

## **Science and theology: presuppositions, presumptions, prejudgements**

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### **Introduction**

The subjects of science and theology attempt two aspects of the experience of contemporary humans that have deep impact and significance. On the one hand, science, and the technology that is enabled by its theories, shapes our lives and has given humans immense progress in their ability to control and shape their lives and environments. On the other hand, religion continues to fulfil needs for reassurance, orientation and meaning for a great number of humans.

The discussions between science and theology have led to vastly different conclusions on the same questions over its history – from proponents of science, like Richard Dawkins, who radically deny that religion can have any truth value, to believers who decry the teaching of evolution in schools. Letters in newspapers often reflect these extreme positions.

However, there is also an immense volume of thoughtful, reflected attempts to work towards a rapprochement between these two different and important aspects of human life. Unfortunately, even thoughtful analyses often come up with deeply contrary results.

For instance, while Nicholas Saunders (2002:215) concludes that theology is in crisis, due to the inability to construct a model for the purposeful action of God in the light of the findings of science, the Divine Action Project (DAP), with its many authors, proposes and argues a number of such models which in these authors' views are viable (Wildman 2008:145).

Indeed, the DAP should be seen as a flagship – the most ambitious, coherent and long-term planned engagement of scholars in this field, centred around one topic. The intention of this twenty-year long process was to work towards a basis for discussion that is solid enough to ensure consistent progress in the field (Russel 2008:5).

The DAP was a joint initiative of the Vatican Observatory and the Center for Theology and Natural Sciences in Berkeley. This came about due to an address of Pope John Paul II, calling for a review of the science-theology debate. From this a preparatory conference was organised, held in 1987, which resulted in the publication of a conference proceedings volume entitled 'Physics, Philosophy and Theology' (Russel et al 1988).

This project consisted of a series of five extremely well-prepared conferences, dealing with different aspects of the Divine Action issue. The conferences dealt with the possible conceptions of Divine Action under the perspective of quantum cosmology and the laws of nature (Russel [1993] 1999), chaos and complexity (Murphy [1995] 2000), evolutionary and molecular biology (Russel et al 1998), neuroscience and the person (Russel et al 1999), quantum mechanics (Russel et al 2003). This culminated in a capstone conference held in 2006, which was published in the volume ‘Scientific perspectives on divine action: twenty years of challenge and progress’ (Russel et al 2008). These conferences made a significant contribution particularly because of the intensive research method adopted. A conference team, consisting of prominent researchers in science and theology, invited participants with expertise in the relevant sciences, philosophers and theologians to a preparatory conference. Papers to this preparatory conference were circulated in advance, commented on, revised in the light of comments and other contributions, and then discussed at the preparatory conference. After further revision, circulation and amendment, the papers were discussed at the main conference, and after a further revision published in a conference proceedings volume (Russel 2008:5-6).

This process involved intense discussion over a period of two or more years for each conference. The core team of researchers were involved in all seven conferences, drawing in experts and additional viewpoints for each conference.

The specific content and results of these conferences have been presented in other publications, and will not be reflected here.

However, the final self-assessments of this process, published in the concluding volume: *Scientific perspectives on divine action: twenty years of challenge and progress*, are illuminating.

In his summative paper, Robert J Russel, who led the process from start to finish together with William J Stoeger, concludes with seven challenges and associated recommendations:

- a) Explicit attention needs to be paid to differences in the doctrine of God in future research.
- b) The relative need for and merits of explicit metaphysics and philosophies of realism must be explicitly considered.
- c) The difference between compatibilism and incompatibilism, determinism and indeterminism, interventionism and non-interventionism needs to be clarified.
- d) The status of the ‘laws of nature’ needs to be reflected on – are they descriptive or prescriptive, ontologically existing or a human construct?

- e) How should a theory of Non-Interventionist Objectively Special Divine Action be assessed in terms of its fit with scientific theories?
- f) The implications of conceptions of Divine Action and scientific perspectives on theodicy and eschatology need to be considered (Russel 2008:22-26).

Many of the terms in these recommendations will only be defined further on in this paper.

In the same volume, core contributors such as Clayton (2008:92) and Stoeger (2008:230), and relative outsiders such as Tracy (2008:259), Gregersen (2008:179) and Wildman (2008:165) fundamentally question some of the distinctions and intentions that have undergirded the development of the project, such as the differentiation between General and Special Divine Action, or the achievability of traction between theological and scientific models.

From these recommendations and questions it becomes clear that much of what lies at the basis of the discussion in the DAP – the theological and scientific presuppositions and presumptions, and the presuppositions and presumptions that go into the debate – need clarification and further reflection. It is to this clarification and reflection on presuppositions and presumptions that this paper makes a contribution.

If we are to clarify and reflect, it may be wise to begin with some of the terms used, and the methodology of this paper. The following definitions come from the Webster's dictionary:

In pragmatics, a presupposition is an assumption about the world whose truth is taken for granted in discourse (Webster's Online Dictionary 2012, "Presupposition").

Presumption: Supposition of the truth or real existence of something without direct or positive proof of the fact, but grounded on circumstantial or probable evidence which entitles it to belief (Webster's 1828).

The common theme is that both of these are the basis of argument. The differences are that presuppositions are often taken for granted without voicing them, presumptions are held because of circumstantial evidence. All three, though, retain a hypothetical character.

However, should a presupposition or presumption be held strongly, and thereby force a conclusion, without the hypothetical character being maintained, it may become a prejudgement of the outcome. This is especially

dangerous if such presuppositions or presumptions are held silently and constrain the evidence that might contradict them.

### **Presuppositions and presumptions**

*Presuppositions and presumptions in the theology-science debate: the Divine Action Project*

In the debate around science and theology, there are three sets of presuppositions and presumptions involved: Those of science, theology or faith, and those of the debate between the two. Each of these is in itself a diverse field. In order to narrow this field somewhat, I will focus on the presuppositions prevalent in the DAP, and more particularly on those that appear in the organisation and structuring of the project.

As presumptions and presuppositions are often not articulated – and are not stated in the case of the DAP, I will try to derive these from the argumentative strategy that this project follows.

In doing so, it must be acknowledged that this project is composed of a diversity of authors and approaches. Different voices – some harmonising, others dissenting – are present in this larger concert. However, in being structured into a narrative thread, this thread is given some coherence, and the presuppositions of this thread are what I am after. In this, the organisers, especially Russel, who wrote the introduction to each volume and thereby structured the thread of the publications, and their contributions will deserve particular attention.

In order to approach the presuppositions of the DAP, some overview of the main thread of the argument in the volumes, and the terms used, introduced and solidified in the process must be given.

The DAP investigates how theology can speak responsibly of God's action in the world while taking scientific insights into the structure of the world seriously. Much of Christian practice – petitionary prayer, trust in God's saving action, belief in Jesus' role as self-revelation of God, the salvific deeds of God reported in the Bible – rests on the faith that God responds intentionally to humans, and is active in the world in such intentional responses (Russel [1993] 1999:4-5). However, sciences conceive of a world of natural causes, where subsequent states of the world come about from antecedent states in lawfully regular ways. The regularities of this causation are investigated by science and formulated into theories and 'laws of nature' (Russel [1993] 1999:5-6). How to bridge this dichotomy is the purpose of the investigations of the DAP. It is the aim of at least some of the participants to retain both confidence in the working of science, and confidence in the practice of faith, as the end result of the reflections (Murphy [1995] 2000:326).

The DAP distinguishes between General Divine Action (GDA) and Special Divine Action (SDA). GDA is the action of God in creating the universe, and in sustaining it, with its regularities and structures. God's creation is conceived of as ontological origination – the world is because God wants it to be, and it is as it is, because God wants it to be thus – and continuous creation in the sense that God sustains the world in being in every moment. Contrasted to this is SDA: acts of God that are either special because of their subjective significance in revealing God's character or purpose (Subjectively Special Divine Actions) or objectively special (OSDA) in that they are intentional, particular acts of God brought about to serve God's purposes, which would not have occurred if the regularities of nature had run their course (Russel 2001:310, 316; Wildman 2008:140-141).

It is broad consensus in the volumes that GDA, the action of God in originating and sustaining the universe and its regularities, is not controversial in the discussion with science – but neither does it provide traction with science. However, it is also not sufficient for theology, as it does not allow for intentional acts of God in response to humans, and makes no allowance for salvific events of extraordinary nature, such as Christ's resurrection or his healing miracles (Murphy [1995] 2000:331).

Traction, an important concept for the DAP, is the aim of much of the deliberations. The intention therewith is that the theological theory of Divine Action should not only not contradict the scientific theories investigated, but that there should be positive correspondences between the scientific theories and the theology, such that the theological conception of the way God acts in this world corresponds in some way with the world being seen by science to be open to such action by God (Clayton 2008:92-93).

The DAP then investigates the different areas of science, looking into scientific cosmology (Russel et al [1993] 1999), chaos theory (Murphy [1995] 2000), evolutionary and molecular biology (Russel et al 1998), neuroscience (Russel et al 1999) and quantum mechanics (Russel et al 2001) for possible consonances between scientific understandings and theories of Divine Action.

The books all follow the same pattern: The scientific theory is described first. Then follows philosophical reflections on the theory concerned. Thereafter, theological interpretations of Divine Action in the light of the scientific theory are presented. The last volume, though, is somewhat different, in that it replaces the presentation of a scientific theory with a summary overview of the series (e.g. Murphy [1995] 2000:xi-xii, Russel et al 1999:xi-xii).

While various theological models are discussed, throughout, and especially in the summations at the end, the aim of formulating a theological theory of non-interventionist OSDA seems to be the prime aim (Russel 2008:20-21).

This aim bears some explanation and reflection:

OSDA has been briefly explained above. Non-interventionist Objectively Special Divine Action (NIOSDA) is action that is intentionally initiated by God, besides that which would have happened in terms of the free regularities of nature, without such action being in contradiction to the lawfulness evidenced in the regularities of natural processes (Russel 2008:21).

On the basis of this structure and aim, can something be said about the pre-suppositions of the process?

While it is stated at the outset that the intention of the conference series is a two-way dialogue between science and theology (Russel [1993] 1999:3, 2008:5), the structure of the volumes, beginning with science and ending in theological responses, seems to indicate that science forms the fundamental given of the discussion, with the issue being how to accommodate theological theories to scientific insights.

This leads one to suspect that, in essence, a foundationalist theory of knowledge is followed, where the scientific theory forms the foundation, while theology can, at best, be an interpretive superstructure. This position, sometimes related to as critical realism, views the scientific theories and the entities therein as corresponding, at least asymptotically, to the reality of the world, and regards these theories as privileged knowledge – knowledge that has sufficient status that the theological theories need to accept and accommodate themselves to it (Stoeger [1993] 1999:209-210, 215; Heller [1993] 1999:96-97; Russel 2001:304).

This suspicion is confirmed by an analysis of the term ‘Non-interventionist Objectively Special Divine Action’. The distinction between GDA and SDA rests on the distinction between what the regularities of nature would have resulted in, if left to function by themselves, and what then happens differently from the ‘natural’ result if God intentionally changes the outcome (Gregersen 2008:184; Ellis [1995] 2000:371). This concept only makes sense if the regularities are seen to have some existence and permanence separate from the intention of God, and can only be conceived of as epistemologically accessible to humans if our understanding of these regularities is sufficiently close to the reality to be able to identify the difference between GDA and SDA. OSDA would be interventionist if the action of God that makes the difference would be contrary to the regularities, in other words, would break the laws of nature. Non-interventionist SDA would occur if there were an indeterminist openness in the regularities that enabled God to achieve an outcome different from the natural, but without disrupting the regularities thereof (Russel 2001:295, 304).

In the formulation above, I have tried to avoid the concept ‘laws of nature’ (for reasons that will be discussed later) – and yet, the formulation of the explanation of NIOSDA seems almost impossible without such a formulation. This, again, is indicative of a presupposition: In its aim towards NIOSDA as the preferred end result of the series, the unvoiced assumption is that the laws of nature have some independent status (Stoeger [1993] 1999:223-224).

Such NIOSDA was not conceivable in a scientific conception of the world as fully deterministic, where the full future and past of the world was determined by the state of the world at one instant. This is often seen to be the view arising from the deterministic formulations of Newtonian mechanics. However, science has developed new approaches to reality that have a more indeterministic aspect, where chance plays a role (Russel 2001:304). It is to these aspects of the newer science that the series looked to obtain warrant for, and traction with, NIOSDA. This presumed possible openness to indeterminism seems to have been the selection criterion for the scientific theories and disciplines in the series.

To summarise: two issues are determined above as presuppositions: the privileged nature of scientific knowledge, to which theological theories need to accommodate, and the objective status of the laws of nature as a prescriptive source of regularities in the world.

These issues are not discussed explicitly in detail at the beginning – indeed they are of the issues that Russel admits need further discussion at the end. However, these are issues that are discussed in detail in the theory of science. This discipline has, over the last century, had significant developments and become significantly more cautious in its claims of privilege and universal validity of scientific theories (Ladyman 2002:130, 248; Koertge 2003:85-86). It is notable that the DAP series contains little explicit discussion of the developments in this field. Such discussion may have assisted in clarifying, making explicit and critically interrogating the presupposition stated above.

A brief foray into a discussion of the presumptions and presuppositions of science may therefore be appropriate here.

#### *Presuppositions and presumptions in the practice of science*

The theory of science is a broad field, with a fair number of competing and conflicting theories. Within the ambit of this paper, these cannot be discussed explicitly. The analysis of the presuppositions below relies on dispersed material in the DAP and on the experience of science as by the author.

Science, as it is practised generally, presumes naturalism – at least, methodologically. In its operation, science assumes that the present state of the world, and of the specific subset of the world investigated, develops from

the prior state of the world according to reliable and discernible rules (Clayton 1997:171; Ruse 1982:322; Duhem 1954:19; Chalmers 1999:218) It is these rules that the scientific method is designed to formulate in terms of models and laws. This ‘presumption of naturalism’ lies at the heart of the scientific research project, together with the assumption that the development of the world from one state to the next occurs in terms of regularities that can be formulated into predictive models (Steinle 2002:423; Ladyman 2002:8). This is variously referred to as the ‘lawfulness of nature’ or the ‘algorithmic compressibility of experience’ (Davies 1992:16-17, [1993] 1999:152; Heller [1995] 2000:109).

In the presumption of naturalism, the term ‘state of the world’ is assumed, by scientists, to be given by properties of objects that are measurable (Duhem 1954:110, 118). Both the measurements and the regularities are assumed to be objective, at least in the sense that they are intersubjectively verifiable and repeatable (Chalmers 1999:24; Radder 2003:157-158).

To be concrete: Those properties for which a measurement can be specified, where the measuring procedure can be repeated with consistent results, are held to be primary properties amenable to scientific use. Experiments or observations, in general, need to be set up, and to be repeatable with consistent results. Inconsistencies in results are held to vitiate the quality of the experiment.

In summary, the following presumptions seem operative in the practice of the natural sciences:

- Presumption of naturalism: The natural state at any moment is the result of the previous natural state.
- Restriction to intersubjective verifiability: The natural state is that which can be agreed upon by different observers and measured consistently.
- Presumption of lawfulness or compressibility: The relation between the natural state at a subsequent moment, and the prior natural state, shows regularities that can be formulated in theories, which may, when sufficiently confirmed, be regarded as laws (Murphy [1995] 2000:330-331).

These presuppositions are held to become fairly firm presumptions, because, though they are not provable, the success of science in explaining many aspects of reality and enabling technologies gives the presuppositions credence – and acts as contextual warrant to give them the status of presumptions. Indeed, sometimes these presumptions are held as incontrovertible, basic truths.



The developments of evolution, quantum mechanics and chaos theory add to this the statement that where laws do not fully determine the result, or exact measurements are not possible, chance needs to be added, but the occurrence of chance-influenced events can still be understood as an outcome of law, combined with chance. In these cases, reality is seen as constrained, but under-determined, by lawfulness.

A question that needs to be raised in terms of the validation of the presumptions of science is whether the methods of science do not exclude those elements of reality that do not fit into the presumptions, and whether the circularity thereby established does not make the presumption to be pre-judgements, if the filtering effect thereof is not kept in mind. Could the scientific method conceivably deal with occurrences that are singular, and not recurring, or are they legislated out of existence?

Another issue that needs some discussion at this point is the status of the models and laws arrived at by science. The practice of science gives warrant to regard these models and laws as a compressed way to render a description of past experience, observation and experiment. However, it is an additional step to make these descriptions of the past to be laws that need to be obeyed in future. This is often referred to as the problem of induction. This is a step that is often taken for granted – both in the practice of science and in the design and use of technology. However, the conceptual differentiation of descriptive compressed summation and prescriptive laws existing and forcing behaviour in this world needs differentiation (Norton 2003:667).

In a similar vein, the differentiation of the model or map that is given in science from the reality it represents needs to be born in mind.

#### *Presuppositions and presumptions in theology and faith*

Again, theology is a broad field, and clearly cannot be summarised or presented and analysed for presuppositions in the brief scope of this paper.

That it is necessary to pay attention to the presuppositions, concepts and definitions of theology in the debate with science, and that greater precision in this regard than achieved in the DAP is required, is one of the recommendations Russel makes at the end of the DAP (Russel 2008:23-24), and that the reflective papers of Stoeger (2008:237-238) and which Gregersen (2008:190-191) confirms as well.

However, a brief sketch of presuppositions that underlie the practice of faith seems as appropriate to give as for science. In order to avoid here the intricacies of the broad theological discussion, I will refer to the practice of faith evident in prayer and hymns rather than the technical literature.

Even cursory experience and reading of hymns and prayers show a twofold character: God is praised for the regularities and normal growth of everyday life – and prayed to to sustain these regularities. Equally, within

these regularities, prayer is made for healing, good rain, protection and success of endeavours. The presupposition in this is that God both sustains the regularities of life, but also that God may be asked to ensure that the vagaries of life, which may also be detrimental, be turned towards the salvific. In other words, faith, as it is generally lived, presupposes that God acts intentionally in experienced life towards the good, while also keeping the orderedness of creation intact. Besides this, God is also held to communicate with believers, and receive communication from them (Alston [1993] 1999:186f, Murphy [1995] 2000:331).

The fundamental tension that necessitates efforts like the DAP is apparent from this analysis. Both the presumption of naturalism and the presupposition of God's responsive will and ability to act are close to the core of the programmes of science and faith, respectively. Yet, taken as strong assertions of reality, the two statements are logically exclusive. This seems to be one cause for the tensions in the science–theology debate: The core presumptions, when held strongly, are mutually exclusive. Therefore, any non-negative traction would need modification of the cores. The aim would be to do so while preserving the basis for the activities of the groups (Murphy [1995] 2000:330-331, 333-334). Scientists need to be able to continue research – people need to continue to rely on technology. Believers need to continue to pray and have faith in God, both for sustenance and deliverance.

The theological answer can be to look for opportunities for God's action indicated by theories of science after they have been formulated. This seems to be the path taken by the DAP in its search for traction with science. The problem is that this whole structure is based on the presumption of naturalism, which, if taken for universally granted without exception, actually rules out non-natural causal influence. Theologically, it also restricts the scope of the possible intentional activity of God significantly.

Alternatively, the implication to be drawn is that the research programme of science does not describe the total extent of reality (Ellis 2008:80). To put it differently, both the presumption of naturalism and of the compressibility of nature that science achieves is at the cost of some restriction in scope and inaccuracy of rendering the phenomena described.

This might be evidenced by the incompleteness of the theories that result from the practice of science, which necessitate the introduction of the term 'chance': It may indicate that either the outcome is not determined uniquely by natural causes, thereby stating that naturalism is an incomplete causal description. However, such evidence would then not be taken as a place to search for a specific causal joint for the input of God's action into the world (contra Ellis [1995] 2000:393), but rather as an indication of the incompleteness of the model science makes of the world as a whole, and a reason to hold the presumption of naturalism that underlies science somewhat more tentatively.

### **Concluding suggestions for the science-theology debate**

If the analysis of the presuppositions of the DAP above has some validity, I believe some pointers for improvement in the pursuit of the science-theology debate can be drawn.

- 1 In the debate, accommodation to science must always be accompanied by critique. If a two-way dialogue is intended, as I believe it should be, the scientific knowledge cannot simply be taken as given and complete. Theology must resist accepting the presumption of naturalism to define the terrain of the debate. Therefore, the theological critique should be on two levels:
  - (a) Epistemologically, showing up the restricted validity of the scientific method, in order to avoid the presumption of naturalism to become a prejudgement.
  - (b) Axiologically, to give value to that which the demythologisation of science would reduce to mere material, and purpose to that which science would render purposeless.
- 2 The debate, therefore, needs to proceed in at least three of the categories:
  - (a) Scientific knowledge, in its restricted realm, as explicated, needs to be taken as valid there.
  - (b) Religious knowledge, in its restricted realm, as explicated, needs to be taken as valid there.
  - (c) Religious knowledge, in as far as it depends on conceptions of the world, needs to accommodate the results science has in its limited area of validity.
- 3 In the debate, fundamental theological reflection should precede the debate, and limit the expectation of what can be achieved in it. In my view, such reflection should predict that a scientific, mastery approach of knowledge will never lead to an understanding of God's action – the hiddenness of God, and his non-subjection to our mastering knowledge precludes this.
- 4 Therefore, a conversation should have the following structure:
  - (a) The presuppositions and limits of science
  - (b) The presuppositions and limits of theology
  - (c) The limited expectations of theology from the debate on theological grounds

- (d) The limited expectations of science from the debate on scientific grounds
  - (e) The points where theology needs and can accommodate to scientific knowledge
  - (f) The points where science needs and can listen to theological insight
- 5 A debate structured in this way may, in my view, result in a more progressive research programme, rather than a defensive-adaptationist programme.

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