an indeterministic nature. Russell accepts this interpretation and makes the claim that the total set of natural conditions affecting a quantum process, which are the total set of conditions which science discovers and describes, is necessary but insufficient in principle to determine the outcome of the process.

Russell argues, following Nancey Murphy,[26] that God acts in all quantum events, determining the outcome of the wave-function, because none of them is fully determined by

[21] Polkinghorne 2001c, 105. Smedes 2004, 66, correctly comments that 'God's action through pure information input without energetic causality served to warrant the special character of God's action and to avoid a reduction of God's action to a cause among causes, it is clear [then] that with this kenotic idea Polkinghorne's theology is turning in a different direction.'
[22] Polkinghorne 2001c, 106.
[23] Russell 2007, 202.
[24] Russell 2007, 202.
[25] For a complete exposition of quantum mechanics and its different interpretations I refer the reader to the very good introduction in Penrose 2004, ch. 21-30.
[26] Russell 1997, 58; Russell 2001, 293. Murphy 1995, 341.

natural causes, and the principle of sufficient reason implies that there should be a sufficient cause for each event. On certain occasions, however, God will choose to actualise one state in particular, and not the other, as to promote the emergence of life or intelligence.[27] God, then, acts objectively and directly in and through all quantum events to actualise one of several potential outcomes.[28] Finally, according to the Copenhagen interpretation, there are no efficient natural causes for the specific quantum events, what implies that God is not a natural cause. If this were the case, God's action could be discovered by science. However, and for the same reason, in Russell's perspective God's action remains hidden from science.[29]

Against Russell's position

In Russell's perspective God is conceived as acting according to the laws of nature, which rule the causation of natural causes, and hence rule the way in which God acts within nature. Russell admits that God interacts with nature at the quantum level by means of a measurement event. God, however, is limited to act within this kind of events, and within the laws that govern them. Russell argues that, since the interpreted theory states that there is no natural cause of the collapse of the wave-function in this particular way, God cannot be conceived as a natural cause, although causing the collapse of the wave-function within the parameters given by the theory. The interpreted theory says that there is no natural cause; therefore God is not a natural cause.

For Russell, natural causes are defined by the scientific theory. He uses a strong philosophical criterion by defining natural causes, their existence or non existence, according to the theory. Hence, since the theory says there is no natural cause, even though the theologian finds that God is the cause of the collapse of the wave-function, God is not a natural cause. Let me call this the epistemological criterion for natural causes.

Other authors, such as Dodds and Smedes, present arguments in which a natural cause has its own kind of causality, which is expressed, and not defined, by the scientific theory. Causes do not depend on a theory to be defined as such. Let me call this the ontological criterion. The question here is what defines a natural cause to be such if not the theory which describes them. Even though this is a major question, and I certainly don't have the time or space to address it here, we could for now admit that a natural cause could be defined as that which, belonging to the natural world, acts according to its own powers, remaining within the limits of the natural order. Hence, if God requires acting within the limits

[27] Russell 2006, 592. It is important to highlight here that after 2006 Russell, in a way, changed his mind, or developed his thought, by accepting Murphy's proposal that God acts in every quantum event, sometimes choosing its outcome, and sometimes allowing randomness to take place.
[28] Russell 2006, 586.
[29] Russell 2006, 585.

of the natural order, God would be considered as acting as a natural cause, although not belonging to the natural realm.

Now, were we to use Russell's epistemological criterion on created natural causes, there would be no way to evaluate the argument as a whole, given that it would be self-contained. The ontologically indeterministic interpretation of quantum mechanics, as understood by Russell, tells us simply everything: what a cause is, which the causes are, which kind of causes we can find, how they work. It leaves no other parameter of decision over it. Therefore, if we want to have an external parameter for evaluating not only our interpretation of quantum mechanics, but also our theological use of it, we are only left with the ontological criterion for assessing natural causes. Thus, it seems convenient to use the ontological criterion to assess what created natural causes are. Therefore, Russell's argument for distinguishing God and the created natural causes is not good enough, and, in the end, in his account of divine action God appears to be conceived as causing as natural causes do.

Basically, Russell is not using an appropriate criterion when talking about natural causes, and thus making a category mistake. Now, did Polkinghorne have something similar in mind when changing his views in 2000/2001 to a kenotic account of divine action in nature?

A Critique on Polkinghorne's Divine Action as Conclusion

Polkinghorne presents two fundamentally different forms of causation: energetic and informational. The first involves interactions in a bottom-up sense. The latter is the input of pattern formation which relates to the behaviour of the whole. The advantage of the approach of information input is that it avoids potential interventions in the law of conservation of energy.[30]

However, nowhere does Polkinghorne make clear how divine action through active information input works,[31] and only claims that it is not to be understood as a natural cause, at least before his kenotic turn. I will offer four ways of understanding it as to see whether this divine input of information could be conceived as God acting as a natural cause or not. My first approach would be to reproduce arguments I used to show how Russell's proposal renders divine action to be an action among natural actions. My basic strategy was to show that Russell was not using an appropriate criterion when talking about natural causes. For him, the existence or non existence of natural causes is determined by what the theory states.[32] In a way, he was making a category mistake when he said that God was not acting

[30] Saunders 2002, 193.
[31] Smedes 2004, 62.
[32] Russell 2006, 585.

as a created cause because the theory (quantum mechanics) said that there was no natural cause. Now, given that God is required to act according to the order of nature, expressed by the scientific theory, God would be considered as acting as a natural cause.

It seems to me that Polkinghorne is going a step further than Russell when stating his criterion for natural causes. It is true that he states that a natural cause is, somehow, defined by the scientific theory: natural causes act through exchange of energy because that is how our scientific theories describe them. Nevertheless, the extra step comes when he characterises God's action. Because all natural causes act through energy exchange, therefore God should not act through energy exchange. Although it is a negative proposition, it has a positive meaning, giving a distinct element about that action. On the contrary, Russell is only giving a negative account, by saying that because the theory says there is no natural cause, God, though acting to cause the collapse, is not acting as a natural cause. Polkinghorne, on his part, considering science, characterises God's action as a different kind of action. This being said, Polkinghorne seems to fall in the same epistemological trap in which Russell fell, defining a natural cause according to what science says.

Another strategy is to try to use Shannon's theory of information, even though Polkinghorne states this is not the way he understands information. God, certainly, would not be the active informational principle. If this were the case, God would be information! Instead, God seems to be the agent which generates the active informational principle and somehow transfers it into the world. Polkinghorne clearly accepts this distinction when affirming that the openness in the universe points towards the acceptance of active principles which would input or transfer active information into the openness of the world system. Then, active information is being transferred through an input process.[33] The transference (or input) is there. But in Shannon's theory, every principle which transfers information is a natural agent. Therefore, it is necessary to recognise that God is conceived as acting as a cause among causes even in Polkinghorne's first period.

A third approach, given Polkinghorne's characterisation of information, could be to assess his account through the lens of Aquinas' theory of information as Aristotelian forms. Although this would seem to be close to what Polkinghorne suggests, it involves a whole theory of nature and creation which I am not sure Polkinghorne would accept. Briefly, were we to follow this path, which seems necessarily to involve accepting the distinction between primary and secondary causality (a doctrine which Polkinghorne has always rejected), given that God acts by creation and creatures act by information, it seems clear that God would be acting as a cause among causes. In any Aristotelian account of natural action, agents acts by information input ('information' understood in the Aristotelian formal way).

[33] At least, from all that Polkinghorne says about information, this seems to be the case.

The final and I think most successful strategy, which applies both to Russell and Polkinghorne, is to recognise that they are both working with a univocal notion of causality, which denies them any metaphysical elasticity to differentiate God's causality from natural, created, causality. Aquinas, for example, used analogical notions to refer to God, in particular in his treatment of divine causality. With this analogical treatment he was able to distinguish different created causes (the four Aristotelian causes for instance) and divine causality, to which he referred in terms of efficient and final cause, though pointing towards the similarities and dissimilarities natural and divine causality have. What I want to argue is that neither Polkinghorne nor Russell are using the notions of contemporary science in the same analogical way in which Aquinas used Aristotelian notions of causality. Both Polkinghorne and Russell are certainly trying to use the notions of causality which science presents, though they do it in a univocal, and not in an analogical, way. That is precisely why they, and others, are trying to find a place where created causality is absent for God to act.[34] In the end, this is the ultimate reason for which God is considered to be acting as a natural cause: in this perspective, metaphysically speaking, to be a cause is to influence some event to develop in this or that way, according to what science says. This is, as I propose, a univocal notion which is both applied to God and to creatures, which renders God to act as a cause among causes.

What this conclusion suggests is that Polkinghorne was being internally coherent, at least to some point, in his move towards a kenotic theology of divine action. Certainly, his motivations and argumentation were theological. He says it very clearly: after seriously considering the kenotic act of creation, he saw it necessary to apply this notion of kenosis even to God's causal status when interacting with nature.[35] But with this theological move he was trying to be philosophically consistent.

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[34] It is in this fact that I see Polkinghorne and Russell on the same path of thinking.

[35] Polkinghorne 2000, 125; Polkinghorne 2001c, 102.

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