NEIL MANSON (ED.), God and Design: The Teleological Argument and Modern Science

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Suppose that I happen across a table upon which there are five dice, each showing a six on the uppermost face. What hypothesis should I entertain about how the dice came to be thus arranged? The most plausible hypothesis, surely, is that the dice were placed with the sixes showing by someone who was pleased with this arrangement. (Here, I rely on my background knowledge that there are many games in which sixes have special significance. In the game Yahtzee, for instance, five sixes is the best of all possible combinations, at least in most phases of that game.)

However, suppose that we add the further assumption that the arrangement of the dice is the result of a simultaneous rolling of the dice. What should we then suppose? The most plausible hypothesis, now, is surely that the dice were rolled many times, until the desired pleasing configuration arose. (Of course, this reasoning relies upon the same background knowledge adverted to previously.) Even though we see before us the result of a single roll—the one upon which five sixes resulted—we have resources to hand that make it reasonable for us to suppose that there were many rolls of these dice prior to the production of the configuration that we can see.

Suppose that we add the further assumption that there was only one occasion upon which the dice on the table were rolled. What then? One hypothesis that we might now adopt is that the fact that there are five sixes on display is just the result of chance: there was, after all, one chance in 11, 376 that that throw would result in five sixes. However, another hypothesis that seems worth considering is that there were many other tables in the vicinity upon which a single roll of dice was performed, and that this table—with its attendant configuration of dice—was preserved for us to see because it was one—perhaps the only one—on which a favourable result was achieved. (Such reasoning is not unfamiliar. I see film of a golfer making a hole in one, and infer that there is much unpresented film of other golfers failing to make a hole in one. I read in the newspaper that there has been at least one winner in the state lottery each week this year, and infer that a vast number of tickets have been sold to non-winners. Etc.)

Now, suppose that we can think of the fine-tuning of the cosmos for life as something like the result of the rolling of some dice. (Perhaps, for example, there was some symmetry-breaking very early in the history of the universe that resulted in values being assigned to various physical parameters.) Could it be reasonable, in the face of this evidence, to infer that there has been the analogue of many rollings of these dice, or of these kinds of dice? If we have reason for thinking that there has been the analogue of only one rolling of the dice on a given table, could it be reasonable to infer that there are the analogues of the many tables upon which there have been the analogues of single rolls of the dice?

At least superficially, the inference to many universes is tempting, and apparently supported by the suggested analogies. When I see the film of the golfer making a hole in one, it seems right for me to reason that my being presented with this particular evidence—i.e. the film and its contents—makes it more likely that there were many golfers who were filmed making shots on this hole than that there was just this one golfer whose shot was filmed. But, given that this is so, why isn't it similarly acceptable for me, when presented with the evidence that there was fine-tuned symmetry breaking early in the history of the universe, to infer that there are many universes in which this kind of symmetry breaking has occurred? Doesn't my being presented with this particular evidence—the results of the fine-tuned symmetry breaking—make it more likely that there are many universes in which there is symmetry breaking?

Several contributors to the volume under review demur. William Dembski challenges the correctness of the allegedly parallel inferences from other contexts:

> Suppose we know nothing about the number of lottery tickets sold and are informed simply that the lottery had a winner. Suppose further that the probability of any lottery ticket producing a winner is extremely low. Now what can we conclude? Does it follow that many lottery tickets were sold? Hardly. We are entitled to this conclusion only if we have independent evidence that many lottery tickets were sold. Apart from such evidence we have no way of assessing how many tickets were sold, much less whether the lottery was fairly conducted and whether its outcome was due to chance. It is illegitimate to take an event, decide for whatever reason that it must be due to chance, and then propose numerous probabilistic resources because otherwise chance would be implausible. I call this the inflationary fallacy. (256)

Now, of course, we can concede at once that the claim that many lottery tickets were sold is not *entailed* by the claim that the lottery had a winner even though the probability of any lottery ticket producing a winner is extremely low. However, even apart from our background knowledge about the conduct of the state lottery—which includes information about the fairness of the lottery and the role of chance mechanisms in deciding which tickets are winning tickets—we are surely in a position to claim that the probability that there have been many tickets sold is *raised* by the evidence that we have. It is plainly more likely that there are winning tickets every week if many tickets are sold than if few tickets are sold, even though we can imagine coming to have evidence that would defeat this probabilistic inference. Consequently, given the assumption that there is fine-tuned symmetry breaking, it is simply not clear that there is any "inflationary fallacy" involved in the inference to the claim that the probability that there are many universes is thereby increased.

Roger White takes a different line. First, he argues that the probability that our universe is life-permitting is independent of the truth of the claim that there are many universes. However—as White appears to go on to concede—even if this argument is correct, it doesn't really address the main point. For what we want to know is whether the probability that I shall be presented with the evidence of fine-tuned symmetry breaking is greater on the hypothesis that there are many universes; and this could be so even if the probability that our universe is life-permitting is independent of the

truth of the claim that there are many universes. Second, then, White goes on to suggest:

> What we need is a probabilistic link between my experiences and the hypothesis in question. One way of establishing such a link in the present case is to suppose that I was once an unconscious soul waiting to be embodied in whichever universe produced a hospitable living organism. On this assumption, the more universes there are, the more likely I am to observe one. This is not just a cheap shot. It is an illustration of the kind of story that we need to support the inference to multiple universes. (244)

But why should we think that we need a story of the kind that White proposes? If there is only one universe, and if there is random symmetry breaking, then—we are supposing—it is extraordinarily unlikely that there will be *anyone* who is presented with the evidence of finetuned symmetry breaking in the subsequent history of that universe. (If only one golf shot is filmed, then it is extraordinarily unlikely that viewers of that film will get to see a hole in one. If few lottery tickets are purchased, then it is extraordinarily unlikely that readers of the newspaper report will learn that there was a winning ticket.) If there are many universes, and if there is random symmetry breaking, then it is rather more likely that there will be *someone* who has some kinds of experiences somewhere in the multiverse. (If many golf shots are filmed, then it is more likely that viewers of that film will get to see a hole in one. If many lottery tickets are purchased, then it is more likely that readers of the newspaper report will learn that there are winning tickets.) The analogies upon which I have relied do seem to lend *prima facie* support to the suggestion that it is more likely that I shall observe a life-permitting universe if there are many universes in which there is random symmetry breaking than if there is one universe in which there is random symmetry breaking.

White suggests at least one line of response to the above argument. First, the argument is really independent of the *fine-tuning* of the universe: provided that there are many possible universes that could "arise from" some chance mechanism, it seems that I have reason to prefer the hypothesis that there are many universes to the hypothesis that there is only one universe. And, second, the discovery that there is fine-tuning surely *diminishes* the case for multiple universes, since increasing the number of universes provides a less rapid increase in the likelihood of my existence if each universe has only a slim chance of producing life than if each universe has a more significant chance of producing life. We can discount the second point immediately: the question is whether there is *any* support for the hypothesis that there are many universes in the observation of a fine-tuned unvierse; so, even if White's argument here is correct, it is irrelevant. Moreover, the first point is clearly contestable: unless there is fine-tuning, we should not think that the hypothesis that there are many universes is supported by the observation that I observe a life-permitting universe, since, in the absence of fine-tuning, there is no reason to think it unlikely that random symmetry breaking will issue in a life-supporting universe.

White also suggests that the line of reasoning that I have sketched relies upon the fallacy of setting aside a specific piece of evidence in favour of a weaker piece of evidence. True enough, White concedes, it is more likely that *someone* should observe a life-permitting universe that issues from random symmetry breaking if there are

many universes than if there is but one universe. But my evidence is that *I* observe that a life-permitting universe has issued from random symmetry breaking: and this evidence is no more likely if there are many universes than if there is but one universe, since there is but one universe that I *could* observe (namely, the one in which I find myself). I think that this objection is specious—and not supported by the general principle to which White adverts—because, in fact, I also have evidence that there are *many* observers of a life-permitting universe that has issued from random symmetry breaking, and this further claim is not entailed by the fact that *I* am an observer of a life-permitting universe of the specified kind. Perhaps there is some way of reinstating White's objection; but, at the very least, it can hardly be said that the matter has been settled by the considerations that he has advanced.

What I have said so far addresses but one of the many issues that are debated in the excellent collection of papers that Neil Manson has assembled. Apart from Manson's "modestly phrased and helpful" introduction—here, I borrow from Jack Smart's accurate endorsement on the back cover of the volume—the book has the following contributions:

I. General Considerations

1. Eliott Sober: "The Design Argument"
2. John Leslie: "The Meaning of Design"
3. Robert O'Connor: "The Design Inference: Old Wine in New Wineskins"
4. Jan Narveson: "God by Design?"
5. Richard Swinburne: "The Argument to God from Fine-Tuning Reassessed"
6. Del Ratzsch: "Perceiving Design"

II. Physical Cosmology

7. Paul Davies: "The Appearance of Design in Physics and Cosmology"
8. William Lane Craig: "Design and the Anthropic Fine-Tuning of the Universe"
9. Robin Collins: "Evidence for Fine-Tuning"
10. Timothy McGrew, Lydia McGrew and Eric Vestrup: "Probabilities and the Fine-Tuning Argument: A Sceptical View"

III. Multiple Universes

11. Martin Rees: "Other Universes: A Scientific Perspective"
12. Huw Mellor: "Too Many Universes"
13. Roger White: "Fine-Tuning and Multiple Universes"
14. William Dembski: "The Chance of the Gaps"

IV. Biology

15. Michael Behe: "The Modern Intelligent Design Hypothesis: Breaking Rules"
16. Kenneth Miller: "Answering the Biochemical Argument from Design"
17. Michael Ruse: "Modern Biologists and the Argument from Design"
18. Simon Conway Morris: "The Paradoxes of Evolution: Inevtiable Humans in a Lonely Universe?"
19. Peter van Inwagen: "The Compatibility of Darwinism and Design"

The papers by White (2000), Sober (forthcoming), Leslie (2001), McGrew et al. (2001) and Behe (2001) have appeared—or will appear—elsewhere; all of the remaining papers were written for the collection under review. The collected essays cover a wide spectrum of opinion, and will be required reading for anyone interested in contemporary debate on arguments for design.

In closing, I should perhaps add that I do not suppose that the above discussion of the inference to multiple universes is, in any way, complete or conclusive. If we merely suppose that there is "initial" fine-tuning—and do not add the further stipulation that the "initial" fine-tuning is the result of symmetry breaking, or the like, so that there is something objectively chancy about the "initial" fine-tuning—then there is nothing in that earlier discussion that supports an inference to multiple universes. (As Mellor and Manson both argue, it is highly problematic to suppose that there are "physical" probabilities that apply in this case.) Moreover, even in the case in which there is symmetry breaking in the very early universe that results in fine-tuning, it is hard to shake the suspicion that there is something wrong with the inference to multiple universes (despite the tempting analogies on offer). The only point that I hope to have made here is that the matter seems to be genuinely open: no decisive critique of the inference to multiple universes has yet appeared. (Of course, for critics of design arguments, the really important question is whether the inference to an intelligent designer is in any better shape than the inference to multiple universes. The above discussion has made no effort at all to address *this* question.)