

On the Importance of Reaching a ‘Maturation Point’ Before Science and Religion can Interact

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Abstract. Science-and-religion interaction is rich and dynamic. It works on the basis that finding commonality and engaging in mutually enriching dialogue is both possible and worthwhile for both disciplines. Nevertheless, this interaction must respect disciplinary boundaries and the integrity of each’s knowledge-generating process. So, how to proceed? The aim of this paper is to explore the extent to which science and religion should interact with one another at the stage of model and theory formation. I argue that dialogue should be encouraged, but not during the formation stages of models and theories. I identify a critical value at which a scientific or religious model takes form, namely a ‘maturation point’, and claim that only after this point is interdisciplinary dialogue appropriate. I give three reasons. First, science and theology generate models using different *methodologies*; secondly, these models are subject to the scrutiny of different *assessment criteria* in science and theology; thirdly, premature interaction disrupts the *integrity* of the model and does not, therefore, lead to the development of greater insight. So, science-and-religion interaction should be encouraged, but not before the theories and models therein have reached a maturation point.

Key Words: Alister McGrath, Maturation Point, Models, Multiple Rationalities, Science and Religion

Introduction

Science-and-religion interaction is dynamic and rich with possibilities. It works on the basis that finding commonality and engaging in mutually enriching dialogue is both possible and worthwhile for both disciplines. Nevertheless, this interaction must respect disciplinary boundaries and the integrity of each’s knowledge-generating process. So, how to proceed? The general aim of this paper is to explore the extent to which science and religion should interact with one another at the stage of model and theory formation.

Dynamic interaction between science and religion works on the basis that finding commonality and engaging in mutually enriching dialogue is both possible and worthwhile for both disciplines. Much attention has been given to typifying the ways that science and religion can or might interact, a notable example being Ian Barbour’s fourfold typology which identifies four models of science-religion interaction: conflict, independence, dialogue, integration (Barbour 1974). Whilst much of the previous literature on models in science and religion has focused on models of science-and-religion interaction like Barbour’s, or the use of models within science and theology, an important area has been neglected. The open question is: at which developmental point in the formation of models should science and religion interaction take place?

This paper provides a reorientation of an old debate to focus on how *models* and *theories* generated by science and religion should interact, rather than the generalised discussion of how science *qua* science should interact with religion *qua* religion. The purposes of interdisciplinary dialogue are multifarious, but a significant goal is to develop a more cohesive understanding of the world through theories and models which seek to explain its features. I argue here that scientific and theological models must reach a *maturation point* before science-and-religion interaction should proceed. By maturation point I mean that the theory or model has reached a mature enough developmental stage that it has the following features:

- 1) It provides a *reasonably complete explanation* of the phenomena it seeks to explain, i.e., there are no significant open questions or areas of conceptual incompleteness that render the model or theory ‘unfinished’.¹
- 2) It is *logically robust*, meaning there are no significant inconsistencies that require further attention.
- 3) It fits within the wider theoretical framework of its discipline.
- 4) It *stands up to the scrutiny* of the discipline in which it was formed.

It is highly important in science and religion discourse to strike a balance between the developmental maturity of theories and models, and sufficient flexibility and openness with regard to certain questions such that creative engagement can ensue. One requires the models and theories to be robust enough to engage in meaningful dialogue whilst there are also enough open questions to permit dynamic interaction which promises new insight. This paper argues that if science and religion (or, more accurately, science and theology) interact before this developmental point in theory or model formation, the integrity of the theory or model may become compromised.

Models in Science and Theology

‘Model’ is understood here to refer to a representation of some phenomenon or process through the use of analogy and metaphor. Models translate, simplify, or reformulate complex or abstract concepts in recognisable and comprehensible ways, and they feature prominently in both science and theology. The billiard ball model of gases, for example, models the behaviour of gases placing emphasis on the way molecules ricochet off each other. The metaphor of God as father represents God’s paternal love for creation. A model will always be a simplification of the phenomenon it is trying to depict and will always emphasise some features more than others. Despite their limitations, it is assumed that models do depict reality in informative ways (Giere 2002; Dreistadt 1968). Importantly, models form descriptive parts of theories and are, therefore, conceptually indispensable to both science and theology. For this reason, it is of the utmost importance that theories, and the models they contain, have been properly formed and are sufficiently developed that they are robust representations of the phenomenon or process they aim to depict before they enter into dialogue with other disciplines.

In science, models have been used to map a variety of phenomena from atoms to biological organisms (Clement 1988; Keller 2002). Scientific models tend to be mechanistic, representing the composite structure or internal process of some object or entity. Peter Godfrey-Smith defines model-based science as ‘fundamentally a strategy of indirect representation of the world’ which proceeds in two stages (Godfrey-Smith 2006: 730). The first stage is selecting a hypothetical system or structure; the second stage is identifying ‘resemblance relations’ between the hypothetical system (the model) and the real-world target system that is being indirectly represented. A multidimensional space is created, Godfrey-Smith argues, that contains a variety of ways in which the model system resembles a target system. These generate representational content which can clarify complexity and facilitate advances in the relevant theory’s development.

Models are formed within the boundaries of certain rules which guide the development of the discipline and determine whether an idea or theory is permissible. In science, for example, the scientific method restricts the type of models that can be generated – those models and/or theories that are unfalsifiable are considered ‘bad science’ because they cannot be empirically or mathematically examined in the way deemed appropriate by the scientific community. So, too, in theology. A model

¹ This completeness should be understood only as what is reasonable to expect from a science, given the fact that scientific knowledge is always to some extent incomplete – i.e. models in quantum mechanics should not be excluded because there are outstanding questions regarding how QM applies to gravity.

of Christ, for example, must fit within the wisdom of Scripture and tradition or it will be deemed heretical and eschewed by the theological community. One cannot pluck models from thin air, and the criteria by which a model is generated varies between disciplines.

Ian Ramsey draws parallels between science and theology regarding their use of models. In both, models are used to articulate ideas on the nature of the universe – a common mystery. He argues that models are representations that disclose the world, offering moments of insight which reveal aspects of mystery (Austin 1968). Theological models provide clarity at moments of disclosure. Janet Martin Soskice develops similar ideas regarding the use of metaphor in science and religion. She argues that the vagueness of metaphorical terms is what makes them an indispensable tool; a lack of strict definitional stipulation allows for necessary revisability whilst circumventing problems which would arise were arbitrary terms used. Without directly describing God and risking idolatrous misrepresentation, ‘the theist can reasonably talk of his God, bound as it is within a wheel of images, as being reality depicting, while at the same time acknowledging its inadequacy as a description.’ (Soskice 1985, 141). An epistemic gap exists between humanity and God. Through symbol, theological claims can be expressed whilst retaining sufficient vagueness. This is the value of models and metaphors in theology – they represent a mystery that might otherwise be ungraspable. Importantly, though, they must represent that mystery in a theologically appropriate way. This is the balance that must be struck – vagueness, flexibility, and openness on one side, and developmental maturity, robustness, and reliability on the other. I argue that the concept of a ‘maturation point’ is a highly useful tool in finding this balance, and allowing engagement between science and theology to bring greatest insight.

The Importance of Reaching a ‘Maturation Point’ before Models in Science and Religion Interact

I have briefly indicated why models are so important in scientific theory and theological doctrine. For this reason, they must reach a maturation point before dialogue is permitted to proceed. In what follows, I give three reasons that models generated by science and theology should only be entered into dialogue once the models therein have reached a maturation point. First, science and theology generate models using different *methodologies*; secondly, these models are subject to the scrutiny of different *assessment criteria* in science and theology; thirdly, premature interaction disrupts the *integrity* of the model and does not, therefore, lead to the development of greater insight.

Methodology

Science and theology are separate disciplines that operate over distinct domains and in accordance with distinct methodologies. The aforementioned process of model formation in theology is a specialised method through which tradition, Scripture, and insights from contemporary culture are balanced (in varying concentrations, depending on one’s theological commitments) to arrive at theological understanding. It is the prerogative of theology to generate its own models, theories, and doctrines, and it has done so for centuries.

Science is an empirical discipline which has a specific methodology by which theories and models are generated and verified. Empirical observation, mathematical formalism, and probabilistic analysis all coalesce in scientific endeavour when acquiring raw data and translating it into viable scientific theories with predictive power. It is an extremely specialised process which requires a high level of expertise. For this reason, only experts within the requisite field should have a role in developing theories and models.

Alister McGrath’s work on multiple rationalities is illuminating here (McGrath 2019). McGrath’s main argument is this: human rationality is a multifaceted methodology for conceptualising and encountering the world which manifests in a plurality of forms. As opposed to a theory of a single,

universal rationality, McGrath moves the debate towards a more pluralistic approach which recognises multiple, situated rationalities. He uses Stephen Rose's term *epistemological pluralism* to describe his position (Rose 2002, 128-129). Science and theology are understood as independent on this view, and their integrity when producing descriptions of the world must be respected. Only then can interaction proceed. As McGrath writes:

Each academic discipline develops its own specific implementation of rationality, adapted to the objects of its enquiry, and often demanding the application of wisdom, craft, and judgement rather than the mechanical application of procedural formulae. This can be framed in terms of disciplinary 'fields', which are distinguished by a distinct focal problem, a domain of facts related to the problem, explanatory goals, methods, and an associated vocabulary. (McGrath 2019: 40).

Despite noting their use of distinct rationalities, McGrath argues that the intellectual borders between natural science and Christian theology are porous, and therefore that dialogue between them can be fruitful. I add the caveat that in order for these rationalities to function properly, i.e. in order that they are able to produce the requisite knowledge through their distinctive rationalities and methodologies, a maturation point must be reached before science and theology can interact. In other words, interaction is appropriate and valuable so long as the respective rational and methodological structures are permitted to form the models therein with independent expertise before that dialogue is to take place.

Assessment Criteria

Moreover, hypotheses, theories and models are subject to the internal scrutiny of their discipline before they become accepted knowledge. This process of internal scrutiny is specifically designed for assessing the viability of the models generated – this is the case for both science and theology.

Paul Tillich articulates how this works in theology through the symbol of the *theological circle*: 'theology formulates the questions implied in human existence, and theology formulates the answers implied in divine self-manifestation under the guidance of the questions implied in human existence. This is a circle which drives humanity to the point where question and answer are not separated' (Tillich 1951: 69). The theological circle is symbolically drawn by the validity of the core Christian message, and Tillich argues that theologians must immerse themselves wholly in a situation of faith. Experientially, this means orienting one's life toward living a Christian existence, allowing oneself to be grasped by the Spirit, and recognising God as one's ultimate concern. Epistemically, Tillich holds that religious claims should be subject only to the conditions of epistemic verification set by theology itself, and thus theology should not be judged by, or subject to, external verification methods. Though theology should interact with and respond to cultural institutions like science, these should not pass judgement on the validity of theology. Christianity is an internally coherent system, and this is enough.

Andrew Moore argues similarly that some elements of Christian theology resist explanation and require faith: 'theological concern ... to conserve the integrity of God's name, and to bear intellectual witness to his *character* has been increasingly eclipsed by preoccupation with defending the logical coherence of an abstract *concept* of God and her/his/its *attributes* from which biblical narrative conceptions have been almost totally eviscerated' (Moore 2003: 32-33). Externally referred theology, on this view, loses sight of the biblical witness and its portrayal of the divine. Both Tillich and Moore argue that external verification is not necessary and can actually be harmful. Through the symbol of a circle, Tillich shows that his functional epistemology begins with Christian theology and ends with Christian theology, and to stand in the theological circle (viz. to accept theological truths without needing their external verification) is to be in a situation of faith. Only internal scrutiny is appropriate when assessing the viability of theological models.

Science, too, has its own rigorous methodology which generates knowledge according to specific rules of practice. This creates, as Alister McGrath argues, its own unique functional rationality which is extremely well suited to the production of empirical knowledge. There is not scope here to delve into great depth about the scientific method, but it is worthy of note that there are several examples of theological attempts to engage in scientific work which have been far from successful.

The most notable of these is the Intelligent Design movement in the United States, in which scholars including William Dembski campaign for the displacement of evolutionary biology with a theologically motivated science concerning the origin of biological organisms. Intelligent Design (ID) identifies so-called irreducible complexity in the bacterial flagellum (among other phenomena), and frames these as evidence for Old Earth Creationism in which biological organisms are created by God in their current forms and not through a process of Darwinian evolution by natural selection (Dembski 2006). ID theorists bring theological predilections into the formulation of their scientific theory, and the result is something they claim is a science, but which has no empirical research programme and is largely rejected by biologists the world over due to its empirically erroneous foundations (Boudry *et al.* 2010; Pennock 2006). The problem here is the involvement of theology in scientific theory formation, and the results are clear. As Robert Russell writes: ‘scientific research programs ... have to be tested strictly by the scientific community and [must be] based on methodological naturalism as is the case with all theories in the natural sciences, from relativity to evolutionary biology. Though inspired by theological or philosophical ideas, the theories as such can make no reference to God’ (Russell 2003: 573).

There is much more to be said on this matter, but the salient point is this: theological assessment criteria are generally unable to generate reliable scientific theories or models. Similarly, it is not appropriate for scientific assessment criteria to enter the theological circle and affect the generation of theological models.

Integrity

The previous discussions of methodology and assessment criteria feed into and culminate in the final reason a maturation point should be reached between models in science and theology can be brought into dialogue: integrity. Science and theology are highly specialised in their own domains. Bringing insights from each together in constructive conversation can be illuminating, but until each discipline is permitted to gestate the ideas in question this should be avoided to maintain the integrity of each.

Science should not be in the business of refuting theology, and nor should theologians attempt to influence the direction of scientific theory and model formation. As Tillich writes: ‘the theologian *as* theologian is no expert in any matters of preliminary concern. And, conversely, those who are experts in these matters should not *as such* claim to be experts in theology’ (Tillich 1951: 15). Theism posits a creator God who is *transcendent*; a divine subject who is radically and wholly other. As Michael Heller argues, ‘theological questions transcend the limitations inherent in the very nature of the scientific method’ (Heller 1994, 99). Science and theology should develop their core claims without external influence. Only then can we be sure that we are on the right track, and that dialogue between science and theology can direct us towards deeper understanding.

Conclusion

In this paper, I have focused specifically on the point at which models in the two disciplines should interact with one another. Science is not in the business of theological reflection, nor is theology in the business of scientific theory formation. They each have their own methodologies, standards of scrutiny, and background assumptions, all of which comprise their disciplinary integrity and the reliability of the knowledge generated therein. These disciplines should be allowed to gestate their

models until they are robust and reliable. After this point, interaction between science and theology should be encouraged.

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