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John Polkinghorne on Divine Action: a Coherent Theological Evolution

I examine John Polkinghorne's account of how God acts in the world, focusing on how his ideas developed with the consideration of the notion of kenosis, and how this development was not a rejection of his previous ideas, but on the contrary a fulfilling of his own personal philosophical and theological insights. Polkinghorne's thought can be distinguished in three different periods:1) divine action as input of active information (1988-2000/2001);2) Polkinghorne's reception of the notion of kenosis (2000-2004);3) Polkinghorne's 'thought experiment' approach to his ideas on divine action (2004-). Finally, I consider the question of internal coherence of this theological development, focusing on the transition from the first to the second period, which I believe to be the most significant.

Key words: John Polkinghorne, divine action, input of active information, kenosis

One of the most important contributions that John Polkinghorne has made to the dialogue between science and theology is his reflections on divine action in the universe. His main concern is to give a properly informed account of the interaction of divine providence with natural causality. Two principles guide his pursuit: the Christian certainty that God acts and guides the world according to his plan;[1] and the certainty that science is a powerful tool in explaining the universe. Hence, he tries to solve the tension that seems to arise inevitably between these two statements by claiming that, on the one hand God's influence should make a real difference, and on the other hand, that if God is to act in the world this action should not be an intervention against, but an interaction with the grain of the universe.[2]

Contemporary science appears to provide a causally open view of nature. Hence, Polkinghorne and many other scholars have proposed innova-

1 Polkinghorne, J. *Belief in God in an Age of Science*, New Haven-London: Yale University Press (1998), p. 49.

2 Polkinghorne, J. *Quarks, Chaos and Christianity*, London: SPCK, (1994); 'Physical process, quantum events, and divine agency', in Russell et al. (eds.), *Quantum Mechanics. Scientific Perspectives on Divine Action*, Rome-Berkeley: Vatican Observatory-CTNS (2001), pp. 181-190 (p. 188); 'Kenotic creation and divine action', in Polkinghorne, J. (ed.), *The Work of Love*, London: SPCK (2001), p. 100; *Science and the Trinity*, London: SPCK (2004), pp. 5, 84; *The Intertwining of Science and Religion*, London: SPCK (2005), p. 35; *Theology in the Context of Science*, London: SPCK (2008), p. 79. Polkinghorne would argue that acting against nature would imply an inconsistency within God.

tive theological theses to account for God's special action:[3] given that the causal chain in the world is not a closed one, there seems to be 'space' for God to act. The search for these spaces where God can act is the research programme that Robert J. Russell named NIODA: non-interventionist, objective, divine action. Polkinghorne belongs to this programme, even though his account is different from that of Russell.[4]

My goal is to examine Polkinghorne's account of how God acts in the world, focusing on how his ideas developed with the inclusion of the notion of *kenosis*, and how this development was not a rejection of his previous ideas, but on the contrary a fulfilling of his own personal thought. It is not, then, my goal to evaluate the merits of each of these stages, but to consider why these stages follow from one another. I argue that Polkinghorne's thought can be distinguished in three different periods: 1) divine action as input of active information (1988-2000/2001); 2) Polkinghorne's reception of the notion of *kenosis* (2000-2004); 3) Polkinghorne's 'thought experiment' approach to his ideas on divine action (2004-).[5] This division into periods should not be taken as a sharp and radical change of mind. On the contrary, as I will state by the end, the continuity in his thought is remarkable, and it reinforces my thesis of his coherent development of ideas. Nevertheless, it will be beneficial to distinguish them first in order to show the intimate unity of Polkinghorne's thought as a whole. Showing that unity will be the goal of the last section, which will be devoted to consideration of the question of internal coherence within this theological development, focusing on the transition from the first to the second period, which I believe to be the most significant. I will finish by commenting briefly on the step towards the third period.

On Polkinghorne's development of ideas

Polkinghorne on Divine Action and Chaos Theory (1988-2000/2001)

Although Polkinghorne started his theological career a few years before

3 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 Polkinghorne, J. *Faith, Science, and Understanding*, New Haven-London: Yale University Press (2000), p. 124.

4 Russell suggests investigating the option of causal gaps found in quantum mechanics. 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 grave and unresolved difficulties of relating quantum theory to chaos theory. See Polkinghorne, J.'The quantum world', in Russell, R. et al. (eds.), *Physics, Philosophy and Theology*, Vatican City: Vatican Observatory (1988), pp. 333-342 (p. 340); *Serious Talk*, London: SCM Press (1995), p. 152; and 'Quantum theology', in Peters, E. & Hallanger, N. (eds.), *God's Action in Nature's World. Essays in Honour of Robert John Russell*, Aldershot: Ashgate (2006).

5 I take as reference the publication dates of his work for this distinction.

1988, it was only then that the topic of divine action in nature emerged in his writing, as a result of the 1987 conference on Physics, Philosophy and Theology organised by George Coyne at the Vatican Observatory. After that, Polkinghorne participated actively in discussions on scientific perspectives on divine action.[6]

According to Polkinghorne, in the twentieth century quantum and chaos theories showed how the clockwork universe of classic mechanics was outmoded. He affirmed that the study of exquisitely sensitive dynamical systems showed that most of what we have to deal with in macroscopic physics is intrinsically unpredictable,[7] even if the equations that describe them are strictly deterministic. The key issue is that the evolution of those systems depends so much upon the initial conditions that the slightest change in those conditions will make the systems develop in a completely different way. The possibilities, however, for the future development of a system are contained within certain limits, so it cannot develop with absolute randomness and chaos. Thus, chaos theory gives a picture of behaviour which depicts a structured randomness, an ordered disorder.[8] Polkinghorne, making use of his famous principle that 'epistemology models ontology', interprets chaos theory by explaining that the universe presents an open grain towards the future: 'The world is made up of systems that are so exquisitely sensitive to circumstance that the smallest disturbance will produce large and ever-growing changes in their behaviour.'[9]

It does not matter in these chaotic systems which path the system follows, for the energy is the same: the different possible futures are not discriminated from each other by energetic considerations.[10] Thus Polkinghorne makes a crucial step: if we want to be faithful to the principle of sufficient reason, which requires a reason by which to discriminate among the different possible paths, new top-down organising causal principles must be at work in order to bring about the future by complementing the energetic causality.[11] Polkinghorne asserts that the character of these principles is twofold: 1) they do not act through energetic causality, but only through input of active information; 2) they operate holistically, given that chaotic systems can never be isolated.[12] 'Active information' repre-

6 Essentially, Polkinghorne develops his proposal in *Belief in God in an Age of Science* (1998) and *Faith, Science, and Understanding* (2000).
7 Polkinghorne, J. *Science and Christian Belief*, London: SPCK (1997), p. 25.
8 Polkinghorne, J. *Reason and reality*, Philadelphia: Trinity Press International (1991), p. 45; *Serious Talk*, p. 53; *Science and Christian Belief*, p. 25.
9 Polkinghorne, *Serious Talk*, p. 79.
10 Polkinghorne, *Reason and reality*, p. 45; *Science and Christian Belief*, p. 26; *Belief in God in an Age of Science*, p. 61; *Faith, Science, and Understanding*, p. 112.
11 Polkinghorne, *Serious Talk*, p. 83; *Science and Christian Belief*, p. 77; *Science and Theology, an Introduction*, London: SPCK (1998), p. 42; *Faith, Science, and Understanding*, p. 121.
12 Polkinghorne, *Belief in God*, p. 62.

sents the influence which brings about the formation of a structure pattern of future dynamical behaviour:[13] while 'active' is used to describe its causal efficacy and 'information' the pattern-forming behaviour.[14] The notion of information input is therefore necessary to resolve what actually occurs, becoming the vehicle for top-down operating causality and a possibility to accommodate human and divine agency.[15] Polkinghorne, then, concludes that there should be a flow of information from God to the universe by which God guides it providentially.[16]

At this stage Polkinghorne argues that God's activity is conceived as pure information input and that it involves no exchange of energy between God and the universe. This idea stems from the rejection of any account of divine action that would violate the conservation of energy principle.[17] This account, according to Polkinghorne, delivers 'the concept [of divine action] from the theologically unacceptable character of making God just an invisible cause among physical causes'.[18]

Polkinghorne's kenotic approach to divine action (2000-2004)

It is in his work around the change of the millennium that Polkinghorne starts reconsidering issues about *kenotic* theology. In his *Faith, Science, and Understanding* of 2000 he shows his willingness to leave aside his concerns about the ontological status of God's action. He states that after thinking about the issue through the lens of Moltmann's ideas on *kenosis*, these concerns were no longer as strong as before. The idea that the 'Creator self-limits divine power in allowing the created-other to be truly itself'[19] is compelling for Polkinghorne when considering how evolutionary theory can be accommodated with the idea of a loving God who creates an autonomous reality. Thus, he claims that '[s]uch a degree of setting aside of total divine control is perceived to be fitting for the God whose character is love and whose nature would be incomplete with the exercise of a cosmic tyranny'.[20]

Therefore, he finally suggests 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.'[21]

13 *ibid*., p. 72.
14 Polkinghorne, *Serious Talk*, p. 83; *Science and Theology*, p. 42.
15 Polkinghorne, *Reason and reality*, p. 2; *Belief in God*, p. 63; *Faith, Science, and Understanding*, p. 114.
16 Polkinghorne, *Reason and reality*, p. 2.
17 Saunders, N. *Divine Action and Modern Science*, Cambridge: Cambridge University Press (2002), p. 194.
18 Polkinghorne, *Science and Theology*, p. 89.
19 Polkinghorne, *Faith, Science, and Understanding*, p. 111.
20 *ibid*., p. 111.
21 *ibid*., p. 127.

In this early work, however, Polkinghorne's thought was not fully developed and he kept on questioning whether this idea could be theologically tenable, while identifying this divine activity with the input of active information of his first period. It is in his paper in the volume *The Work of Love*, which he edited in 2001, where he entirely accepts this new notion of divine activity, explicitly claiming that this new proposal 'would modify significantly my previous position'.[22] As he explains, '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'.[23] The reasons for accepting the importance of focusing on kenotic theology are presented in this essay in the following terms:

> it is also necessary to consider, so to speak, what are God's motives that lie behind this great act [of creation]. Pursuing that point surely involves appeal to the divine love that has willed the existence of the truly other so that, through creation, this love is also bestowed outside the perichoretic exchange between the Persons of the Holy Trinity. Creation exists because God gives to it a life and a value of its own'.[24]

It is a giving away of God's own love into something other than the Godhead which motivates the reality of creation, and this movement of God's love is explained by the notion of 'kenosis'.

Polkinghorne sees a tension between the loving God and the all-powerful God.[25] This tension is resolved 'by maintaining God's total benevolence but qualifying, in a kenotic way, the operation of God's power', which is, of course, 'a self-qualification exercised within the divine nature and in accordance with that nature itself.'[26] Thus, 'God's providential guiding power must surely also be part of the unfolding of evolutionary history.'[27]

As stated above, for Polkinghorne the existence of extensive intrinsic unpredictabilities, both in the realm of quantum physics and in that of chaotic dynamics, provides potential places for the operation of additional active causal principles in bringing about the future by complementing the exchange of energy among constituents of the system. In his first period, Polkinghorne wants to distinguish God's action from creatures' action with 'the contrast between God's acting through *pure* information input, while creaturely acts involve a mixture of energetic and informational causalities.'[28] In this second period, however, Polkinghorne consid-

22 Polkinghorne, 'Kenotic creation', p. 104.
23 Polkinghorne, 'Introduction', in Polkinghorne (ed.), *The Work of Love*, p. xii.
24 Polkinghorne, 'Kenotic creation', p. 91.
25 *ibid*., p. 91.
26 *ibid*., p. 96. See also Polkinghorne, J. *Living with Hope*, London: SPCK (2003), p. 77.
27 Polkinghorne, 'Kenotic creation', p. 96.
28 *ibid*., p. 101.

ers closely the implications of *kenotic* theology, exemplified in the central event of the Incarnation, in which 'God submitted in the most drastic way to becoming a cause among causes'. This event 'suggest[s] what character that governance [of the universe] might, at all times, be expected to take'.[29] Polkinghorne concludes that the interweaving of providential and creaturely causalities implies 'a picture of undisentangleability [which] corresponds to God's loving choice to be a present cause among causes… this *kenotic* providential causality is also exercised energetically as well as informationally'.[30]

God is accordingly understood, through the analysis of the notions of *kenotic* theology, to be a cause among causes that acts through energetic exchange of information. This is a surprising statement, given that up to this point Polkinghorne stated that God only acted through input of pure information without any exchange of energy, both to secure God's distinctiveness and to affirm God's spiritual character. Nevertheless, Polkinghorne warns us against rejecting these conclusions too fast saying in the last paragraph of his essay that 'sometimes this [way of thinking] may lead us to what may initially seem strange conclusions. To think of God's providence as acting as a cause among causes may be one of these. *Kenotic* theology is inevitably paradoxical theology, for it is founded on the concept of the humility of God.'[31] It is thus that, in this second period, alongside his considerations of *kenosis* of omnipotence, of simple eternity and of omniscience, Polkinghorne adds a new consideration of *kenosis* of causal status.

Polkinghorne's 'thought experiment' approach (2004-)

Even though Polkinghorne continued to refer to his ideas published in *Belief in God in an Age of Science* (1998a) and *Faith, Science, and Understanding* (2000) for his account of chaos and divine action, and in *The Work of Love* (2001) for his thought on the relationship between kenosis and divine action,[32] it seems clear that from 2004, in *Science and the Trinity*, onwards he changes his language when referring to these topics. This change of tone in his expressions may well signify a change in mind: a modest way of approaching the mystery of divine action, especially having in mind his conclusions on the kenosis of the causal status of the divine. Even though he does mention his essay in *The Work of Love* and his previous ideas on divine action, it is no longer a strong and bold statement, but a rather more cautious, humble, proposition. This language becomes more evident in later works, in particular in his work *Theology in the Context of*

29 *ibid*., p. 104.
30 *ibid*., p. 105.
31 *ibid*., p. 106.
32 Polkinghorne, *Science and the Trinity. The Intertwining of Science and Religion*, 'Quantum theology', and *Theology in the Context of Science*.

Science, from 2008.[33] I do not want to claim that Polkinghorne repudiates his previous thought in this last period, but that he is taking a step forwards by examining and reflecting upon them. In this sense, Polkinghorne does not offer a new understanding of divine action, giving up his previous ideas, but enters a new path of thinking by changing the ways he speaks about it.

Polkinghorne starts considering the inadequacy of our scientific concepts to articulate the subtle nature of the causal nexus of the universe, and claims that 'we are just beginning to learn something about the detailed behaviour of genuinely complex systems'.[34] Confident that this state of ignorance is only provisional, Polkinghorne affirms: 'I expect that the science of the twenty-first century will be characterised by its making dynamic pattern, and the information that specifies that pattern, a fundamental category in scientific vocabulary, alongside the traditional concepts of matter and energy… thereby adding to the portfolio of our causal imagination the concept of *active information*.'[35] Given these expectations, Polkinghorne sees it plausible to admit a belief in God's providence acting within the open grain of nature, capable of receiving pattern-forming information.[36] It is worth noting, however, that there is no explicit treatment of how this *kenotic* divine action takes place, of what the mechanism is by which God acts in nature. On the contrary, he claims that 'God acts through something like a constant persuasive re-directing'.[37]

This change of tone is stressed in 2008, when Polkinghorne states that this strategy of looking at the openness of the universe is at least sufficient to 'defeat the defeaters'[38] by showing that the world is not totally causally closed. He claims that 'it was also possible, using the idea of some form of genuine top-down causality, to find a hint of how it might be that divine providence could also be understood to be at work in history, shaping its unfolding development through the input of some generalised form of information into the open grain of nature'.[39]

It is in this context of 'hints', 'generalised forms', 'mights' and 'could-bes' that Polkinghorne makes his final step in his reflections on divine action. Surprisingly, he partly dismisses the proposals for understanding divine action through chaotic systems or quantum events:

33 Interestingly, even though Polkinghorne likes to explain in different terms his ideas on divine action in most of his works, from this time onwards he stops being explicit about them, and simply refers to his earlier works. I take this fact as indicative of Polkinghorne's move into a third period of thought.
34 Polkinghorne, *Science and the Trinity*, p. 82; also in *The God of Hope and the End of the World*, London: SPCK (2002), pp. 17-18.
35 Polkinghorne, *Science and the Trinity*, p. 83.
36 *ibid*., p. 5.
37 Polkinghorne, 'Quantum theology', p. 139.
38 Polkinghorne, *Theology in the Context of Science*, p. 57.
39 *ibid*., p. 78.

> In seeking to explore these possibilities, different people focused initially on different *loci* of intrinsic unpredictability, some looking to quantum indeterminacy and others to chaotic uncertainty. None of these attempted models should be taken with undue seriousness. They are what a physicist would call 'thought experiments' – attempts to explore and try out ideas in a simplified way, rather than purporting to be complete solutions to the problem of divine action.[40]

Nevertheless, he does not get rid of these thought experiments completely and considers them to have some intrinsic value: 'Yet the thought experiments were worthwhile… Interpreting intrinsic unpredictabilities as signs of ontological openness to the operation of other causal principles affords just such necessary room for manoeuvre. So an important point was being made by this exploratory work.'[41] The importance lies in the fact that if there is to be any kind of purposive agency in the universe, the causal network should be open to such an influence: 'While we are not in a position to identify uniquely and exhaustively the causal joints by which agency might be exercised',[42] we still need to recognise that this agency is exercised through this openness.

In this third period, by showing that science has not finished its quest to understand and explain the world and that all we have so far provides for an open account of the universe, Polkinghorne argues for a God who interacts within its open grain. There is no mention, however, of how that activity is carried out in a *kenotic* way, or of the causal status of this divine action, or even of a localisation of the causal joint where divine and natural action meet. In conclusion, the preoccupation with showing whether God's acting is a cause among causes or whether God acts through input of information or energetic exchange has disappeared from Polkinghorne's writings during this final period.

On Polkinghorne's internal coherence

We must now consider the steps from the first to the second periods and, subsequently, from the second to the third, to explore whether Polkinghorne is philosophically coherent while theologically motivated. The question is whether there might be any philosophical argument that could show us that Polkinghorne's views on divine action render God a cause among causes even before he turns to *kenotic* theology.

During the first period Polkinghorne is aware of the danger of drifting into that conclusion, and in many places he wants to avoid such a characterisation of divine causality. He does this by asserting that God's direct

40 *ibid*., p. 78.
41 *ibid*., p. 79.
42 *ibid*., p. 79.

activity in the world is characterised by input of pure active information without energetic exchange. Thus, while a natural cause is that which acts through an exchange of energy and information, the divine cause acts only through information input. It is my argument that this distinction is not sufficient to prevent God's being a cause among causes, and that this is the philosophical reason Polkinghorne turned to his second period characterised by *kenotic* theology.

In his account, Polkinghorne presents two different forms of causation: energetic and informational (remember his statement in 2001 quoted above: 'the contrast between God's acting through *pure* information input, while creaturely acts involve a mixture of energetic and informational causalities').[43] The first is that which is a common part of any physicist's experience and involves interactions in a bottom-up sense. The latter is the input of pattern formation that relates to the behaviour of the whole. This approach of information input, then, avoids problems with the law of conservation of energy.[44] Now, is there any input of active information without energetic exchange that can be considered a natural cause? Nowhere does Polkinghorne make clear how divine action through active information input works,[45] and he only claims that it is not to be understood as a natural cause, at least before he turns to kenotic theology. I will, then, attempt to illustrate philosophically that Polkinghorne's understanding of input of information requires conceiving God as acting as a natural cause.

The best strategy to show that Polkinghorne cannot avoid admitting that God acts as a created cause is to recognise that Polkinghorne is working with a univocal notion of causality, which denies him 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 (e.g. the four Aristotelian causes) 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 Polkinghorne, during his first period, is not using the notions of contemporary science (chaos theory) in the same analogical way in which Aquinas used Aristotelian notions of causality. Polkinghorne is addressing divine action by using the notions of causality that science presents in a univocal way.

43 *ibid*., p. 101.

44 Saunders, *Divine Action*, p. 193. Here Saunders presents these two kinds of causation as 'fundamentally different'. I would agree with this characterisation given that he is addressing what I have identified as Polkinghorne's first period. Nevertheless, in 2009, Polkinghorne's third period, in Appendix B of his *Questions of Truth* with Beale, N. Polkinghorne presents a 'dual-aspect monism', in which energy and information interplay more like two aspects of the same reality rather than two 'fundamentally different things'.

45 Smedes, T. *Chaos, Complexity, and God*, Leuven: Peeters (2004), p. 62.

That is precisely why he, and others, try to find a place where created causality is absent for God to act, the place where nature presents some 'space for manoeuvre'. In Polkinghorne's own words: 'If we thought it as unproblematic that God could thus fix the outcome of events, as we believe it to be unproblematic that an author has control over the arrangement of his plot, we should not write so many books about God's action in the world.' [46]

In the end, this is the ultimate reason for which God is considered to be acting as a natural cause: 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 suggest, a univocal notion that is applied both to God and to creatures, which renders God to act as a created cause.[47] And it is on this that my contention that the conclusion that God is to be conceived of as a cause among causes in Polkinghorne's first period stands. As shown above, in *The Work of Love*, paradigmatic of his second period, Polkinghorne claims that it is possible to think that '*kenotic* providential causality is also exercised energetically as well as informationally'.[48] I have not been able to find this audacious statement anywhere else in Polkinghorne's writings (at least those to which I have access), which makes me think not only that he changed his mind regarding *kenotic* energetic providence, but also that he realised that *kenotic* informational providence was enough to consider God as being a cause among causes.

What this conclusion suggests is that Polkinghorne was philosophically coherent in his move towards a *kenotic* theological understanding of di-

46 Polkinghorne, J. *Science and Providence*, West Conshohoscken: Templeton Foundation Press (2005), reprint of (1989), p. 16.

47 I can think of two other ways of interpreting Polkinghorne's ideas concerning input of information to show that God is conceived as acting as a natural cause. These, however, are explicitly rejected on most of his works on the topic: Aquinas' understanding of what it means to inform and Shannon's theory of information. For Aquinas God is a form-giver (and hence, in a loose sense, an information-giver), given that when God gives a form is because, through creation (*ex nihilo*), God puts into existence a new being, with its own nature or form. Polkinghorne has something radically different in mind: he is thinking, I believe, of God's giving new information to a system which is already existent. For Aquinas, this kind of events happens in nature, but among natural agents. On this perspective, given that God acts by creation and creatures act by information, it seems that God, in Polkinghorne's account, would be acting as a cause among causes. Taking Shannon's theory, it seems that, for Polkinghorne, active information is information that is being transferred through an input process. Polkinghorne is clear that God is not the active informational principle, God is not information. Instead, God is the agent that generates that active information and transfers it into the system. If we follow this interpretation of Polkinghorne's ideas, his notion of God's input of information renders God to be a cause among causes. Polkinghorne presents the notion of active information as a new causal category to explain the natural world. Active information, then, is a cause within the natural world. According to information theory there is no need for any kind of energy exchange for input of information. Thus, God introduces this information as any other natural cause.

48 Polkinghorne, 'Kenotic creation', p. 105.

vine action. His motivations and argumentation, on the other hand, were theological. He says it 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. Nevertheless, I wonder to what extent he was aware that something like the argument I presented could be formulated. Several intimations in his writings suggest this: he was always concerned, during his first period, with the possibility of reaching the conclusion that God acts as a cause among causes.

A comment is still due regarding Polkinghorne's final step towards his third period. As was presented earlier, in this period he softened his language on divine action, expressing that accounts provided through quantum mechanics or chaos theory were to be seen as 'thought experiments', and were not to be taken too seriously. I suspect that this change of perspective was mainly caused by his thought's major transition to kenotic theology, and his confronting the mystery of the history of God's relationship with the created universe, in particular to human beings. Even though God could decide to relinquish his omnipotence, his eternity, his causal status and his omniscience, God is still God. And God's ways are not human ways, and God's ways are always mysterious. Polkinghorne himself states that 'the more subtle approach that has proved necessary in science bears a degree of cousinly relationship to theology's wrestling with the mystery of deity'.[49]

Could this be seen as a final surrender to his attempts to finding and elucidating the causal joint between divine providence and the created world, even in terms of helping to provide grounds for motivated belief? It is well known that Polkinghorne has persistently protested against Austin Farrer's attitude towards this quest. Polkinghorne argues that Farrer's doctrine of double agency (primary and secondary causality) is not enough to explain God's action in the world. This way of understanding God's action in the world is affirmed by faith and remains ineffable and veiled from the eyes of human reason. He notes that there is no explanation given on how this primary causality works,[50] rendering it unintelligible. He suggests that it is a fideistic solution to the problem, which in the end is more an evasion than a solution. It is imperative, he believes, not to give up the search for the causal joint where God's action joins nature's actions.[51]

Is Polkinghorne finally giving up on this search? Does this more humble language not mean that Polkinghorne is, in the end, surrendering to Farrer's fideism? I think not. Polkinghorne is being cautious, though getting ready to assess the problem again as soon as science further develops in its

49 Polkinghorne, *Theology in the Context of Science*, p. xv.
50 Amongst many places, Polkinghorne, *Serious Talk*, p. 150.
51 Farrer seems to be untroubled by this fact. See Farrer, A. *Faith and Speculation*, London: Black (1967), p. 62.

explanation of the world. We need to remember that the first idea of this third period is that we are mostly ignorant about the actual processes of the universe, but the second is a hopeful expectation that this will change. Scientific theories provide a good approximation to reality, but, given the state of contemporary science, it is better to wait before continuing with the theological enterprise of explaining the causal joint for divine providential action.[52]

In order to understand Polkinghorne's thought in a clearer and more thorough manner, I have distinguished three periods: there is first a proposal of divine action by information-input; there is an acceptance, due to kenotic theology, that this strategy renders God to be a cause among causes; finally, this strategy is regarded as 'thought experiments'. These distinctions show that there is a clear development of Polkinghorne's thought in this matter. Nevertheless, even though I propose this three-period scheme, it must be said that Polkinghorne's development of ideas are in essential continuity.

This is shown by the fact that Polkinghorne was always aware of the provisional and unfinished character of our scientific theories, and of the awe-inspiring and ineffable mystery of God, characteristic of the third period. These topics are in his works from the early stages of his first period and before. I believe that these facts do not go against my division but on the contrary reinforce my hypothesis. The development between his first and second periods was internally consistent because *kenosis* appears as a sufficient framework in which to place God as a cause among causes. And his transition from the second period to the third is also consistent: although he recognises the limitations of science, he also awaits the scientific developments of the twenty-first century, and thus is not giving up on his quest.

Assessing the problem of divine action in the created universe, Polkinghorne felt compelled to address what science has to say about causality, action and agency. This led him along a path of thought which, when it intersected with that of kenotic theology, changed and developed. What I have suggested in this paper is that this development of thought, in which three periods can be distinguished, followed Polkinghorne's continuous intense interest in elucidating how the divine and the creature interact.

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52 See Polkinghorne, *Theology in the Context of Science*, p. 81.