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Alexander Pruss *The Principle of Sufficient Reason: A Reassessment*.
 (Cambridge: Cambridge University Press, 2006). Pp. xiii + 335.
 £48.00 (Hbk).

Alexander Pruss's book *The Principle of Sufficient Reason* is an attempt to resuscitate the Principle of Sufficient Reason [henceforth, PSR] according to which everything has an explanation. Because an assessment of the PSR touches on issues in metaphysics, logic, physics, free will, and philosophy of science, an extended defence of PSR requires excursions into disparate areas of philosophy. Pruss handles all this deftly, engaging also in discussions of the historical treatment of PSR. The scope of the book is truly encyclopaedic.

Part 1 of the book is mainly an introduction to PSR. In Part 2 of the book, Pruss discusses some traditional objections to the PSR, while in Part 3 of the book, he tries to build a positive case for the PSR. These demarcations are only rough; the criticism of arguments against the PSR and the development of arguments for the PSR fill the entire book. (This can make navigation of the book a little trickier than it needs to be at times.)

Perhaps one of the most effective sections of Part 2 is chapter 6. Here Pruss criticizes Peter van Inwagen's argument for the necessary falsity of PSR. Van Inwagen's argument is as follows. Let BCCF be the (infinitary) conjunction of all contingent, true propositions. If PSR is true, then BCCF has an explanation. The explanation cannot be in terms of a contingent proposition p , because such a p would be a conjunct of BCCF, and so the explanation would be circular. But nor can the explanation be in terms of a necessary proposition, because necessary propositions cannot explain contingent propositions. So BCCF has no explanation, and PSR is (necessarily) false.

Pruss counters, however, that the proposition: 'God appreciated the reasons for actualizing a world in which BCCF was true, and chose what to create', is a necessary, self-explaining truth that in turn explains BCCF. In this way, a necessary proposition p can explain BCCF (even though p does not entail BCCF.) Of course, the non-theist will not accept this argument. For unless God is a necessary being, His existence will also be part of BCCF. If Pruss's argument is to work, he must therefore get his opponent to acknowledge the possibility of a necessary being; obviously, this is too tall an order for Pruss to meet. Although this is a significant shortcoming of Pruss's argument, his argument does, however, at least show the consistency of the PSR, and therefore dispels worries that the PSR is objectionable on purely logical grounds (so long as the logical consistency of a certain sort of traditional theism is granted).

Regardless of the merits of the argument of chapter 6, the defender of the PSR still has much work to do. A more common worry with the PSR is that, even though PSR may be logically consistent, it is actually false. Quantum mechanics, for instance, is often cited as a reason for taking the PSR to be actually false. In chapter 8, Pruss takes this matter up.

Here, what Pruss has to say is less enlightening. His most serious objection is that there is a deterministic interpretation of non-relativistic quantum mechanics (the Bohmian theory), and that QM therefore does not entail the actual falsity of PSR. But here there are several worries. Insofar as Bohmian theories have only been developed adequately for non-relativistic systems, and no compelling technical reasons have been given for thinking that adequate Bohmian accounts of relativistic systems (in particular, quantum fields) are possible, it is fair to say that the best scientific evidence currently points in favour of indeterministic interpretations of QM. But, given that the best scientific evidence points towards hypotheses incompatible with PSR, it is difficult to see what comfort there is for the proponent of PSR in the fact that the theory currently supported by the best scientific evidence might nevertheless turn out to be false. (Why not just say, after all, that QM itself might turn out to be false?) Note also that if Pruss is to maintain that PSR is a necessary truth, as he wishes, then he must additionally argue that indeterministic interpretations of QM are not just actually false, but are necessarily false. This is a very bold position, and no good independent argument for it is offered. (Pruss has other remarks about QM that I will not consider here.)

Part 3 of the book is the most ambitious. Here, Pruss tries to give positive reasons for accepting the PSR. In chapter 12, Pruss presents his 'Thomistic' arguments. For instance, he argues that everything has an essence and an act of existing. The act of existing does not exist in virtue of its essence; it must exist in virtue of its own act of existing. By why does its act of existing exist? Here, there is the threat of a viciously infinite regress – the only thing to stop it is if the essence of the original object is its being caused. Thus, Pruss thinks that a version of the PSR is necessarily true. But the terminology of this argument is neither adequately explained nor motivated, and I cannot imagine a modern reader being persuaded by it.

In chapter 13 Pruss turns to modal arguments. Here he argues that: (i) for every event E, it is possible that there is some C that is the cause of E, and (ii) if C is a cause for E, then if no cause for E were to occur, then E would not occur. Combining these claims, it follows easily that every event actually has a cause. But someone who thinks that an event E can be caused in one world and uncaused in another will simply reject (ii). The opponent to which this argument is directed must then be someone who thinks that if an event is possibly uncaused, then it is necessarily uncaused. An opponent of this sort, however, would simply reject (i). It is difficult to imagine an opponent against which Pruss's modal

argument does not beg the question. As a positive argument for the PSR, his modal argument is not convincing.

In chapters 15, 16 and 17, Pruss argues that certain fundamental forms of inference such as inference to the best explanation are invalid unless something like PSR is assumed to be true. (After all, what right do we have to infer the best explanation when an event may have no explanation at all?) But the obvious response is to argue that, through experience, we become inductively justified in believing that the members of certain classes of events *do* tend to have explanations, and in those cases, we are entitled on inductive grounds to reject the possibility that a future event in such a class may have no cause or explanation.

For instance, our everyday experience inductively entitles us to the belief that when aeroplanes crash, they do so for reasons (even though in some cases we might never know the relevant reason.) Experience entitles us to a modest version of PSR, and hence allows us modest use of inference to the best explanation. This is perfectly compatible with rejecting the PSR in the broad form proposed by Pruss.

Pruss addresses this concern in chapters 16 and 17 (see especially pages 277–279.) Pruss's concern is that we do not always find explanations for events – for instance, we do not know why Sextus Empiricus died, and we do not know why the great earthquake of San Francisco occurred in 1906 and not 1905. Therefore, the inductive support enjoyed by even a modest version of PSR, that everyone accepts is so weak that it is not plausible to think of induction as its main source of support. But these examples are not convincing. We have enough evidence that deaths and geological events occur for reasons that we thereby have strong inductive grounds for supposing that both Sextus Empiricus's death and the particular time of the great earthquake of San Francisco have explanations, even if we do not know them.

A more interesting example given by Pruss is that in which unobservables (e.g. electrons) are inferred as the result of physical experiments. Because belief in the existence of electrons is justified in virtue of the way in which electron theory explains physical phenomena, the argument for the existence of electrons is an inference to the best explanation that *presupposes* something like PSR. We therefore cannot cite the way in which the existence of electrons explains physical phenomena as part of the pool of inductive support for our modest version of PSR, as we cannot be justified in believing in electrons unless we *already* believe at least this version of PSR. So either we cannot count explanations involving electrons as inductive evidence for our modest version of PSR – in which case, the pool of inductive evidence for PSR is smaller than we might have cared to admit – or our belief in the modest version of PSR is not justified on purely inductive grounds.

But this example is not compelling either. First of all, Pruss offers no real argument that the pool of direct evidence we have for our modest version of PSR is

so small that it cannot justify belief in a modest version of the PSR still sufficiently strong to capture our everyday intuitions about when explanations exist. Second, Pruss's view of scientific inference is controversial. When a physicist conducts a scattering experiment whose outcome is taken to show the existence of electrons, the physicist acquires inductive grounds for believing in the existence of electrons. The question is whether we must take these inductive grounds to implicitly involve an inference to the best explanation. I see no good reason to suppose that this is the case, and indeed, I think the view that ordinary inductive inferences of this sort implicitly involve inference to the best explanation creates a host of philosophical difficulties where there need not be any. Of course, notable philosophers such as Armstrong and Bonjour have taken induction to be a form of inference to the best explanation, so Pruss is not alone here. However, Pruss offers no new reason for siding with this controversial view, and thus his position will not be appealing to many readers, including this reviewer.

To summarize, Pruss's book is an excellent summary of arguments for and against PSR, and will provide much food for thought for philosophers of many different persuasions. As a defence of PSR, however, Pruss's book is considerably less successful.

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