

Divine Action in Relation to the Laws of Nature Whitehead's View Compared with Other Indeterministic Accounts

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1. Introduction

I will present here the view of Alfred North Whitehead (1861-1947) on divine agency, and more specific: Whitehead's view on divine agency in relation to the so called 'laws of nature'.

I want to do that for a couple of reasons. To mention only some of them:

- * Whitehead's view overcomes the problematic distinction and tension between general and special divine agency, i.e. between God as creator of the laws of nature, on the one hand, and the question what God – given these laws – can do else.
- * It gives a new model for theism. A model therefore for God's active involvement in the world, which is 'new' since it expresses a shift from a mechanistic world view into an organicistic one, in which 'acting' is no longer thought of as realizing /actualizing /making / producing something 'out there', but is seen as self-organization.
- * It gives a more immanent and dynamic account of God's working (much more so than in most theologies), which opens opportunities to think of God as involved in the evolutionary process.
- * According to Whitehead's view, **God neither imposes nature's laws, nor works as 'determiner' of the indeterminacies left by the laws** (which are the two main views on God's role regarding the laws of nature in scientifically informed theological discourse), rather according to Whitehead, God is that actuality that makes the contingent and statistical laws possible. This has considerable theological consequences.

This only as an appetizer.

In scientifically informed theological discourse, God's action is most often thought of in non-interventionist terms.

Consequently, there are schematically two possible *loci* where God's working in relation to the laws of nature may be placed. Respectively:

- as the creator of these laws (locus A),
- as acting around them, or in the space they leave (locus B).

That God is seen as the creator of the world and as the ultimate source of its laws (A) may count as the default position in theology. More diversity pops up when the question is raised ‘what else can God do (besides being the law-giver)?’.

One possible answer is: ‘Nothing!’. The deistic position (only A).

Others remain looking for a more theistic answer, although equally avoiding an interventionist approach.

This makes it understandable that the ‘ontological indeterminism’ that allegedly comes with quantum mechanics (and according to some with chaos theory as well) has been widely welcomed, as it seems to offer the possibility of non-interventionist special divine actions.

So, in scientifically informed theology, it is a broadly shared idea, that God created the laws of nature, *and* can act “specially” in the room left open by some of these laws (loci A and B).

Where the problem with deism is that it neglects essential aspects of Christian (and Jewish and Islamic) belief (viz. God’s active involvement with the course of history), the problems with the indeterminacy based accounts of special divine agency are of a greater variety. It is questioned, e.g., whether the account is really non-interventionist, whether it is not in the end occasionalism, whether it does not violate the law of energy conservation, whether the given picture of God’s agency in the quantum ‘openings’ is compatible with the randomness of the quantum phenomena, and whether it avoids the theodicy problem.

Against this background, Whitehead’s position is intriguing, because amid recent theologies which ply an indeterministic ontology in conceptualizing a non-interventionist account of divine agency – e.g., Murphy’s and Russell’s quantum based and Polkinghorne’s chaos based views of special divine action – , Whitehead presents a remarkably and fundamentally different indeterministic and non-interventionist account of divine action in relation to the laws of nature. According to his process view, **God neither imposes nature’s laws** (contra A), **nor works as ‘determiner’ of the indeterminacies left by the laws** (contra B); rather, God is in his view that actuality that makes the contingent and statistical laws possible. This has considerable theological consequences.

In the following, I first will give a short introduction and explanation of Whitehead’s view. Secondly, I shall compare it with John Polkinghorne’s chaos based model of special divine action, ending up with some evaluations of the differences.

2. Whitehead’s organistic cosmology and its two-sided concept of God

The philosophy of Whitehead is best known under the name ‘process philosophy’. However, he himself named it, much more adequately, ‘philosophy of organism’.

In Whitehead's philosophy 'reality', that what is 'really real', is fundamentally seen – not after a mechanistic model with its external causality – but after the model of an organism. Contrary to a machine, an organism develops or constitutes itself. It organizes itself out of the many data available to it. That is his basic paradigm. So, Whitehead views every elementary event (every 'actual entity', every 'really real') as a process of unification of the many influences that are given by and appropriated from its past. Since those many influences are not simply compatible, such unification can occur in several ways: it can occur trivially—by weeding out a number of the influences—or in a more difficult and complex way that results in a 'richer' synthesis. The richer the synthesis is, the better. Hence, that synthesis counts as "best" in which as many influences as possible are combined in a harmonious way.

In Whitehead's view, a new, nascent event derives the drive to its best possible synthesis from an atemporal valuation of all possibilities – a kind of optimization function, or perhaps better: a kind of fitness function – that distinguishes better from worse solutions. Such a function gives direction to the nascent entity relative to the particular situation of that entity. This 'optimization function' – which is a *conditio sine qua non* for any occurrence – is characterized by Whitehead as "divine." It is called *the primordial nature of God*, which is only an abstract aspect of the fully concrete God which is called *God's consequent nature*.

[God, as concrete, 'prehends' ('absorbs') the particularities of the actual world, that is, follows upon the actual world – which explains the expression 'consequent' –, and in that sense God may be thought of as having consciousness, affection and knowledge (PR 345). Contrary to the primordial abstract side, God as concrete and fully actual, has some temporality - not in the sense of coming to be and passing away, but in the sense of enduring growth: all God's prehensions of the temporal world remain everlastingly present in God, woven upon God's primordial concepts (PR 345). But here, our main concern will be God's primordial nature.]

There is much more to say about God, about Whitehead's concept of God, but this is enough for now, for this discussion.

In order to make the functioning of that divine primordial nature more clear, you can make a comparison with a *mathematical function* 'F' attaching (mapping) a specific *y* to a specific *x*. In this case the *x* is the initial situation, and the *y* is the initial aim related to that specific situation and mediated by the F. And as said, F may be seen more or less as what in mathematics is called an *optimization function*, or a *fitness function*.

So far, we saw two causal factors for a new event: its particular worldly situation (the *x*), and the divine ordering of all possibilities (the F), resulting in a special *y* (the initial aim).

But, Whitehead's perspective allows essentially for a third one, viz. *the new occasion itself*. For that is *the* characteristic of his anti-mechanistic, organistic philosophy.

Thus, Whitehead's perspective allows for three causal influences with respect to an elementary event: *its past*, which conditions what is possible; *the divine primordial nature*, which, in relation to that specific past, limits what is desirable and so provides the drive towards the relatively best possibility; and, last but not least, *the new occurrence itself*, which freely realizes itself both in relation to what is possible and in relation to what is desired.

So, by giving an initial aim, God provides direction to the worldly events as an attractive possibility. God lures, says Whitehead echoing Plato, but it is up to the worldly processes themselves to realize that possibility – or not, or more or less.

As said, God's primordial nature, may more or less be seen as a kind of optimization or fitness function. For, God's primordial nature assigns for every novel event various degrees of attractiveness to the different possibilities open to that event, and it thereby initiates the pursuit of the realization of the most attractive possibility for that case. In this way, God's primordial nature, though in itself immutable according to Whitehead, gives rise to a directionality that is not fixed and not predetermined. For the 'fitness landscape' provided by God as immutable 'fitness function' may change dependent upon the creative advance of the world-system. (In terms of modern system dynamics: it allows for a moving target control.)

I want add only two additional remarks:

- 1) The first one is that, according to Whitehead, the reception of its initial aim by the new occasion involves the very constitution or creation of that occasion. Without a lure as principle of unrest, there would be no longing, and thus no occurrence at all. Whitehead: "In this sense, God can be termed the creator of each temporal actual entity" (PR 224-225.245). In other words there is no pre-existent occasion to whom God gives an aim. Feeling the aim is the very constitution of the nascent event.
- 2) The second remark is that the initial aim (provided by/derived from God's primordial nature) is *not* the actual outcome of the new event, but only its initial point "from which its self-causation starts" (PR 244). This warrants both the autonomy of the new occasion (PR 244-245) and the indeterministic character of Whitehead's cosmology.

3. The possibility of 'laws' of nature as anchored in the Divine Primordial Nature

Now we have enough baggage to move on to the relationship between the laws of nature and God.

Above we explained with the help of the concept of a fitness function, that despite the immutability of God's primordial nature, its effects are dynamical. Now the same immutability of God's primordial nature provides the reason that these dynamical

effects may display a pattern. For, *the immutability of the Primordial Nature*¹ can explain why similar situations are often linked to similar best possibilities of synthesis (in terms of the mathematical expression used before: the same x will be linked to the same y), and why events in similar situations manifest therefore an *identity of pattern*. (Whitehead [1933] 1967, 112). And thus, we now can understand why God (the F), because of its stable ordering of all possibilities, may be called “that actuality in the world, in virtue of which there is physical ‘law’” (PR 283).

This appears to be the right place to call attention to the apostrophes with which Whitehead indicates “laws” in the last quote (from PR 283). It expresses Whitehead’s denial that the laws are for ever unchanging, that the laws are something on their own, prescribing the natural processes how to react. Indeed for Whitehead the so-called laws of nature are not existing unchangeable ‘things.’ Some passages taken from Whitehead express this explicitly: “People make the mistake of talking about ‘natural laws.’ There *are* no natural laws. There are only temporary habits of nature”²; and: “The notion of the unqualified stability of particular laws of nature and of particular moral codes is a primary illusion which has vitiated much philosophy” (Whitehead [1938] 1968, 13).

So far Whitehead’s model on divine agency, and on the relation of divine agency and the so-called ‘laws’ of nature.

I am now passing over to the better known model of John Polkinghorne, viz. his chaos based special divine agency model, and his views on the laws of nature.

4. Chaos-based special divine agency, and natural laws (John Polkinghorne)

As is well known Polkinghorne bases his account of special divine agency not on quantum but on chaos indeterminacy.

I skip over all the debate whether there is such an indeterminacy, and focus only on Polkinghorne’s idea how God works in such open world. According to Polkinghorne: not by manipulating and actualizing micro-events (such as is the case in the quantum based model of Nancey Murphy and of Bob Russell), but how then?

Polkinghorne wants to avoid intervention of God (as do so many others). However, true absence of intervention in the sense of breaking laws requires zero energy costs, otherwise it would be a violation of the principle of the conservation of energy. In order to clarify how divine information works without energy costs, Polkinghorne makes use of the analogy of the ‘pilot wave’ or ‘quantum wave’ of David Bohm and Basil Hiley. The influence of such pilot wave on the smallest material particles is illustrated by Bohm and Hiley by the analogy of a ship sailing on automatic pilot, guided by radio waves. (So, you have a ship sailing on automatic pilot, and you have a

¹ In order to prevent misunderstanding, though Whitehead insists that God as primordial is immutable, he explicitly states that God as fully concrete (‘God’s consequent nature’) is *not* immutable, but ‘growing’.

² This is how Lucien Price reports Whitehead’s own spoken words (Price 1954, 367).

radio wave which gives the directional information. The information is decoded in the ship, and makes that the ship goes to the right or to the left, or straight on). Bohm and Hiley point out: "The essential point is that the ship is moving with its own energy, and that the *form* of the radio waves is taken up to direct the much greater energy of the ship. We may therefore propose that an electron too moves under its own energy, and that the *form* of the quantum wave directs the energy of the electron." (Bohm & Hiley 1993, 32). Many particle physicists do not seem to be very willing to adopt this explanation of the wave-particle duality, but that is not the question here. I only quote this, because Polkinghorne uses this analogy, seeking a model to make comprehensible that God's influence can be a really guiding influence without in any way requiring something like God's energetic causality, and therefore, without in any way requiring that the principle of the conservation of energy be violated, or that God would intervene.

Thus, in stead of as 'energetic causality,' Polkinghorne conceives of God's action as 'informational causality' (Polkinghorne 1998a, 67).³ He speaks of the 'active information' provided by God, and such 'active information' "might prove to be the scientific equivalent of the immanent working of the Spirit on the 'inside' of creation" (Polkinghorne 1998c, 89), which working can be described in terms of the analogy of Bohm's guiding wave. Thus, the core of Polkinghorne's argument is that God's informational causality is of an entirely different order than physical causality which always requires an energetic aspect. Only in this way can we avoid the theologically unacceptable idea that God is simply an invisible cause among physical causes.

5. Similarities and dissimilarities between Whitehead's and Polkinghorne's views

I want to focus now on a comparison of the views of Polkinghorne and Whitehead regarding God's agency and its relation to natural laws.

So, I skip all other points for possible debat, and I only look for the similarities and dissimilarities. And I will show, that striking as the former may be, the dissimilarities are so crucial, that in the end these two models of divine action appear to be fundamentally different.

³ Polkinghorne writes: "The word 'information' is being used...to represent the influence that brings about the formation of a structured pattern of future dynamical behaviour. This is not the same as the registration or transmission of bits of information in the sense used by telephone engineers or, more formally, by the mathematical theory of communication. A much closer analogue is provided by the 'guiding wave' of Bohm's version of quantum theory. The latter encodes information about the whole environment (it is holistic), and it influences the motion of a quantum entity by directional preferences but not by the transfer of energy (it is active in a non-energetic way). For information in the sense of the telephone engineer, there is a necessary cost in energy input, since the signal has to rise above the level of the noise of the background. For the Bohmian guiding wave there is no such energy tariff; the wave remains effective however greatly it is attenuated. I believe, therefore, that it is possible to maintain a clear distinction between energetic causality and 'informational' causality..." (Polkinghorne 1998a, 66-67).

Similarities:

There are certainly some striking similarities:

- Both see *nature as non-deterministic and ontologically open* so as to allow for agency, purpose, value and so on. In a nutshell, both thinkers reject a mechanistic world-view (Polkinghorne 1998b, 6).
- Both argue in favor of *two types of causality*: on one level, causality pertains to facts while, on a different level, causality pertains to possibilities. This distinction may be conceived as parallel to the Aristotelian distinction between the level of matter and the level of form (cf. Polkinghorne 2000, 951).
- The most remarkable similarity concerns *the role of information*. Both thinkers conceive God's agency as a supply of information, viz. information about the most preferable 'direction'. The working of God as principle of concretion (Whitehead) and as active information understood in terms of Bohm's analogy of the guiding wave (Polkinghorne) show on many points a remarkable resemblance.
- For both thinkers God's influence through pure information input is of a quite different nature than the influence of worldly entities which always involves a mixture of energetic and informational causalities (Polkinghorne 1998b, 18). This results in both approaches in the theologically welcome consequence that God is not to be conceived of as a cause among other causes.

Differences

In spite of these and other striking similarities, there are very fundamental differences, both regarding 'divine action' and regarding 'the laws of nature', *which make in the end these two models totally different*.

I start with considering the fundamental differences between Polkinghorne and Whitehead concerning *divine action*.

As said, the model Polkinghorne uses, is the model of the radio wave directing the course of the ship. That means that the worldly events *are* changed by the divine information. You can say: well, the ship has to decode the possibility into actuality, but the ship is on the automatic pilot, so it has no possibility of making an own decision. The divine information therefore causes directly the direction of the ship. In comparison to this view, and to use an example of a same level, you can say that in Whitehead's view the role of God is better analogically depicted by that of gps-device. A gps-device gives information about the preferable direction, but it is the driver of the car who has to actualize that best possibility (or not). So, the gps-device (as analogon here for God) gives the best option for a way, but that does not make the car going in that direction, because the driver has an essential role in actualizing the proposed best way.

Polkinghorne never clearly explains how the divine (causing or actualizing) information leaves the creature free to explore the various possibilities of making itself. Here Whitehead's conception is useful in that it provides the necessary conceptual underpinning of such freedom and autonomy, to the extent that God's informational influence as such *cannot itself actualize* one of the possibilities.

Actualization means de-cision, cutting off of possibilities. And, precisely because God's infinite primordial nature is the conceptual realization of *all* possibilities, God cannot possibly limit the factual possibilities for an other entity (any more than white light, because it contains all colors, can limit the color spectrum of the light reflected by an object). So, God cannot provide a physical limitation, and thus no actualization (Oomen [1998] 2004, 401).

Thus, in Whitehead, God cannot direct the worldly events in an immediate way, because God has a different role: God gives information and is not actualizing. Exactly the difference between the role of the radio wave directing the ship, and the role of the gps as suggesting the best route, but not actualizing it itself, exemplifies the crucial shift from a mechanistic view to an organic view.

Let us finally explore the crucial difference between Polkinghorne and Whitehead concerning the relation between *God and the laws of nature*, which is here the focus of my interest.

Polkinghorne makes the common twofold construction, the construction that God makes the laws and acts in the room they leave. In other words, that God's creation and sustenance of the world with its laws precedes God's special actions.

In the words of Polkinghorne: "[A]ny scientific theory that tries to tell us about what happened very near the origin of the universe is going to assume that the laws of nature already exist. I ask where those laws of nature come from, and my answer is God. I think the will of the Creator allowed the history of the world to unfold."

(Polkinghorne 2001b, 1/3). Thus, Polkinghorne (like most theologians) defends an imposition view of the laws of nature. The active information (the divine special agency), as seen by Polkinghorne, therefore influences a world which is already there with its won imposed laws. The divine active information does not violate those laws, but uses the indeterminacies they leave.

In Whitehead's case the picture is quite different. I have already pointed out, Whitehead never is confronted with the problem of having to explain how God's agency can find some leeway in the framework of existing laws, nor does Whitehead have to restrict God's agency to the openings left by the laws. In Whitehead's view, God is in no way limited by the laws of nature, for the simple reason that there are no laws of nature that exist of their own, because the "laws" arise together with the by God constituted and guided events and their directionality.

Thus, in Whitehead, there is not a distinction between general and special divine agency. You can say all divine actions are special. And the togetherness of all the special actions and all the special events form together some possibility of patternedness.

So, in Polkinghorne you have the idea that God created the laws and apart from that can act in the openings they leave; in Whitehead, you have only one type of divine action. That one single type of agency is a necessary requirement
-for the existence of the world (without luring no occurrences),
-for the fact that the worldly entities has a directionality,

-and for the regularity of their dynamic behavior, where that regularity itself can change in relation to the changes that occur in the world. And in all this, Whitehead does conceptual justice to the freedom and autonomy of those entities.

6. Some concluding remarks

Of course there are a lot of remarks to make, what is the theological interest of those differences, I name only a few.

As said, there is no difference in Whitehead, between special and general divine agency, with all the related puzzles. And God's agency is not located in the indeterministic gaps but is seen as the ground of all events, and thus as the ground of their emerging habits of behavior, 'law'-ful regularities.

On the level of *divine action*, I think, the Whiteheadian view is a kind of anti-dote to some deistic tendencies in Science and Religion movements, because Whitehead's view is completely non-deistic: God is seen as involved in every particular event. But on the other hand, it is 'theistic' only in a special way, because it frees/liberates theism from its interventionist/mechanical connotations. God is not making, not producing the world, but makes it possible 'that the world makes itself' (Kingsley). So, God's working is much more immanent. It is not an allopoietic view of God, but an autopoietic view. And that guarantees the freedom and the autonomy of the worldly events.

On the level of the *laws* ... Some years ago, John Polkinghorne and I were on a conference on the laws of nature in theology in Venice, and there it struck me that with regard to the laws of nature there are globally only two positions: either the position that the laws of nature don't exist and are only mind-dependent (it is our way of thinking and looking for some regularities), or the position that they do exist, but than as the product of God's creation.

Here, in Whitehead, we have a view in which the regularities are real, are out there, not (only) mind-dependent, and that they depend on God, but that they nevertheless are not as such made/ imposed / willed by God.

As I said in the beginning, I think, this model of a new form of 'theism' ('new' because it is organistic in stead of mechanistic) gives possibilities/openings for thinking of God required for the world and involved in its evolutionary process in a much more immanent way.

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