

ultimately it was the Son of God who did miracles and rose from the dead. (See Thomas Flint, "A Death He Freely Accepted": Molinist Reflections on the Incarnation, *Faith and Philosophy*, 18: 1 (2001), 5-6.) Here is how this account can be applied to the attribute of essential goodness. Jesus Christ as the Son of God was essentially good and not able to sin. But Jesus as a human being was not essentially good. He was able to sin and faced real temptation. By his Middle Knowledge of counterfactuals of creaturely freedom God foreknew that Jesus Christ as a human being would resist all temptations if he was put in the circumstances he was put in. In this way God foreknew with certainty that Jesus would resist all temptations and freely choose to accept the death on the cross for the sake of the redemption of us sinners. (See Thomas Flint, "A Death He Freely Accepted": Molinist Reflections on the Incarnation, pp. 7-10.)

Conclusion: Charles Taliaferro's book *Dialogues about God* is an excellent, comprehensive and easy-to-read introduction into the important topics about God. Taliaferro presents the different views with clarity and covers the most important aspects of the topic. It is a great introduction for undergraduate students and non-philosophers, and gives a wonderful overview of the fascinating topic of God. It is not intended to go into great depth and detail and it is not intended to advance the current discussions in philosophical theology.

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Fraser Watts (ed.). *Creation: Law and Probability*. Ashgate, 2008.

Creation: Law and Probability is a collection of papers drawn from, or prompted by, the second meeting of the International Society for Science and Religion held in Boston in 2004, and published within the Ashgate Science and Religion Series.

With a keen interest in the relation between science and religion and particular interests in the nature of physical law (probabilistic or otherwise) and the nature of chance (physical or otherwise), I found this book interesting. It gave me valuable insight into how various religious perspectives understand the concepts of law and probability, and the role those concepts play within those perspectives. (Although it should be

noted that monotheism is the dominant perspective represented.) I was particularly interested in how law and probability were understood with respect to themes such as freedom, fruitfulness, openness, and purpose.

However, while various religious conceptualizations of probability and laws of nature were well presented and examined in detail, I was disappointed by the lack of detail with which the secular conceptualizations of probability and laws of nature were presented and examined. In general (there were exceptions), the various contributors to the volume made a simple two-way distinction between laws understood as related to necessity, or related to regularity. But this two-way distinction does not capture the detail of the contemporary debate concerning laws of nature. For example, contemporary philosophy of science would identify at least a three-way distinction among theoretical positions when analyzing the metaphysics of laws of nature: dispositional essentialism, nomic necessity and regularity theory. For example, see Alexander Bird's *Nature's Metaphysics: Laws and Properties* (Oxford: Oxford University Press, 2007). And given that a number of contributors, for example Clayton (pp. 39-41), had themselves used a three-way distinction when considering the relation between laws (understood from a theological perspective) and the god of monotheism, I felt that there were interesting parallels that could have been examined more explicitly. And, unfortunately, the detail of the discussion with respect to probability was also disappointing. Contemporary philosophy of science distinguishes up to five interpretations of the probability calculus: classical, logical, frequency, propensity, and subjectivist. For example, see Salmon et al, *Introduction to Philosophy of Science* (Indianapolis: Hackett, 1999). And, I would like to have read about the compatibility of the various philosophical interpretations of probability with respect to (say) the actions of a monotheistic god.

Put simply, given the book's intended purpose (as noted in the preface), of enriching the dialogue between theology and science, there was an unfortunate imbalance in the detail of the content. I found the theological content interesting and engaging, but I suspect that a philosopher of science would find the lack of engagement with contemporary theories about laws of nature or interpretations of the probability calculus frustrating. If the detail with which some of the theological themes were examined had been matched by similar detail with respect to the examination of the secular understanding of natural laws and probability this book would have been a more significant work.

A person reading this book with a good understanding of contemporary philosophical theories about laws of nature or the interpretations of probability could apply that understanding to the theological analysis within the book itself. But the book would have been much stronger with the addition of a chapter on laws of nature (and how they relate to scientific explanation), and a chapter on interpretations of probability, both written from the perspective of contemporary philosophy of science.

None-the-less, the book is a valuable contribution to the dialogue between science and religion and provides insight into how our scientific understanding of laws and probability might be accommodated within a religious worldview.

Introducing the book, Fraser Watts identifies law and probability in *nature* as central concepts within a secular discourse, and purpose and freedom in *creation* as central concepts within a theological discourse. The interaction of law and probability is presented as a way of understanding how nature can fulfil a divine purpose. Watts also offers an outline of the chapters in the book, dividing them into three groups. Chapters 1-3 are described as philosophical, Chapters 4-7 as scientific and, Chapters 8-10 (together with the Afterword) as theological.

In Chapter Two, Peter Harrison provides a fascinating insight into the historical development of the concept of laws of nature, and highlights the important role the early modern concept of laws of nature still plays in our understanding. Beginning with the Aristotelian view that considered mathematics and science as distinct enterprises, Harrison describes how the role of mathematics, previously understood as simply an instrument for calculation, changed in scientific practice. As nature came to be seen as a machine, mathematics became the language with which it was described. Harrison ends by drawing the reader's attention to the, perhaps underappreciated, theological commitments behind our commonsense understanding of laws of nature.

In Chapter Three, Philip Clayton presents an optimistic view of the possibility of 'broad explanatory consonance' between religious belief and scientific study. Clayton identifies three major theological positions on laws of nature, namely laws as: eternal necessities; necessities imposed upon the world by divine choice; and patterns that humans detect in the natural order (pp. 39-41). The chapter explores theological interpretations of law in a number of detailed and interesting ways, but does not match that analysis with equally detailed exploration

of contemporary interpretations of law discussed by philosophers of science. As mentioned above I would like to have seen what Clayton characterizes as the three-way theological distinction considered in parallel with the three-way distinction among dispositional essentialism, nomic necessity, and regularity theory.

Chapter Four, by George Ellis, examines the so-called fine-tuning of the universe and the postulation of a multiverse as an explanatory response to the apparent fine-tuning. He considers the possibility space of universes and asks: what determines the range of possibilities, and what determines the universe (or universes) that is (are) instantiated from within this possibility space? Importantly Ellis calls our attention to the status of any answers to these questions. Are they scientific answers, or are they some sort of meta-scientific answers? After all, scientific explanations are often built out of scientific laws, but (surely) the scientific laws of this universe cannot explain the coming into being of those very laws. Ellis uses the phrase 'meta-cause' to point to this meta-scientific explanation. The chapter concludes with a discussion of the significance of the possible existence of a multiverse with respect to a number of theological and philosophical themes.

In Chapter Five, Niels Gregerson offers an interesting exploration of self-organization in and of the natural world. He suggests, rather than relying solely upon universal laws to understand the world, we should add general formative principles and causal capacities. Doing so, he claims, would allow for 'a fertile avenue for theological explanation of a self-developing world' (p. 82). Furthermore, Gregerson discourages the view that self-organization is anti-religious and points to the role that God might have 'in, with, and under' natural processes (p. 91). He suggests that divine action should be thought of not as a triggering activity but a structuring cause.

Chapter Six, written by Michael Ruse, is largely an examination of the concepts of teleology and progress in evolutionary thinking. Ruse examines the concept of progress in evolution with reference to a number of thinkers. Richard Dawkins is quoted as claiming that evolutionary progress occurs when new evolutionary possibilities come into being via major innovations such as 'the origin of the chromosome, of the bounded cell, of organized meiosis, diploidy and sex' (p. 113). In contrast, Steven Jay Gould is reported as resisting the notion that evolution is progressive, preferring the notion of 'directionality' that 'comes about through random processes and nature's constraints. Life

is a bit open ended. It started simple. It cannot get less simple. It can get more complex' (p. 119).

In Chapter Seven, Nancey Murphy addresses the free-will problem. She suggests that the free-will problem is either misunderstood or badly formulated. She sees reduction as the problematic presupposition in both compatibilist and libertarian responses. She advocates replacing reductionism with downward causation (or whole-part constraint), where lower level (either deterministic or indeterministic) processes generate variation that is then selected among by upper level processes. She claims that while most organisms have this structure, additional cognitive capacities in humans allow for free-will. These additional capacities, of self-transcendence and reason, are dependent on language and are built upon capacities that are goal directed and evaluative.

In Chapter Eight, David Bartholomew examines six topics in which probability arguments are relevant to issues of theological significance: the origin of life; God's existence; the fine-tuning of the universe; Dembski's explanatory filter; God's action in the world; and the operation of chance being within the providence of God. Unfortunately this chapter is weakened by the lack of engagement with the detail of the various interpretations of the probabilities being used in each of these arguments. None-the-less Bartholomew's discussion is of real interest. For example, I found it genuinely illuminating to learn Bartholomew's opinion (when considering the possibility that God might act 'rarely' within the bounds of a probabilistic law such that the law was not violated by God's action) that a theist would find such behaviour 'un-Godlike'. I also found interesting Bartholomew's examination of the suggestion that God might use chance within a creative process.

In Chapter Nine, Wesley Wildman advocates 'a new kind of natural theology, one that is comparative in approach and prizes transparent criteria for the sake of correcting and guiding a dynamic process of inquiry' (p. 177). Wildman reviews a range of ontologies of ultimacy (ungrounded nature, self-grounded nature, ground of being, personal being, symbiosis, non-moral dualism, and plural structures) in the light of what we know about the nature of the world. He endorses the characterization of the relation between law and chance in nature as 'law canalizing chance' and, using eight criteria, concludes that 'ground of being' and 'god-world symbiosis' ontologies of ultimacy are more compatible with laws canalizing chance than other ontologies.

Taking a global perspective, in Chapter Ten, John Bowker surveys beliefs from a number of religions that are relevant to the concepts of law and chance. He characterizes Karma as a moral law operating in the universe 'which is as certain as the law of gravity' (p. 184) and characterizes the actions of some deities as the explanation of apparently chancy events (because without such action the otherwise deterministic causal nature of the universe would not allow for chance). He goes on to highlight a common tension in a number of the world's religions, namely the tension between a single cause (God/Karma) and multiple causes (that allow for freedom). Another theme he examines is the concept of constraint. 'When world religions talk of creation (if they do), they are claiming that, in giving reasons why something, or everything, has happened, it is not possible to rule out God in the total specification of the constraints.' (p. 187)

And finally, in the Afterword, John Polkinghorne argues that our insights into the nature of physical laws (fragmented and imperfect as they are) point to the need for a deeper metaphysical explanation. 'The rationally transparent and beautiful principles of order already discerned as shaping cosmic process have a character that seems to call for further explanatory insight lying beyond that which science on its own can provide.' (p. 192) He suggests that complexity theory may be central to the advance of science, noting 'there may be undiscovered holistic laws of nature of a pattern forming kind' (p. 191), and that the concept of information may be as important to science in the next century as the concept of energy was during the last 150 years. Reflecting on the theme of the book, he observes: 'It is an important scientific insight that radical novelty ... [life, consciousness, and human self-consciousness] only emerges in regimes which can be thought of as existing "at the edge of chaos", domains where order and openness, chance and necessity, law and probability, intertwine.' (p. 190)

Having been somewhat critical earlier, I will end with praise. As someone with an active interest in the science-religion debate, I found this book interesting and valuable. It gave me insight into how a number of religious perspectives engage with the concepts of natural law and probability. And this has already borne fruit. For example, a number of contributors to the volume (e.g., Clayton, Gregerson and Wildman) make the observation that the regularity interpretation of laws of nature is arguably more compatible with theism than other interpretations. I had not appreciated this before and this observation has started me

thinking about the science-religion debate in new and fruitful ways. For example, given the compatibility between the regularity theory of laws of nature and the so-called 'block universe' theory of space-time, I am now prompted to consider the compatibility between the block universe and various theological perspectives. And to prompt such thinking is, surely, the very purpose of the book!