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The real advantages of the simulation solution to the problem of natural evil

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Abstract: **Nick Bostrom has famously defended the credibility of the simulation hypothesis – the hypothesis that we live in a computer simulation. Barry Dainton has recently employed the simulation hypothesis to defend the 'simulation solution' to the problem of natural evil. The simulation solution claims that apparently natural evils are in fact the result of wrong actions on the part of the people who create our simulation. In this way, it treats apparently natural evils as actually being moral evils, allowing them to be explained via the free will theodicy. Other theodicies which assimilate apparently natural evils to moral ones include *Fall theodicies*, which attribute apparently natural evils to the biblical Fall, and *diabolical theodicies*, which attribute them to the activity of demons. Unfortunately, Dainton fails to give compelling reasons for preferring the simulation solution to Fall or diabolical theodicies. He gives one argument against diabolical theodicies, but it has no force against their best version, and he does not discuss Fall theodicies at all. In this article, I attempt to rectify this. I discuss several problems faced by Fall and diabolical theodicies which the simulation solution avoids. These provide some reason to prefer the simulation solution to these alternatives.**

Introduction

Nick Bostrom (2003) has argued that the simulation hypothesis – more or less,[1] the hypothesis that we live in a computer simulation – is surprisingly credible. The argument has attracted a robust literature (e.g. Hanson (2001); Chalmers (2003); Weatherson (2003); Bostrom (2005); Jenkins (2006); Barrow (2007); Brueckner (2008); Bostrom (2009); Steinhart (2010); Bostrom & Kulczycki (2011); Birch (2013); Eckhardt (2013); Lewis (2013); Beane et al. (2014)).

Bostrom's argument goes roughly like this. Let a 'post-human' civilization be one which has achieved as much technological development as is consistent with our current understanding of the laws of nature. Suppose people in such a civilization decided, perhaps for research or entertainment purposes, to run 'ancestor simulations', i.e. computer simulations of people in much more primitive societies. By considering the physical limits on how powerful computers can get, it can be shown that it would be trivially easy for post-humans to run very, very many ancestor simulations in a short period of time. Assume that sufficiently detailed simulations of people would themselves be people, with mental states just like ours. If the post-humans run enough ancestor simulations, it would follow that the vast majority of people with experiences relevantly like ours – i.e. experiences as of living in a technologically primitive society – are living in a computer simulation. But if we think this, we should conclude that we are probably living in such a simulation, too. Accordingly, assuming that simulated people could be conscious, one of three possibilities is true:

1. At most a tiny proportion of civilizations reach a post-human level of technological development (or, if they do, they don't last long once that happens). All of them either go extinct first or have their technological development arrested in some other way.
2. People in post-human civilizations have little interest in running ancestor simulations, and so run few of them, or none at all. They are therefore likely to be very different from us, since many of us would be interested in running ancestor simulations, if we easily could.
3. The number of simulated observers with experiences relevantly like ours substantially exceeds the number of similar, unsimulated observers. By a fairly weak version of the principle of indifference (but see Weatherson (2003) and Bostrom (2005)), we should conclude that we're probably in a simulation.

Accordingly, unless you're pretty sure that at least one of (1), (2), or the claim that simulated consciousness is impossible is true, you're committed to thinking there's a real chance that you're in a simulation.

Further, even if simulated consciousness *is* impossible, Barry Dainton (forthcoming, 7–12) notes that we could be inhabiting an artificial environment *without* being computer programs ourselves. We might, as in *The Matrix*, have biological brains which are hooked up through some kind of neural interface to a computer which is feeding us sensory data. Or we might, as in *The Truman Show*, be in an actual physical environment, but one which was artificially created – perhaps by an advanced civilization with matter-manipulation technologies of some sort. (Perhaps our environment is even radically miniaturized, to make it easier to build and run.) Throughout, I will be thinking primarily of Bostrom-style simulations, partly because I see no problem with a simulated

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person being conscious and partly because I think the argument for the claim that there is actually a high probability (rather than merely a possibility) of our living in a simulation is most compelling for a simulation of the sort Bostrom describes. But it is important to keep in mind that the other types are also options.

Obviously, all this is controversial. My view is that Bostrom's argument at least shows that the simulation hypothesis is not *crazy*, so that it is interesting to ask what implications taking it seriously might have. Barry Dainton (2002; forthcoming) has explored one such implication for the problem of natural evil: the 'simulation solution'. Famously, *moral evils* are caused by creaturely wrongdoing, while *natural evils* are not. But if the simulation hypothesis is true, then there may not be any genuine natural evils. The apparently natural evils which we see around us – earthquakes, diseases, etc. – would result from the actions of whoever created our environment. They may have been included as a result of malice or recklessness on their part. (Maybe, for instance, our programmers didn't realize we would really be conscious and harmed by the evils which their programming allowed. But they must have known there was some chance we would be, and programmed the simulation in the way they did anyway.) If so, then these apparently natural evils are really moral evils after all. God may have allowed these evils to occur for familiar free-will-related reasons. And for all we know, there may not be any natural evils in ground-level reality. Indeed, David Kyle Johnson (2011) has even argued that theists are *committed* to embracing the simulation solution, though he regards this as an unpalatable option.[2]

Say that a *subsumption theodicy* attempts to subsume apparently natural evils under the category of moral evils by showing that apparently natural evils are in fact the result of creaturely wrongdoing. The simulation solution is a subsumption theodicy. Many theists have been sympathetic to subsumption theodicies; the most popular variants in the West have been what I'll call *Fall theodicies*, which attribute apparently natural evils to the biblical Fall, and *diabolical theodicies*, which attribute them to the activity of demons. Subsumption theodicies might be appealing because, having compared free will theodicies and those intended to explain natural evils, we find the former more plausible. It might also be because, confronted with the horrors of the natural world, we have a non-inferential sense that the natural world just *can't* be operating according to God's original design, and accordingly that someone else must have disordered it.

Consider the position of Henry Morris, perhaps the most influential young-earth creationist of the twentieth century. His primary motivation for young-earth creationism was not (as I'd have guessed) biblical literalism, but rather his belief that it was the only way to make a subsumption theodicy work: he claims that 'perhaps the most serious problem (with the Darwinian picture)' is that it commits us to the view that suffering and death preceded human sin, so that, in creating, God 'must have used the principle of decay, suffering, and disorder' (Morris (1973), 72–73, quoted in Murray (2008), 89–90). Meanwhile, Greg Boyd (2001, 302), defending a diabolical theodicy, writes that if 'Satan and other spiritual

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beings rebelled against God in the primordial past and now abuse their God-given authority over aspects of the creation', then 'the pain-ridden, bloodthirsty, sinister hostile character of nature makes perfect sense', whereas, if this is not true, 'the demonic character of nature must remain largely inexplicable'. Many of us think that Fall and diabolical theodicies are obvious non-starters, perhaps for some of the reasons I survey later. But we shouldn't ignore the reasons why many have found subsumption theodicies appealing. After all, they were overwhelmingly dominant in Western thought until the modern era (Boyd (2001), ch. 1; Murray (2008), 73–80), and, as evidenced by the popularity of young-earth creationism in the United States, continue to have a healthy degree of folk support today. This suggests that there is *something* attractive about them.

So, insofar as there is something attractive about subsumption theodicies, and insofar as the simulation solution is a subsumption theodicy, there is something attractive about it. However, if it has no advantages over previously existing subsumption theodicies, it might not be particularly interesting. On this issue, I think Dainton falls short. He discusses a supposed advantage of the simulation solution over diabolical theodicies, but the best version of the diabolical theodicy is untouched by his criticism. And he does not discuss Fall theodicies at all. (Perhaps he thinks they are scientifically falsified, but, as I discuss later, this is more controversial than one might think.)

Here, I aim to rectify this by showing some problems faced by the diabolical and Fall theodicies which the simulation solution avoids. Some of these have been noted by other authors, while some are original to me. The original ones may be of interest even for those uninterested in the simulation solution. I will not attempt here to survey potential problems with, or objections to, the simulation solution, or to the simulation hypothesis more broadly. (Some of these have already been discussed by Dainton.) My aim is not to argue that the simulation solution is *all-things-considered* more attractive than alternative subsumption theodicies. The point is instead just to show that it has some serious advantages over the main alternative subsumption theodicies, so that it is worth taking seriously as an option. In the next section, I discuss diabolical theodicies. In the section after that, I discuss Fall theodicies.

Diabolical theodicies

Diabolical theodicies claim that natural evil results from the malicious action of Satan and his fellow demons. This view had support among some of the fathers of the Christian church (see Boyd (2001), ch. 1) and, as an explanation specifically of animal suffering, from C. S. Lewis (1940, ch. 9). More recently, it has been defended by certain prominent theologians (e.g. Boyd (2001) and Hart (2005)). Alvin Plantinga (e.g. 1974) introduced the idea to analytic philosophy as part of his free will defence. There, it was primarily a response to the *logical* problem of evil and only needed to be logically consistent, which it is. But Plantinga also claimed that the conjunction of it and the rest of his free will

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defence wasn't clearly improbable (1974, 193–195). More recently he has argued that it's *true*. It is fair, then, to assess it for plausibility. Plantinga apparently thinks that, while the 'contemporary intellectual elite' may sneer at the view, there are no serious objections to it at all: 'Objections to it consist much more in amused contempt or instinctive revulsion than in reasoned refutation. They are like those incredulous stares David Lewis complains of – not much by way of considered thought. But how much evidential value should be attached to a thing like that?' (Plantinga (2004), 16).

But while Plantinga may be right about the majority of the actual responses the view receives, I'm much less confident that there are no real worries with it. First, I will discuss Dainton's criticism of the view, and why it does *not* work. But I will then lay out two problems which it faces, but which the simulation solution avoids: the *precision problem* and the *diabolical problem*.

Dainton's criticism

Responding to Plantinga, Dainton provides the following as his main criticism[3] of the diabolical theodicy:

> the progress of the natural sciences over the past three centuries has been such that there is very little room left for supernatural interventions in the natural order. In St Augustine's day, the notion that earthquakes or hurricanes – and perhaps some diseases – were due to the interventions of supernatural agents was by no means entirely implausible, given the absence of compelling alternative explanations. But these days the situation is altogether different. We know that earthquakes are the products of tectonic movements in the Earth's crust, and hurricanes are the natural by-products of the circulating gases and oceanic water currents which constitute the Earth's climate systems. Bolts of lightning (terrifying though they can be) are electrical discharges, not manifestations of the displeasure of demi-gods. Diseases too are entirely natural affairs: with infections being caused by micro-organisms, cancers by malfunctions in genetic transcription, and so forth. There is no need to go on: without obvious exceptions, it looks very much as though all the natural evils we encounter in this world derive solely from the basic laws governing the material contents of our universe. For better or worse, there is little or no room left for widespread demonic interventions. (Dainton (forthcoming), 3–4)

Similar responses to diabolical theodicies have been defended by, for instance, William Hasker (2008, 65) and David Kyle Johnson (2014). Of course, the simulation solution would avoid any worries of this sort. It does not posit that anyone is interfering with nature to cause natural earthquakes and the like. It instead simply suggests that we inhabit a simulation where these sorts of things occur. There is therefore no conflict between the simulation solution and the scientific account of natural disasters, diseases, and so on, at least if the scientific accounts are understood to be referring to simulated processes. (And if we are in a simulation, this is how the scientific accounts should be interpreted; see Chalmers (2003) and Bostrom (2005), 94–95.)

However, I think that this objection misrepresents Plantinga's view. He seems to think that demons cause natural evil at least primarily by *affecting the fundamental*

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structure of, rather than *intervening* in, the natural order. So he does not posit that anyone is interfering with nature to cause earthquakes and the like any more than the simulation solutionist does. Plantinga (2004, 16) approvingly quotes Bruno Webb's statement that:

> [The view] does not mean that, for instance, an earthquake or a thunderstorm is due directly to satanic action. It is due to purely natural causes, but these causes are what they now are owing to the deep-set disorder in the heart of nature resulting from this action of fallen spirits, most subtly mingled with the action of good spirits, throughout the long ages of the world's formation. (Webb (1941), 49–50)

If diabolical theodicies really did require us to reject the scientific explanations of natural evils – so that, for instance, demonic causation of earthquakes excluded the usual explanation in terms of plate tectonics – this would be a devastating strike against them. But on Webb's view, there is no conflict. Demons are responsible for earthquakes, not because they directly cause them, but because they are somehow responsible for the fact that plate tectonics work in the dangerous way they do. I think this is what the defender of the diabolical theodicy should say, and anyway, it is what Plantinga does say. So I think Dainton's criticism fails.

The precision problem

However, Plantinga's view here raises a new issue, which I'll call *the precision problem*. Suppose the conflict between angels and demons resulted in the laws of nature being different from what they would otherwise have been. Hume thought that the order and regularity in nature was strong evidence that the world was not the product of warring deities: 'If we consider . . . the perfect uniformity and agreement of the parts of the universe, we shall not discover in it any marks of the combat of a malevolent with a benevolent being' (Hume (1779), 212).[4] Not only does this line of argument seem to count equally against Webb and Plantinga's hypothesis, it may be possible to strengthen it with modern science.

Famously, both the laws of nature themselves and many of the constants which appear in those laws are allegedly[5] now known to be 'finely tuned' for life, in the sense that, holding everything else fixed, the law needs to have a very precise form, or the constant needs to have a *very* precise value, for life to emerge. So, for instance, holding everything else fixed, 'if the strength of gravity were smaller or larger by an estimated one part in 10^{60} of its current value, the universe would have either exploded too quickly for galaxies and stars to form, or collapsed back on itself too quickly for life to evolve' (Collins (2009), 215). Fine-tuning (assuming its reality) doesn't imply that there couldn't be life-permitting universes very different from ours. But it does imply that, if such universes are possible, the laws governing them have to be very different from ours, or else they have to have numerous constants drastically changed at once, or both, since many variables are such that even slightly altering them *without* changing anything else would wreck the whole system.[6]

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Presumably, both sides in this angelic conflict were aiming for universes very different from ours. The angels wanted a world without natural evil, and the demons a world with much more. (Surely this isn't the *worst* possible environment for us to live in!) And presumably neither side won an unconditional victory, which explains why there is so much evil in the world, but still so much less than there might be. (This is what Webb seems to envision, since he talks about the effects of the actions of both sides being 'subtly mingled'.) But it would be extremely odd if an indecisive struggle between two opposing powers resulted in a set of natural laws which is totally different from what either side was aiming at but also, like the one governing our universe, tuned with mind-boggling precision to support life. (By way of analogy, suppose we have a convoluted radio with twelve tuning dials, each of which has a hundred settings. Suppose further that, out of the whole massive number of unique dial configurations, only a handful – five, say – will pick up a broadcast. The others will just yield static. Suppose further that broadcasts are 'far away' from one another, in the sense that getting from one to another requires making major changes to the settings of all, or nearly all, of the dials. And suppose I want to listen to one station, and you want to listen to another, and we fight, pushing each other out of the way, changing dials the other person tuned, and so on. Maybe one of us would win and get to listen to our station, or maybe we'd wind up with static. But it would be *extremely* unlikely for this process to result in the radio ending up on a broadcast neither of us had been aiming for.)

But perhaps I have misinterpreted the view by assuming that what the demons are supposed to have changed is the content of the fundamental laws of nature. Maybe the idea is instead that they altered the particular local conditions in which we find ourselves. Perhaps, without affecting the laws of nature, they somehow messed around with the Earth during its formation. For instance, maybe, if not for them, Earth would somehow be differently constituted so that there would be no strong earthquakes, or so that we would somehow not be threatened by them. (I *think* this is how Murray interprets the view; see Murray (2008), 103–104. It may also be suggested by Webb's reference to the 'long ages of the world's formation'.) But I doubt this is any more plausible. Within the constraints of the actual laws of nature, I doubt it is possible for the Earth to sustain life without also having natural disasters. For instance, plate tectonics, which cause earthquakes, also serve many functions (such as promoting stable temperatures) which are necessary for life as we know it (Ward & Brownlee (2000), ch. 9). And it seems unimaginable that an evolutionary process could work while producing only animals who are immune to disease, natural disasters, ageing, and so on, if such animals are even physically possible at all.

However, even if this is all wrong and it is physically possible to have a life-sustaining planet without natural evils, the view would still face a form of the precision problem. Given the current laws of nature, if a planet is to sustain life, a wide range of things must go right, from the size and distance of its star to the size and distance of its

moon to the myriad processes which affect the composition of the atmosphere and the oceans (Ward & Brownlee (2000)). Apart from the fact that we see no evidence of a historical struggle over these parameters – for instance, of spikes and declines in Earth's temperature which can't be explained naturalistically – it again seems unlikely that such a struggle would produce a habitable planet.

Of course, it is hard to draw *very* firm conclusions from this, partly because we have little idea of how angelic alterations to the natural world are supposed to work and partly because we have little idea of how the conflict is supposed to have played out. The reader can no doubt come up with any number of just-so stories to explain the situation.[7] But it remains the case that the world we observe is not what we would *expect* from an inconclusive struggle between opposing spirits, and that this has evidential import. We could do away with the whole notion of an angelic war altogether and say that the devils just had the run of the place, but then we're back to wondering why the world isn't even worse than it is. Again, we can come up with just-so stories, but these, by their nature, decrease the probability of the theodicy.[8]

Meanwhile, the simulation theodicy faces no precision problem. It posits that the observable universe is what those creating our environment were aiming for, not the result of a conflict, and thus has no difficulty explaining why it's so well-crafted. And this causes no particular problems in explaining the mixture of good and evil in the world. Unlike angels and demons, these individuals may have been neither benevolent nor malicious, but indifferent.

The diabolical problem

A second issue is that many people have reason to reject the view that demons exist and have the properties which the diabolical theodicy attributes to them. Call this *the diabolical problem*. I think this issue is somewhat overlooked because it is often thought that one would only reject the required background beliefs out of a general hostility to supernaturalistic worldviews. Plantinga (1974, 195) suggests that opposition to these beliefs will come from those who think demons are 'repugnant to "man come of age" or to "modern habits of thought" '. If there is evidence against them, Plantinga says, 'I do not know what it is' (*ibid.*). C. S. Lewis (1940, 122) similarly thinks belief in the required beings is opposed only by the 'mere, vague "climate of opinion" that we happen to be living in'. Of course, if opposition to supernaturalism really is the only reason for rejecting belief in demons who might be responsible for natural evils, then the diabolical problem will not amount to much. It would obviously be question-begging to cite such opposition as an objection to an element of a response to the problem of evil, since the theist accepts a supernaturalistic view of the world.

However, many *theists* have beliefs which are inconsistent with the required background beliefs, too. Just among the Abrahamic faiths, a prominent Jewish tradition views Satan, not as an *opponent* of God, but as a sort of prosecuting

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attorney who serves God by testing us (Jacobs & Blau, 1906).[9] The Quran states several times (2:34, 7:11–13, 17:61–62) that Satan fell when he arrogantly refused to bow before Adam. This poses problems for attributing pre-human natural evils to him (see the next section). Within a fairly traditional Christian framework, Shandon Guthrie (2017) has recently argued that diabolical theodicies must attribute to demons something too close to miraculous power to be philosophically plausible or theologically tenable. Meanwhile, liberally minded members of these traditions often don't believe in demons at all. This might be because of a misguided opposition to anything that seems overly supernatural, but it might also be because, for instance, they view their traditions' references to such entities (which might instead be explained as metaphor, or superstition, or the accidental influence of Zoroastrianism) as evidence that is insufficient to justify their accepting such an involved metaphysical hypothesis.[10] My point here is not to determine whether people should believe in demons, or what they should believe about them. The point is instead just to point out that such opposition can be based on something stronger than slavish adherence to intellectual fashion.

Meanwhile, the simulation theodicy does not commit us to any claims about demons. Obviously, it *does* commit us to the claim that we live in some sort of artificial world, which many more people reject. This does not change the fact that avoiding the diabolical problem is an advantage of the simulation solution: it makes the simulation solution more probable, as compared to the diabolical theodicy, than it would be if the simulation solution committed us to our living in an artificial world, but the diabolical theodicy did not commit us to any controversial entities. Whether the simulation hypothesis is more or less plausible than the existence of demons of the right sort is not something I will attempt to settle here. But proponents of the simulation solution can at least note that it also avoids the precision problem, and that Bostrom's argument seems to provide at least some independent reason to accept the simulation hypothesis.

Fall theodicies

The other prominent class of subsumption theodicies consists of *Fall theodicies*. These claim that natural evils are the result of the biblical Fall of humanity in such a way that those responsible for the Fall are rightly held accountable for those evils. I will not assume that the Fall theodicy is committed to every detail of the biblical account, read literally (though of course the Fall theodicist is welcome to incorporate such details, and many actual defenders of the account do in fact accept the literal biblical account). For instance, I do not assume that the Fall theodicist is committed to the claim that there was a literal first human couple who sinned, which may conflict with certain scientific findings. They may instead say that the Fall should be read as including a *group* of initial humans, or all of us collectively, or something like that. The main distinguishing feature of Fall theodicies is just that they attribute natural evil to human beings

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falling away from right relationship with God, whatever the exact details of that Fall. Dainton does not explicitly discuss the Fall theodicy, perhaps because he assumes it is a non-starter for reasons like those I discuss in this section. But Fall theodicies do have defenders. As we will see, avoiding obvious scientific problems does require that the Fall theodicist incorporate some odd elements into their view, but the proponent of the simulation solution has little standing to complain about odd elements. So I think it is worthwhile to evaluate Fall theodicies and explore what advantages the simulation solution might have over them.

The historical problem One of the most obvious issues with Fall theodicies is what I'll call *the historical problem* – the empirical objection that natural evil (in the form of animal suffering) apparently[11] predates human agents by several hundred million years, and so, presumably, couldn't be the result of human sinfulness. The response to the historical problem which is most common among *ordinary* Fall theodicists is simply to reject the relevant claim about what is apparently the case. Many young-earth creationists assert that the scientific evidence instead supports the claim that both humans and the earth were created at about the same time in the comparatively recent past, with the mainstream scientific consensus being based on a (possibly wilful) misinterpretation of the evidence. I assume that this option is a non-starter. A viable response must instead grant the apparent state of the scientific evidence and show why it does not rule out a Fall theodicy. There have been several such attempts. They are each odd, but, again, the simulation solutionist cannot complain about that. I think a more pressing worry is that each faces serious problems in explaining why God would act in the way it requires.

Perhaps the earliest attempt to reconcile the scientific evidence with the claim that humans showed up early in earth's history comes from Philip Gosse's (1857) infamous book *Omphalos*. It proposed that God created the world with signs of apparent age, so that it seems old to science despite having been recently made. Contrary to popular misconceptions of the work, on Gosse's view, this wasn't to deceive us or to test our faith.[12] It was instead because, supposedly, *anything* God makes fully formed will bear misleading 'natural signs' if it is a typical member of its kind. If God makes a typical, mature oak tree *ex nihilo*, it will have growth rings, despite being less than a year old; if God makes a typical, mature human being *ex nihilo*, she'll have a belly button, despite never having had an umbilical cord; if he makes a typical, fully formed canyon *ex nihilo*, its edges might look as if they'd been carved out by a river, even though this never happened. The point isn't to deceive, and if we are misled, it's because of our own failure to consider what God's creative action makes possible (see Murray (2008), 90–92).

Michael Murray protests. Perhaps Adam, despite never having been born, had a belly button, since typical humans have those. But:

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> Things are quite different . . . when we consider . . . the fossil-rich sandstone formations at Medicine Rocks State Park in Montana. It is much harder to see how the Gosse-type flat denier can dodge the charge of deception in cases like this. Sandstone does not *typically* contain such fossils. Nothing about the formation of natural sandstone implies or requires that fossil formations be found in them. So what necessitates or accounts for these misleading apparent signs of age? It is hard to escape the impression that such formations could only be the work of a creator that is a trickster or a deceiver. (*ibid.*, 92)

In fact, I think the situation is even worse than Murray suggests. We now know that many independent lines of scientific inquiry converge on a coherent history of the natural world. Examination of genetic similarities and differences not only cause us to postulate common ancestors but also allows us to draw up phylogenetic trees, and these turn out to cohere with the fossil record. (For instance, fossils are not randomly distributed throughout rock strata from different eras, but rather appear in about the order which genetics would independently lead us to expect.) Our understanding of mutations allows us to guess how long the evolution of creatures like us might take, and geology suggests that the earth really is old enough. Cosmology gives us a sense of how old the universe is, and leads us to think there is enough time for the earth to form and for the evolutionary process to play out. And so on. There doesn't seem to be any particular reason why God would coordinate all these things *as if* they shared an imagined history, unless he actually was intentionally trying to give the world a false appearance of age.

Meanwhile, William Dembski (2009, 124–155) defends a very different view. He suggests that world history as understood by science is correct, but that God foreknew that humans would sin and added natural evil to the world in advance:

> How, then, does God act preemptively to anticipate the Fall? . . . God does not merely allow personal evils . . . to run their course *subsequent to* the Fall. In addition, God also brings about natural evils . . . letting them run their course *prior to* the Fall. Thus, God himself disorders the creation, *making it defective on purpose*. God disorders the world not merely as a matter of justice (to bring judgment against human sin as required by God's holiness) but even more significantly as a matter of redemption (to bring humanity to its senses by making us realize the gravity of sin). (*ibid.*, 145)

One thing to notice is that this apparently commits us to God's having middle knowledge (Hasker (2008), 107) – a controversial claim. But more importantly, God's pre-emptive addition of suffering seems counterproductive, given Dembski's description of God's aims. A punishment which harms babies and animals as or more often than it affects people who have done anything wrong, and allegedly does so 'as a matter of justice', raises more questions than it answers. As far as making us realize the gravity of sin is concerned, most people throughout history have not known about the eons of evolutionary history before we came on the scene, and those who *do* almost uniformly draw the seemingly obvious conclusion that we can't be responsible for natural evil, since it predates us. (Contrast this with the situation if we knew that the Earth had been a

tranquil paradise for hundreds of millions of years until, shortly after the beginning of humanity, it plunged into the bloodbath we see today – *that* would be an effective demonstration of the gravity of sin!) So, on this view, God inflicts suffering on non-human animals for hundreds of millions of years in order to do something that apparently frustrates his purposes.[13]

More recently, Hud Hudson (2014) has ingeniously attempted to reconcile modern science and what he calls 'extreme literalism' about Genesis by appeal to hypertime. Using Hudson's view in the course of presenting a theodicy would raise a similar set of questions. (Hudson *himself* is *not* offering a theodicy, but instead just trying to show that a literal Genesis can be reconciled with the scientific record, so I don't intend this as a criticism of his work.) In Hudson's speculative story, the growing block theory of time is correct, so that spacetime is a four-dimensional block whose outermost edge is growing. Therefore the past and present, but not the future, are real. God created a spacetime block where events transpire as in the opening chapters of Genesis. When Adam and Eve exited the garden, God annihilated that block except for 'that region on its outermost edge thus occupied by these ancestors of ours and then embedded that very region and its contents in a new block' (Hudson (2014), 190) – one in which the story modern science tells about the world is correct. It thus turns out that, while modern science is correct that the events of early Genesis never happened, they really did *hyper*happen.

One cost of this story is that it commits us to a controversial view of the metaphysics of time. But another problem for using it *in the context of a theodicy* is that it's mysterious why God bothers to annihilate the original spacetime block and place our ancestors in a new one; all this seems to accomplish is making nearly everyone who knows about modern science think that the Genesis story isn't literally true, while adding hundreds of millions of pre-historic evil. Hudson offers no reason why God might do this. That's fine for his purposes, but not for someone who is attempting to explain *why* God would make a world like this.

Meanwhile, the simulation hypothesis avoids the historical problem, since the simulation hypothesis is compatible with the history of the world as told by geology, palaeontology, etc. (at least insofar as these are understood as referring to simulated processes).[14] This is a major advantage over the Fall theodicy.

The connection problem

A second issue for Fall theodicies is what I'll call *the connection problem* – it's hard to see what the causal link between the Fall and natural evil could really be. It might be claimed that, given the way God structured the world, the Fall is just a natural consequence of human wrongdoing. But this leads to what Michael Murray calls 'the fragility objection':

> In order for moral wrongdoing to leave such catastrophic consequences in its wake it must be the case that God created things so that the integrity of the natural order was, in some important

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> sense, initially dependent upon the integrity of the moral order. And this fact itself stands in need of some sort of explanation. . . . Unless there is some reason why the fragility of nature is necessary, or why making it fragile in this way makes possible certain outweighing goods, the fragility of nature itself seems to be a puzzling defect in creation. (Murray (2008), 82–83)

We might instead claim that there is no *natural* connection between sin and apparently natural evil, but, instead, that the Fall justifies God's intervening to disorder the creation. On this view, though apparently natural evils would not be a *direct* result of creaturely wrongdoing, it would nonetheless be creatures abusing their free will who were blameworthy for these evils obtaining. (Similarly, if I tie innocent people to trolley tracks in such a way that you can only save five of them by switching the trolley and killing one, I, not you, am blameworthy for the death. While you directly caused it, I was responsible for the fact that you had to cause it in order to avert a worse outcome.) This would be a story according to which God introduces natural evils as a response to non-ideal circumstances, but on which creaturely wrongdoing is responsible for the fact that the non-ideal circumstances obtain.

However, we would then need some account of why the Fall gives God reason to introduce apparently natural evils. Perhaps the most popular answer historically has been that God introduces natural evil in order to punish us for the Fall. Indeed, many defenders of this claim might say that their adherence to it is not primarily because it solves the connection problem, but because they think this is the teaching of the Bible. (For instance, some verses – e.g. Genesis 3:14–19 – seem to speak of God cursing the earth as the result of Adam and Eve's sin, which can perhaps most naturally be read as a divine punishment.) I have not treated this punishment element as *essential* to the Fall theodicy – I have allowed Fall theodicists to endorse some other connection – but clearly it often goes along with it in practice.

However, we already saw the problem with the punishment answer in the course of discussing Dembski's response to the historical problem. Much of the putative punishment falls on individuals who are not even capable of doing anything wrong, and who are therefore not appropriate targets of punishment. God is presumably capable of enacting a more targeted punishment; if for whatever reason he isn't, it's at least far from clear that he should inflict huge amounts of suffering on the innocent rather than just allowing the wicked to go unpunished during their earthly lives. And as we saw, Dembski's suggestion that God inflicts the suffering to illustrate the gravity of sin similarly faced trouble in accounting for the full scope of natural evil. Of course, other explanations might be considered, but the point is just that there is a serious problem in understanding how our sin could lead God to cause such apparently unrelated evils as animal predation.

Meanwhile, the simulation solution faces no connection problem. The fact that wrongfully creating an environment whose inhabitants are susceptible to things

like natural disasters would result in suffering raises no mystery at all. This is therefore another advantage of the simulation solution over the Fall theodicy.

Conclusion

The simulation solution to natural evil shares the main virtue of all subsumption theodicies in that it allows us to apply the free will theodicy to apparently natural evils, and its most controversial element – the simulation hypothesis – has at least some independent support from Bostrom's simulation argument. Further, as I have argued here, it has some important advantages over the main alternative subsumption theodicies. Dainton's criticism of the diabolical theodicy fails. However, the simulation solution avoids the precision and diabolical problems faced by the diabolical theodicy, and the historical and connection problems faced by the Fall theodicy. Accordingly, I think the simulation solution to natural evil is worth taking seriously. All the same, I have not taken a position on the *overall* merits of the simulation solution. Future research might focus on exploring and addressing potential problems it faces, as well as investigating any further virtues which it may possess.[15]

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Notes

1. I discuss a few different ways we might turn out to be in an artificial environment below.
2. Although Johnson was the first person to discuss the simulation solution in the peer reviewed literature, he thinks the theist would find the simulation solution 'embarrassing' (Johnson (2014), 169) and is not seriously interested in defending it. Accordingly, I will focus on interacting with Dainton.
3. Dainton also says that 'Since the relevant scriptures tell us comparatively little about Satan (or his demonic cohorts), many contemporary Christians are reluctant to fall back on Satanic explanations of anything, let alone the totality of natural evils' (Dainton (forthcoming), 3). I am not sure what the proposed connection is between these two things (i.e. scriptures saying relatively little about demons and being reluctant to accept the diabolical theodicy). It's possible that he is thinking of worries similar to those I discuss in section on the diabolical problem, in which case I am happy to have what I say there viewed as an expansion of his brief point.
4. Cf. Hasker (2008), 104:

> We would certainly like to be told more: which of the laws of physics were in question in this struggle of the good and evil spirits . . .? And since those laws apparently hold uniformly in the world as it now is, who won the battle? Apparently it was the demons who won . . . otherwise we would still have no accounting for the 'deep disorder in the heart of nature.'

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5. A referee reminds me that some authors have challenged the reality of fine-tuning (e.g. Stenger (2009), ch. 4). My view is that fine-tuning is indeed real, though I will not try to defend this here. (For a good overview of the relevant science, see Lewis & Barnes (2016).) Perhaps (as the referee notes) it will be enough here to note that anyone who accepts the reality of fine-tuning faces the precision problem if they also accept the diabolical theodicy.
6. Of course, if there *couldn't* be a life-permitting universe which was much less dangerous than ours, this would go a long way to solving the problem of natural evil without appeal to a subsumption theodicy.
7. Maybe the angels and demons had a truce and agreed to make a world with evil, but not *too much* evil, or maybe all sentient animals were going to have superpowers which protected them from dangerous natural processes while, somehow, still allowing an evolutionary process to occur, and the demons somehow took these away, or. . .
8. For an explanation of why, see McGrew (2014).
9. This is, of course, inspired by the opening chapters of the Book of Job, where Satan presents himself to God in heaven alongside the other angels, has a seemingly cordial conversation, makes several proposals about inflicting suffering on Job which God accepts, and apparently voluntarily obeys God's order not to kill Job.
10. Another possibility is that people might believe in demons, not because of references in religious texts, but because of alleged experiences of them or other paranormal phenomena. For a critical discussion of this possibility, see Johnson (2017). (I'm grateful to a reviewer for the reference.)
11. A reviewer objected to my use of 'apparently', and other similarly guarded language through this subsection, on the grounds that we *know* the relevant facts about the age of the Earth and shouldn't downplay this. I agree that we know these facts. My reason for the guarded language is not any serious doubt about these facts, but rather that such facts may not be part of the 'conversational common ground' (cf. Stalnaker (2002)) between myself and my opponent in this dialectical context. Similarly, when I say below that I 'assume' that scientific young-earth creationism is a non-starter, I just mean that I am assuming it in the context of this argument – I'm not arguing for the claim here. I don't mean that it's an arbitrary or unjustified assumption.
12. And of course, this seems like an unattractive suggestion. Many theistic philosophers (famously, going back at least to Descartes) have thought that God would not deceive or mislead us like this. In fact, the presumption against divine deception is so strong that, while there is a literature on whether sceptical theism might entail that we have no good grounds for thinking God wouldn't deceive us, this is almost always taken as a problem which the sceptical theist must avoid, not as an implication that we might seriously accept (e.g. Wielenberg (2010); an arguable exception is Hud Hudson's novel *A Grotesque in the Garden*).
13. For further discussion of Dembski, see Hasker (2008), 103–109. Peter van Inwagen (2006) has defended a somewhat similar explanation of the occurrence of natural evils among *humans*: as a result of the Fall, God withdrew preternatural powers which he had given to humans and which previously allowed them to avoid natural evils. The point was to illustrate to humans what a world without God really meant, thereby furthering the divine plan of salvation. But van Inwagen does not even attempt to apply this explanation to pre-human suffering, or even to animal suffering at all, instead employing a different defence altogether in those cases (see *ibid*., ch. 7). He therefore presumably agrees that this approach cannot begin to explain the full scope of natural evil, and thus cannot undergird a successful subsumption theodicy. (He considers the diabolical theodicy (*ibid*., 131–132), but rejects it in favour of a non-subsumptive theodicy which appeals to the value of regular laws of nature.)
14. It *may* be that our programmers, wanting to get to the good stuff, began the simulation *in medias res* and didn't bother simulating the long eons when the universe had no life. The observable universe would then be much younger than science thinks. But there would be no problem in explaining the misleading appearance; it would be the result of our programmers wanting to get to the good stuff and not caring if that caused us to form mistaken beliefs about natural history.
15. For comments on earlier versions of this article, and discussions of some of the main ideas, I am grateful to audiences at the St Thomas Summer Seminar on Philosophy of Religion, the Eastern Regional Meeting of the Society of Christian Philosophers, and many particular individuals, most of whom I have now unfortunately forgotten.

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