



ORDER: GOD'S MAN'S AND NATURE'S

A Philosopher's Perspective on Anthropic Fine Tuning

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I shall start by indicating how I shall understand a couple of crucial terms, what I shall be meaning when I talk this afternoon of 'the universe' and of 'God'.

By 'the universe', I shall mean the physical reality that we encounter in everyday life - we presume - and all things causally connected to it which admit, at least in principle, of scientific explanation. So, I shall mean to include by the word 'universe' not merely the observed universe, but also the unobserved - sections of space-time beyond our light cone. If, as the Everett interpretation of Quantum Mechanics suggests, each time a quantum state 'collapses' as we might put it¹, the universe branches, then all the branches taken together make up one universe in my sense of universe. Similarly, if the Big Bang was caused by a collision of higher-dimensional membranes, then the membranes *et al.* are, collectively, the universe. And so on. I won't labour the point with more examples, the point being that, as I shall be using the term, the universe includes all and only entities the explanation of which would be part of a completed science.

By 'God' I shall mean the God of classical theism: a supernatural person who is omnipotent, omniscient, perfectly good, and creator of everything other than Himself. I take it that the existence of such a God is logically possible. And I also take it that, were God to exist, He would - of necessity - not be a part of any universe as I am using the term because, were He to exist, He would lie outside scientific explanation in principle. The God of classical theism is - by definition - the creator of everything other than Himself, so, if He exists, He is the creator of our universe, whatever its nature may be (branching, bubble, *et cetera*), and of any other universes that there might be too.²

This afternoon I shall be giving my perspective, which is indeed just one philosopher's perspective, on the following:- the probability of every possible universe being actual, what I shall call the 'maximal multiverse hypothesis'; its probability relative to that of God's being actual, the 'God hypothesis' if you will; and their

¹ 'Collapses' then needs scare quotation marks as, on the Everett interpretation, instead of really collapsing, every component of the wave-function lives on in some branch or other.

² The use of 'universe' and 'God' then necessitates that if there is a God, he exists outside any and every universe. If God exists, it is not then strictly-speaking correct to say we live in a universe in which God exists. Rather, we should say we live in a world in which God (and at least one universe) exists. (See note 31 on page 185 of the second edition of Swinburne's *The Existence of God*.)

relative probabilities on the evidence provided by certain general features of the laws of nature which we take to be operative in our universe, what might be called the ‘fine tuning of the universe to us’ and the ‘fine tuning of us to the universe’. (I shall explain what I mean by fine tuning and us in a moment.) As well as considering the relative probability of these two hypotheses on the evidence provided by fine tuning, I shall also be considering the probability of the evidence on these hypotheses as that is, I take it, relevant to their relative satisfactoriness as explanations of that evidence.³

In considering these hypotheses I shall be allowing myself then to think that in principle the probability of various explanatory hypotheses which make reference to things beyond the universe – specifically other universes or God – might be raised or indeed lowered by our discovery of features of this universe.

Some philosophers would of course have a different perspective on the legitimacy of this. Some are very chary of talking of probabilities in this area for they hold exclusively to a frequentist understanding of probability, thinking that whenever one talks of probability one is gesturing to a series of trials and talking about the relative

³ I’ve focused on the maximal multiverse hypothesis and the God hypothesis as these two hypotheses are, I am assuming, the simplest naturalist and supernaturalist hypotheses that one might suggest as explaining the fine tuning. The simplicity of the maximal multiverse hypothesis is an issue to which I shall return in due course; the relative simplicity of the God hypothesis amongst supernaturalist hypotheses is one that time considerations force me to assume. I do argue for it elsewhere, e.g. Mawson 2005, part I. In doing so, I follow in broad outline Swinburne, who argues that polytheism, for example, has a prior probability lower than classical theism (e.g. Swinburne 2003, 107) due to its complexity. As well as its simplicity, the God hypothesis has its plausibility as a metaphysical necessity on its side relative to alternative supernaturalist hypotheses. Suppose that we allowed that a hypothesis positing the pantheon of Greek gods was as simple as classical theism and raised to the same extent the probability of the fine tuning that we observe. Unless the fact that the pantheon of Greek gods existed would be as plausibly necessary were it to obtain as the fact that the God of classical theism existed would be necessary were it to obtain, the God hypothesis would nevertheless be a better explanation of the fine tuning and the existence of the Greek pantheon is less plausible as a necessity (if it obtains) than the existence of the classical theistic God is plausible as a necessity (if it obtains). So, even suspending judgement on its relative simplicity, we are justified in starting with a presumption that classical theism is to be preferred as a potential explanation of the fine tuning over Greek polytheism and, as the same considerations apply *mutatis mutandis* to other supernaturalist hypotheses, over these too. Were the proponent of Greek polytheism or an alternative supernaturalist hypothesis to assert his or her religious beliefs as beliefs in metaphysically contingent things and assert that the metaphysical contingency of his/her explanation didn’t undermine its truth, we might agree. Were he/she to maintain that its contingency didn’t undermine its explanatory value, we should disagree. Greek polytheism and other supernaturalist hypotheses, if they present themselves as metaphysical contingencies, just push the fine tuning up a level. (And if, as just mentioned, they present themselves as metaphysical necessities, they are less plausible as such than classical theism.) We shall come upon this issue again in the main text when discussing the first naturalistic model for explaining the fine tuning of the constants; the higher-level fine tuning reemerges on it, prompting the move to the maximal multiverse model. The notion of plausibility in play here is certainly a difficult one, but the same notion is in play in other areas of Philosophy too, whenever one judges of things that they are metaphysical necessities. (The fact that nobody has yet built a time machine such as that depicted in H. G. Wells’ story *The Time Machine* is more plausible as a metaphysical necessity than the fact that nobody has yet built a space ship capable of interstellar travel.) This notion is not, I suggest, reducible to the notion of simplicity or even universally conjoined with it: it may be in some cases that that which is relatively complex appears more plausible as a metaphysical necessity than that which is simpler. There being nothing at all would be simpler than there being something, but – given that there is something – we know that there being something is more plausible as a metaphysical necessity than there being nothing.

frequency of a certain outcome across that series. Where that sort of background is lacking, such people say, attributing probability to a hypothesis doesn't make sense or perhaps – more minimally – makes sense but is something for which one cannot have any reasons. Obviously in the case of the hypothesis that there's a God or indeed the hypothesis that there's not a God, we don't have this sort of background, so, such people maintain, we can't talk of the probability of such hypotheses being true. We can't stand back and look at say a 1000 universes and see – for example - that 900 of them are created by God and only 100 are brute facts, thus concluding that it's 90% probable that theism is true and only 10% probable that atheism is true on the evidence given to us by the existence of a universe. We can't do that, so we can't talk of probability here. Well, that's what some people say, but I would contend that it rests on an overly restricted understanding of probability. To see why, engage in the following thought experiment with me if you please.

Suppose that scientists had discovered that the universe was composed of a certain type of fundamental particle each one of which had inscribed on it in Times Roman zero, point zero, zero, zero, some-tiny-size font, 'This Particle Created by the God of Classical Theism.' What would we say to someone who, on being made aware of this startling discovery, said this? 'My notion of probability is such as to mean that I cannot allow that this evidence raises the probability of Theism for it does nothing to allow me to stand back and look at multiple universes, observing the frequency with which this property is conjoined with God and the frequency with which it is conjoined with no God.' Well, we'd surely say that they'd just shown themselves to have an overly restrictive notion of probability. That sort of evidence – had it been forthcoming – really would have raised the probability of there being a God beyond reasonable doubt and anyone whose notion of probability is such as to mean that they'd say that it wouldn't is someone whose notion of probability is one we have *ipso facto* good reason to reject as exhaustive of legitimate notions of probability.

Now we'll all have noticed that we're not actually in a universe where scientists have discovered that written on every fundamental particle is an unambiguous message purporting to be from the creator. But we are in a universe where scientists – and indeed philosophers - have discovered lots of interesting things and some of these, I suggest, have a bearing. Let's turn to the scientists first.

Scientists tell us that had the Big Bang had slightly more force, then the universe would have expanded at such a fast rate that no stars, planets, or life could ever have formed. Had it expanded slightly more slowly, everything would have collapsed back in on itself under gravitational attraction before life could have formed too. As well as that which controls the force of the Big Bang, there are a number of other quantities in the laws of nature, and scientists are approaching consensus on what are the maximum deviations in these quantities that would nevertheless have allowed life to have formed. Thus, they tell us, the Cosmological Constant could only have deviated by a factor of one over ten to the power of 120; the ratio of Electrons to Protons by one over ten to the power of 37. And so on. There are, I believe, currently thought to be about twenty of these things. Of course some of these things may be shown in future to be derivable from others or two or more from something more basic than any of them, but we'll be left with at least one, even in a completed science.⁴ We may thence be led to picture in our imagination our universe as one amongst many possible universes, in each of which the same natural laws operate, yet in only a very few of which life is possible as in only a very few of which do these constants manage to hit just the right values, thus concluding that our universe is

⁴ There are many good discussions of these things in, e.g. Leslie 1989, Rees 2000, Barrow 2002, Collins 2002 and Holder 2004.

'fine tuned' to life; universes which permit life are uncommon in what we might therefore call the immediate 'wider landscape'⁵ of other possible universes, universes with the same laws as ours but different constants. And the fact that the universe has hit just the right values is something, it might be suggested, that needs explanation, an explanation best provided, it has often been suggested, by the God hypothesis.⁶ Thus, the 'fine tuning' version of the Design Argument.⁷

By far the most common objection to the fine tuning version of the Design Argument may be put as follows: 'Fine tuning can't be in need of explanation because we couldn't observe a universe which wasn't fine tuned. We wouldn't be here to think about it if it hadn't happened, so the fact that it has happened isn't worth thinking about.' This, despite its almost universal appeal, is, I take it, shown to be misguided by thought experiments such as the following, which I adapt from Swinburne.

'A terrorist ties you up in a room with a machine. The machine is linked up to a bomb which will, if it explodes, kill you. You see the terrorist put ten ordinary packs of cards into the top of the machine. He tells you that the machine will thoroughly shuffle these cards and then select ten at random and drop them into a little tray at its front. Only if the ten it dishes out are all aces of hearts will the bomb not go off. He leaves you. The machine whirs away. The first card comes out - it's an ace of hearts; the second, another ace of hearts; the third, ace of hearts; and so on. In fact, all ten are aces of hearts. The machine goes silent; the worrying red light on the bomb turns to green. You have survived.'⁸

This would require some explanation. The chances of ten aces of hearts being dished out in a row if the machine worked as the terrorist said it did are very small and the fact that something very improbable has happened needs explanation in terms of something that would make it less improbable, for example the machine selecting cards on a basis which actually gives it a preference for aces of hearts. If the terrorist came in and brushed off your survival as not needing explanation, as not being a fact which gave you a reason to suspect that the machine was not as he had described, you would give him short shrift, even shorter shrift than you would be inclined to be giving him *qua* terrorist anyway. It may be true that you could not have observed any other outcome, but another outcome was - if what the terrorist told you

⁵ I talk in terms of 'landscape' as does Susskind (2005, *passim*) although with something slightly different in mind; Leslie talks in terms of a 'local area of possible universes' (1989, 138). There is room for confusion here between considering the landscape/area being talked of as a landscape/area of possibilities, or one of actualities. In fact Susskind's term 'landscape' refers to different solutions to string theory which are instantiated via Linde's eternal inflation model and so form part of the one actual universe in my sense of universe; he calls this the 'megaverse'. These things are glossed over rather in the main text, but not in a way that affects the validity of the argument.

⁶ Of course gods other than the classical theistic God could explain the fine tuning, but the classical theistic God hypothesis is the simplest god hypothesis and the most plausible as a necessary truth, so it is the one that should be preferred. See previous note.

⁷ Of course, much depends on how 'life' is taken. Carbon-based life of the sort we are familiar with obviously occurs in less possible universes than life on more relaxed understanding. But the proponent of the argument characteristically urges that life *per se* requires some degree of structuring and in the vast majority of possible universes there is not sufficient structuring to allow it to arise however relaxed (yet plausible) a definition of life one operates with. Certainly the sort of life on which we'll be focusing needs this structuring.

⁸ Mawson 2005, 145

was correct - immensely more likely. So, from the fact you have survived, you have reason to believe that what the terrorist told you was not correct.⁹

Similarly then, if there were nothing outside the universe, there would be no process selecting values for these constants, constants which have to be finely tuned for life to be possible. The fact that they have the values they do would then be a matter of random chance. That is a possibility. But then the probability of their coming out in the way that they have would have been fantastically small in the one and only universe. It's far more likely then, so the argument goes, that there's something outside the universe, in some sense selecting these values. From the fact that the universe is fine tuned to life, one has reason to believe that there's almost certainly a fine tuner. At this stage, another objection is usually raised:-

If the machine had dished out what we'd all think of as a random selection of cards and the bomb gone off as a result, then that state of affairs - the bomb's being set off by just that particular selection of cards - would have been just as improbable as is the state of affairs of its ending up *not* being set off as a result of the ten cards all being aces of hearts. Yet one would not say that the bomb's going off in this manner needed an explanation. Or, if one thought that even this would need an explanation, one would be thinking that it would do so due to some more general feature of it, for example that it would be a contingent happening, and due to one's holding approvingly in one's mind the principle that contingent happenings need explanation. To go down that road however would be to take oneself outside the territory of the Design Argument and into that of the Cosmological Argument. To stay an argument from fine tuning then, the improbable feature which one takes to be evidence of a fine tuner has to be *special*, special by reference to a standard objective enough to mean that it would have applied regardless of what had happened.¹⁰

This, I think, is a more powerful objection; it reveals a more controversial assumption on which the argument rests. The proponent of the fine tuning argument may however reply to it by saying that surely life *is* special, if not the life of slugs or beetles, then the morally sentient, conscious, life of significantly free agents such as ourselves. The title under which I am speaking suggests a focus on humans - 'anthropic fine tuning' - and I shall indeed so focus, but the crucial features here are not by definition restricted to humans: any creatures like us in being morally sentient, conscious and significantly free would also be special in the way we take ourselves to be. The assumption on which the argument rests then is that we in this room in virtue of being this sort of thing simply *are* more important than a similarly massive collection of non-sentient, unconscious, non-agents, for example a pile of rocks lying on the surface of a desert. That's why, if a meteorite were to hit this building and destroy all of us, it would have destroyed something more important than if it had hit the desert and destroyed the rocks. Anybody who really didn't believe that rocks were less important than life of our sort would be someone who didn't know what – or rather who - to prioritize saving when fire engulfed both an orphanage and a Geology Museum.

Such a response, whilst I would maintain in every respect true, would not go far enough to ground the argument.

⁹ Although see Sober 2004. For a very full and balanced discussion of observer selection effects, see Bostrom 2002.

¹⁰ Bradley 2002, 382-385, discusses this point, although in discussing it in terms of objectivism, he does not draw out the requirement of what I call the trans-universality of value. A naturalist realism is, I take it, a version of objectivism, but would not be sufficient for the fine tuning argument to go through.

The universality of at least some values – by which I mean their holding throughout the universe – need not be questioned by the opponent of the fine tuning argument pressing this objection to it. The point at issue here is the putative *trans*-universality of the value of life of the sort we are concerned with – its holding *across* universes. (Remember: in the case of the ten aces of hearts needing an explanation, they did so because the outcome was special *by standards which would have obtained regardless of what outcome had obtained*.) In other words, the opponent of the fine tuning argument may concede that, say, significant freedom for morally sentient creatures such as ourselves is a good everywhere within this universe, whilst maintaining that its absence from, for example, a universe consisting of just one hydrogen atom isn't a relative deficiency in that universe; after all, it's certainly not bad for anyone in that universe that they don't enjoy significant freedom; it's not bad for anyone as there's no-one there for whom it can be bad.

The trans-universality of at least some values is, I must admit, less obviously correct than the universality of at least some values, but, I believe, it is correct nevertheless. We can, I suggest, see that a universe consisting of only one hydrogen atom, for example, would have certain good features: it can be imagined to have a certain simple beauty about it (although of course there'd be no-one in it to appreciate that beauty); there would be no suffering in it; there would also be no shameful viciousness or wilful ignorance. But there would equally-certainly be bad features of a universe consisting of only one hydrogen atom: as I say, there'd be no-one in it to appreciate whatever beauty it had; there'd be no pleasure; no justifiable pride, virtue, or knowledge in it.¹¹ That, in any case, would be my view. It is controversial; it would certainly not be the perspective of all philosophers, probably not even that of many philosophers. But it is my perspective and, whilst I'd be happy to defend it further in discussion, for the moment I shall proceed on this assumption.¹²

Even on the assumption that our sort of life is trans-universally valuable, I would contend that so far the proponent of the fine tuning version of the Design Argument has given us no reason to posit any *extra-universal* fine tuner.

Were our universe in fact one where each of the values of what are then somewhat misleadingly called 'constants' is 'tried out' somewhere or 'somewhen', as it were, then what I previously called the 'wider landscape' of other possible universes would actually be encompassed within this universe; they wouldn't just be possibilities, they'd be actualities. And thus the fine tuning of which I have so far made mention would disappear. Perhaps ours is an oscillating universe, where each Big Bang is the other end of a Big Crunch, the curvature of space-time gradually altering with each crunch and bang towards being life-permitting. Perhaps the higher-dimensional membranes are multiply colliding, or bubble sub-universes frequently emerging from the mother universe, each 'trying out' one of the possible values that what we call 'constants' might take. In any of these cases, the fine tuning spoken of so far would not need an extra-universal (i.e. outside the universe in my sense of 'universe') fine

¹¹ If there's not going to be any significant freedom in a universe, then adding to it morally sentient creatures in all respects other than their lack of freedom like ourselves would certainly make it worse, because then this deficiency would not only be bad, but there would be people for whom it was bad. But the fact that adding morally sentient people to a universe where there is never going to be any significant freedom would make it even worse shouldn't blind us from the fact that it was in one respect at least bad beforehand, in not containing such goods as the presence of morally sentient beings entails.

¹² I do defend it orally in a podcast (<http://commonsenseatheism.com/?p=8095>), which refers to my book and a paper, in which I defend it more fully.

tuner.¹³ It is this very fact that explains the attractiveness of views of this sort to some scientists. (Confusingly - given my use of the terms 'universe' and 'multiverse' - these views are sometimes called multiverse views.) According to some such scientists, the fine-tuning of the force of the Big Bang, for example, does need an explanation, but it gets an explanation that doesn't posit anything God-like from the fact that the wider universe (in my sense of 'universe'; those propounding these views often call this wider whole the 'multiverse'), has parts which instantiate each of the different values that the relevant constant might in principle take. The same thing goes for the other constants. If Swinburne's terrorist tried his machine out enough times to make sure that every possible series of ten cards was eventually dished out, then of course one of his victims would eventually end up surviving.¹⁴

Such a view might seem then to make the fine tuning disappear, but in fact it merely relocates it to a higher level. If the universe as a whole (in my sense) creates space-time subsystems randomly or in an evolving way such that a life-permitting subsystem, whilst improbable in any particular instantiation or oscillation, becomes a statistical certainty over the infinite range, there is still fine tuning in that it is still a general feature of the universe that it permits in principle life-conducive space-time subsystems to come into being, rather than confines what may come into being to parameters that necessitate lifelessness. Thinking in terms of our imaginary persistent terrorist, the fact that he feeds *ten* packs of cards into the machine on each occasion he tries it out, rather than say nine (which would of course then render it impossible for anyone to survive it however many times he tried it out¹⁵), permits - indeed over an infinite number of runs makes a statistical certainty of - a victim surviving. So there is higher-level fine tuning even here.

There is another hypothesis that suggests itself as the natural extension of the one we have just been considering. It pushes one step out. On the hypothesis we've just been considering, the universe had one set of natural laws, but varied in the values various 'constants' took in sub-systems within that universe. A natural extension of this hypothesis, what I call the 'maximal multiverse' hypothesis, asserts that every possible universe is actual. The higher-level fine tuning which remained on the previous hypothesis disappears on this one: the maximal multiverse hypothesis explains more; as well as explaining why the 'constants' are as they are (they're every value that they can be somewhere) it explains why the natural laws are as they are (they're every form they can be somewhere). Thus, it is preferable. The moral of the story so far then might be summed up as follows: on the assumption of the trans-universality of the value of life of our sort, you should think that the fine tuning of the universe to this sort of life needs explanation and, if you're going to believe in a naturalistic explanation of this fine tuning, you should believe in the maximal multiverse.¹⁶

¹³ Examples of such theories would be Susskind's (2005) and Smolin's (1997). To make the outcome we are concerned with a statistical certainty, we'd need to formulate these hypotheses so that they involved an actual infinity of oscillations or what have you. Otherwise the outcome would just tend towards a statistical certainty as the number of oscillations or what have you tended towards infinity.

¹⁴ Here and elsewhere I assume certain things about how one may speak of probabilities even when considering sets of possible outcomes with an infinite number of members. In doing so I set myself against some of what is said in T. McGrew *et al.* 2001. This is discussed in Oppy 2006, 205-207. See also Swinburne 2004, 185-188 referring back to 168-172 and Koperski 2005.

¹⁵ This is assuming that the machine works as the terrorist describes it, of course.

¹⁶ Compare Lewis 1986 and Tegmark 2007. It will be noted that I am ignoring one common objection to multiverse theories; that they are 'unscientific'. Of course I would dispute the claim that is sometimes made, that multiverse theories are unscientific as there is no

What I am suggesting then is that an infinite number of infinitely variable universes would explain the existence of the fine tuning we have hitherto discussed at all levels. If you're a terrorist who can link enough devices to enough other devices according to enough principles, you'll find yourself trying out a bomb/card set-up such as Swinburne's, infrequently to be sure, but an infinite number of times to be sure too, and thus a victim will, now and again, survive. If you stick enough animals in front of enough pieces of equipment, then - sure you'll get a frustrating proportion of bees in front of typewriters and monkeys in front of beehives - but you'll occasionally get a monkey in front of a typewriter; and - if you do it enough times - this occasional happening will eventually lead to monkey Shakespeare. So it is a certainty that in a maximal multiverse composed of an infinite number of infinitely variable universes 'somewhere' in the maximal multiverse, there'll be a universe like ours.¹⁷

At this stage, we appear then to have two reasons to suppose that the maximal multiverse hypothesis is a better explanation for the fine tuning of our universe to us than Theism:-

Firstly, and most obviously, on it, the probability of our universe existing is one. Given that on the hypothesis every possible universe exists, so, on the hypothesis, our universe - being possible - *has to* exist. Theism, by contrast, in picturing the existence of the universe as the result of a free choice on God's part, a choice which - being free - He did not have to make in the way that He did, may be able to raise the probability of this universe existing on the hypothesis, but it cannot raise the probability of its existing on the hypothesis to one.¹⁸ Of course, we're primarily

evidence in favour of them; the fine tuning of a universe to the sort of life on which we're focusing is evidence in favour of them. 'But such models don't provide causal explanation', someone might say. Indeed, the maximal multiverse has explanatory power, yet the explanation it provides is not causal; so much the better then, I would reply, as anything which explained the universe causally would itself be part of the universe (if the causal explanation was a scientific one) or God or something similar (if not).

¹⁷ I take it that this is the solution to what Hacking calls the problem of the 'inverse gambler's fallacy'. Pace Hacking (1987), if you were a surviving victim of the terrorist we are imagining, and you knew the machine to work as the terrorist had described it, you *could* then conclude from your survival that it was more likely that the terrorist had tried his machine out many times than that he had tried it out only once. And the simplest hypothesis that has him trying it out many times is the hypothesis that he has tried it out an infinite number of times. The fact that we know that there aren't these sorts of actual infinities within our universe is why we are not intuitively drawn to such a hypothesis. We don't know that there are not the relevant sort in the case of the situations that concern us in the main text. There is then another objection to the theory, that actual infinities are not physically realizable. Copan and Craig explore this in Copan and Craig 2004 as do Ellis, Kircher, and Stoeger (2003) and Stoeger, Ellis, and Kicher (2004). I ignore this in the main text as my overall conclusion does not depend on this objection failing.

¹⁸ There are a number of possible universes which are not fine tuned to life of the sort we're interested in, yet which plausibly have certain good-making features and which God may have chosen to create in virtue of these features. We have considered one such universe, a universe with just one hydrogen atom in it, and suggested that it would have the good-making feature of a certain sort of beauty. It's not then that fine-tuned-for-life-of-the-sort-we're-interested-in universes are the *only* ones that God might have good reason to create. But this doesn't matter for the argument; as long as a fine-tuned-for-life-of-the-sort-we're-interested-in universe would be 'quite likely to occur' (Swinburne, 1990, 155) on Theism, then whatever other universes are more or less likely to occur on the God hypothesis in addition is beside the point (although see discussion in main text concerning the explanatory power of the maximal multiverse hypothesis relative to the God hypothesis in raising the probability of the evidence to one). Of course, merely assessing the probability of the evidence on the

interested in the probability of the hypothesis on the evidence, not that of the evidence on the hypothesis, but, as an explanation of some evidence, a hypothesis that gives that evidence a probability of one is in that respect at least the best sort of explanation one could ever get.

Secondly, the maximal multiverse hypothesis is simpler than the Theistic hypothesis.¹⁹ The maximal multiverse hypothesis might seem *prima facie* much more complicated than the hypothesis that there's one universe and one God, but it is not really more complicated in the way we care about when comparing hypotheses.

Simplicity considerations operate on types of entity as well as tokens of a type. The maximal multiverse hypothesis is simplest on types of entity; there's only one type of thing, universes. The God hypothesis is simplest on tokens of type; on it (at its simplest) there are only two tokens, one each of two types of thing, the first God and the second the universe. I suggest that simplicity with regard to type is to be preferred over simplicity with regard to token and thus that the infinite number of infinitely variable universes hypothesis is actually a simpler hypothesis than the God hypothesis.²⁰ If you think you might disagree with me, consider the following. For this

hypothesis will not get one very far in assessing the probability of the hypothesis on the evidence, since an inherently improbable hypothesis may give a high probability to the evidence; hence the unavoidability of prior probabilities and – I would concede – the unavoidability of using simplicity, as it strikes one, to judge of these. But it is the unavoidability of just this sort of thought process which, as we shall see, forms the basis for the most powerful version of the Design Argument. So this can hardly be an objection to my argument.

¹⁹ Some suggest that simplicity considerations favour the God hypothesis over the maximal multiverse hypothesis (Moreland and Craig, 2003, 487 and Holder 2005, 16). It is an implication of the final argument that I shall advance that, ultimately, we cannot advance above brute intuitions here. It has been suggested that since Kepler's and Ptolemy's laws of planetary motion involve equations with common variables, at least the number of free parameters in those equations can be compared and relative simplicity judged thereby (Dowe *et.al.*, 2007), although some (Forster, 2003) would deny even this. However this issue is to be resolved, it seems plausible that nothing similar is possible when comparing the God hypothesis to a multiverse hypothesis. Swinburne suggests, in essence, that a hypothesis is simple insofar as it involves few substances and few properties, but this is not unproblematic as the properties in turn need to be simple ones (not *grue/bleen*-type ones), which just pushes the problem on a stage. All that being so, the approach taken in the main text, to pump an intuition with a thought experiment and then move on, is, I suggest, the only approach to take. See though Swinburne 2001, 83-102. It may also be worth pointing out at this juncture that my final conclusion doesn't depend on the maximal multiverse hypothesis being simpler (in that it says that even if it's simpler, we should still prefer the God hypothesis).

²⁰ This is also the view of David Lewis, the most prominent exponent – although for quite different reasons - of the maximal multiverse hypothesis (D. Lewis, 1970, 185). See also Bradley 2002, 389. Arguably the situation is not so clear cut as I make out in the main text: some of these universes – lots of them indeed - contain types of thing that don't exist in our universe, e.g. new sorts of particles (sorts that are physically impossible in our universe), so one might argue that my saying in the main text that on the maximal multiverse hypothesis, there is only one type of thing, universes, is too quick. My intuitions go as they do as I suppose that physical stuff (whatever universes are made up of) is fundamentally one type of thing and spiritual stuff (whatever God is made up of) is fundamentally another. This raises then the general problem of how we are to determine whether two objects, A and B, are two tokens of the same fundamental type or one token each of two types. Insofar as A and B may be discriminated between (and thus plausibly are numerically distinct), there will be some qualitative difference between them in virtue of which we make the discrimination and, in *lieu* of anything else, this could always be used as the hook off which to hang a claim that they are tokens of two types of thing. 'We should not be talking of A and B as two peas in a pod', someone might say, 'but rather as one A-pea-in-a-pod and one B-pea-in-a-pod'. But, I take it,

thought experiment to work, one needs to sweep from one's mind the fact that one knows certain things about poppies and fields, e.g. that there cannot be an infinite number of poppies in a field as each poppy takes up a certain amount of space and no field can be that big. With this background information swept from one's mind, consider then the following:-

You have just come upon a field in which, as far as the eye can see, poppies wave gaily at you; they stretch over the horizon in every direction. One person with you suggests the hypothesis, 'These poppies never end; there's an infinite number of poppies in this field'. Another suggests the following, 'There's a huge but finite number of poppies and at least one other type of flower in this field'. Surely you would favour the former hypothesis, even though it posits infinitely more tokens than the latter, which posits one more type. Why, when each would equally well explain the data – poppies stretching out as far as the eye can see? It must be simplicity, mustn't it?

So what, if anything, can be said *against* the maximal multiverse hypothesis? There is something, and it is something decisive. Let us approach saying it somewhat obliquely, by looking at a danger to which the maximal multiverse hypothesis *need not* succumb.

It may look as if the maximal multiverse hypothesis, in making every possible universe actual, 'explains too much'. It might appear to suggest that *whatever* feature of the laws of nature was discovered and posited as giving reason to believe in God, the maximal multiverse hypothesizer could, on his or her hypothesis legitimately, explain it by saying, 'Well, every possible thing happens somewhere and this is somewhere after all'. If that *were* what the maximal multiverse hypothesizer could always - by his or her own lights, legitimately - say regardless of the feature, then that would be very implausible.

We may imagine a modified terrorist example to bring this implausibility out.

The situation is as in the original example except that the terrorist tells you that the machine will dish out *twenty* cards selected at random from the *twenty* packs it shuffles. As before, only if the first ten are aces of hearts will you live, but only if the next ten are aces of hearts *as well* will you be given a Singapore sling to toast your good fortune. The first ten are aces of hearts; you survive; the next ten are aces of hearts too; the terrorist enters, mixing your Singapore sling.

The terrorist can brush off your surviving by pointing out that he's used the machine an infinite number of times, but he cannot brush off your getting the Singapore sling by pointing out that he's used the machine an infinite number of times. Why? The Singapore sling needs an explanation – I take it - precisely because of those people who do manage to survive only a tiny proportion go on to enjoy a Singapore sling in addition. Assuming the terrorist tries his machine out an infinite number of times, people – an infinite number of people indeed - will survive and people – an infinite number of people indeed – will enjoy Singapore slings, but amongst the set of people who survive (amongst whom you may safely number yourself after the tenth card has

some concepts strike us as gerrymandered: in the situation I am imagining, it strikes the majority of us that two peas in a pod, A and B, are not tokens of two types of thing, but rather two tokens of the one type of thing, a pea in a pod; indeed peas are just one type of thing whether they're in a pod or not. In deciding which concepts are gerrymandered however, we will be drawn back to judgements of simplicity. See previous note and later discussion in the main text.

been drawn) the frequency of Singapore sling drinkers is very low; the chances of you getting a Singapore sling after you've survived are the same as the chances of you surviving in the first place and those are very small, very small indeed.²¹ That being so (and a Singapore sling being - I am taking it - something rather special, even if only to humans), the Singapore sling needs an explanation of a new sort.

This must be right for a reason we have already come across: the maximal multiverse hypothesis should not be able to leave as not requiring any explanation beyond itself a discovery that every fundamental particle had written onto it 'This Particle Created by the God of Classical Theism'. And it need not: the maximal multiverse hypothesizer can explain why such a discovery would indeed be in need of an explanation that took one beyond the maximal multiverse hypothesis by pointing out that amongst those universes which are conducive to life of our sort the frequency of those with such messages written on their particles is extremely low. So, the maximal multiverse hypothesizer must - but can - leave the door open to the possibility that there may turn out to be features of our universe that need an explanation which takes one beyond the hypothesis, i.e. features which show the maximal multiverse hypothesis to be explanatorily inadequate, 'Singapore sling' features if you will. Now we have noted that the door is open, let us go through it.

So far we have been considering the fine tuning of the universe to us, or - more specifically - to us *qua* morally sensitive and significantly free creatures (morally sensitive and significantly free creatures being better contenders for being trans-universally valuable than beetles.) Let us now turn to consider the fine tuning of us - or, more specifically, us *qua* morally sensitive and significantly free creatures - to the universe. We shall concentrate on a feature of our relationship to the universe that one need not posit is trans-universally valuable; one need only recognize that it is a feature which is valuable, indeed essential, to us and this nobody will deny. (So at this stage in the argument, the assumption of the trans-universality of values is dropping out.) It is a feature that has been discovered and the significance of which has been pointed out, not by scientists, but, pleasingly, by philosophers - arguably Kant and certainly, more recently, Walker²². The feature is the continuing tractability of the universe to the process of induction as we find ourselves engaging in it.

²¹ I am then assuming that the machine shuffles each pack separately and then draws a card in turn from each shuffled pack, rather than mixes the packs in together with one another during the shuffling process.

²² Walker attributes it to Kant in Walker 1999, chapter 11; there are also versions in e.g. 1989. See also Schlesinger 1984. There is a parallel here with worries as discussed by e.g. Davies 2006, chapter 8, that multiverse theories make versions of Bostrom's simulation argument more pressing or they make more pressing the hypothesis that we are probably so-called 'Boltzmann brains' (see esp. discussion in R. Collins, forthcoming), worries which do not arise on the hypothesis of 'a God who is no deceiver', as Descartes might have put it. As well as the line of thought explored in the main text (which applies induction primarily to time going forward [although secondarily, in a later note, to time going backwards too]), we might consider Penrose's (2004) argument, which applies it to space going outwards. As Holder put Penrose's argument in an email to me: 'The creator had 1 in 10 to the power 10 to the power 123 universes to choose from, only one of which would be as ordered as ours. However, to make life you only need a solar system's amount of order. To make only a solar system, surrounded by chaos, by the random collisions of particles, which is all that is required to make life, the order required is much less than this, though still vast. It is 1 in 10 to the power 10 to the power 60. Since 10 to the power 10 to the power 123 swamps 10 to the power 10 to the power 60 completely, what that means is that although a universe with order 1 in 10 to the power 10 to the power 123 exists with probability 1 if all possible universes exist, the probability of ... [creatures such as ourselves] observing such a universe is only 1 in 10 to the power 10 to the power 123'. He suggests a helpful analogy, drawing on the typewriter one. 'Suppose you have a monkey typing and life corresponds to its coming up with 'To be or not

The process of induction is the process of believing that the future will resemble the past in the broad sense that the simplest laws that can be made to harmonize with past experience will continue to hold in the future. This principle lies at the root of all action.²³ Induction's inescapability then is secure, but its applicability – *its continuing to work* – is not, a point that Hume was first to press upon us and that Goodman has since made all the more pressing.

Goodman famously introduced to the philosophical lexicon two portmanteau words, 'grue' and 'bleen'.²⁴ We may define them - following him in spirit if not letter - thus: an object is grue in colour just if it is green before time *t* (where time *t* is a particular but arbitrary time in the future, let us stipulate then whatever time it is that will be two seconds after I finish speaking this afternoon) and blue after time *t*. An object is bleen in colour by contrast if it is blue up until time *t* - blue up until two seconds after whatever time I finish speaking - and green thereafter. Goodman pointed out that we all believe (or at least think we believe) that emeralds are green and thus believe that we are thinking that the future will resemble the past when we think that emeralds will stay green tomorrow. However, as he also pointed out, the evidence we have collected to date – all of it of course being collected before time *t*, before two seconds after I have finished speaking - equally well supports the claim that all emeralds are grue. Someone to whom the concepts of grue and bleen came naturally, in expecting nature to continue on as it has done in the past, would thus expect emeralds to stay grue, which in our terms would amount to their expecting them to change from green to blue. But we are not such people and it is we who get things right, get them right time after time. Walker again: 'Nature keeps on working in such a way as to meet our expectations: yet our expectations are based on nothing more secure than the accident that we normally classify in one way rather than another – that we use the concept 'green' rather than the concept 'grue'.²⁵ This is a remarkable co-incidence, the equivalent of a continuing run of aces of hearts, a continuing succession of Singapore slings being mixed up for us by the universe.

The most frequent first reaction to this point is to say that grue is a more complex concept than green, but (a) this is not obviously so from any transcendent standpoint and (b) it is irrelevant.

to be, that is the question'. It is much more likely to come up with that than the whole of Hamlet, so it is vastly more probable that 'To be or not to be, that is the question' is surrounded by junk than the rest of Hamlet, let alone the whole of Shakespeare. Thus ... [creatures such as ourselves] are far more likely to find ourselves in a solar system surrounded by total chaos than in a totally ordered universe'. It is of course less obvious that it is valuable to creatures such as ourselves not to live in such a spatial 'oasis' than it is that is valuable to us not to live in such a temporal 'oasis', which is why I think this variant of the argument is weaker than the one discussed in the main text. Matters are similar, I suggest, with regards to certain features of our universe which one might think are 'over designed'. For example, the proton lifetime is at least 2×10 to the power of 32 years, i.e. at least ten to the power of 22 times the age of the universe, which is vastly longer than needed for life to form. It is less immediately plausible that a universe 'special' by being over designed in this way is evidence of God. We shall return to some of these issues at the end.

²³ As Walker puts it, 'Alternative, counter-inductive procedures are conceivable, whereby the future is expected to be different from the past; but no experience of the failure of induction would make us adopt counter-induction instead. For the counter-inductivist's reaction to the observation that past futures have not resembled past pasts is to expect that this will now cease, and that in future things will turn out as his inductivist rival would anticipate.' (Walker 1999, 171)

²⁴ Goodman 1955, chapter 5

²⁵ Walker 1999, 172

With regards to (a): a person who had been brought up using grue and bleen would have to have what would strike them as our hopelessly time-indexed terms 'green' and 'blue' translated for them. An object is green in colour, we would have to explain - trying our best to meet their incredulous gaze steadily - just if it is grue up until two seconds after Mawson finishes speaking this afternoon and bleen thereafter. An object is blue, we would continue, if it is bleen up until two seconds after Mawson's finished speaking and grue thereafter. They would be astonished that we projected such 'bent' predicates as green and blue. 'Why are you expecting emeralds to change colour at that time?' they would ask us. 'Why not believe as we believe', they would say, 'that emeralds will continue to be the colour they always have been, grue?' On hearing this, we would naturally think that our positions were precisely the reverse: 'It's not *us* who are believing that things will change', we'd protest. And we'd think our fates were reversed too: 'it won't be *us*', we'd think, 'who will have to say, 'My goodness, you grue/bleen projectors were right; emeralds have changed from green to blue or – as you so rightly predicted – they've stayed grue!'. Rather, we would think, it would be them who'd have to say to us, 'My goodness, you green/blue projectors were right all along; emeralds have changed from grue to bleen or – as you so rightly put it - stayed green!' That's what we'd confidently expect alright, but what are our grounds for such a confident expectation? Not, it appears, the relative simplicity of green and blue over grue and bleen.²⁶ In any case, moving onto (b), the relative simplicity – even if it could be established - seems irrelevant to our concerns. What if grue and bleen were more complex by some concept-transcendent standard? What is to say that our universe will turn out to be as simple by this standard as we suppose it to be?

Appeals to Evolution cannot help us here, because – so far – evolution has of course, like everything else science might draw upon to explain anything, only operated in the past and thus it cannot yet have selected against grue/bleen projectors whose time *t* is in the future, e.g. those who happen to have it set at the time, whatever that is, two seconds after I finish speaking this afternoon. It just *couldn't* have harmed us *yet* if we happened to live in one of those logically possible universes where everything goes along just as in the universe we suppose ourselves to be in up until two seconds after I finish speaking and then takes what from our green/blue projecting framework would strike us as a radical turn and what would strike someone from a grue/bleen projecting framework as no change whatsoever. It's no good saying, 'But we just don't live in a universe where things change colour arbitrarily', for that is precisely what is at issue: what reason do we have to suppose this from the fact, which we may grant²⁷, that we don't live in a universe where things have changed colour arbitrarily in the past?²⁸ 'Well, it would be simpler (at least by our standards) if things did continue the same (by our standards)' is of course true, but then what reason we have to suppose that that which is simplest (by our standards) will continue to obtain is again just the point at issue. In short, there can be no solution to this problem from any feature of this universe, for whatever feature this universe is posited as having and used in the putative explanation will be indistinguishable by us on the evidence we have collected to date from a feature which is about to break down by reference to our standards of simplicity and sameness, a feature the time *t* of which is about to arrive. So, if we cannot solve this problem, even in principle, with resources drawn from within the universe, if we are to

²⁶ But see Swinburne 2001, 88, n. 10.

²⁷ But see next note for further reflection on this grant and its dubious status on the maximal multiverse hypothesis.

²⁸ Haven't changed by reference to our, apparently arbitrary [see point (a)], standards of arbitrariness that is.

solve this problem, we must go outside the universe. The maximal multiverse model posits entities outside the universe; does *it* have the resources with which to provide an explanation of the continuing fine tuning of us to the universe? No, it certainly does not.

On the maximal multiverse hypothesis, as every possible universe is actual, so for every moment that passes for a creature in a universe without recalcitrant experience demolishing its inductively-based expectations, there are an infinite number of creatures in other universes who, whilst hitherto having shared that creature's happy fate, now find their continuing experience recalcitrant in the most extreme ways. For every emerald that stays green over a moment in the actual universe, there is another universe that was precisely as ours up until that moment in which it goes blue; in another, it goes red; in another, yellow; in one universe that is exactly like ours up until this moment, it turns into a glass of water; in another, it turns into a glass of claret; in another, a banana. And so on. On the maximal multiverse hypothesis, as every possible universe is actual, so from the fact that, roughly speaking, there's an infinite number of ways one might go wrong when one believes something about the future and only one way in which one might go right, there are an infinite number of people just like us up until this moment who are about to go wrong. On the maximal multiverse hypothesis then, the evidence we have collected to date through our experience does nothing to reduce the probability of us being about to discover that we're one of the ones who was about to go wrong when we suppose that emeralds will stay green. The chances on the maximal multiverse hypothesis of the next Singapore sling being served up to us by a compliant universe are infinitely low. Yet they keep being served up to us, with every moment; there's another, there's another, there's another.²⁹

²⁹ A possible counterargument (suggested to me by Swinburne) is as follows:- Given that creatures exist for a period that is long enough for them to sustain thought concerning their universe and given that most time periods are longer than the fifteen or so billion years that this universe has taken to generate us having these thoughts (because almost all periods are longer than that), it is not very unlikely on the maximal multiverse hypothesis that creatures having these sorts of thoughts will find themselves in a universe in which induction has worked and continues to work for periods a lot longer than fifteen or so billion years. Someone might argue that on the maximal multiverse hypothesis we may consider the issue as analogous to one where a barman with an infinite amount of time ahead of him intends, over that time, to stop serving repeated Singapore slings to all but one of the infinite number of customers to whom he starts off serving them. This being so, he will of course disappoint an infinite number of his customers each time he does his rounds around the Long Bar (it is a very long bar). But – in order to leave himself enough people to disappoint later by failing to serve them the Singapore slings they've come to expect – the frequency with which these disappointed customers are distributed around the Long Bar is infinitely low. So, were you a customer, in seeing the bar man coming towards you on one particular round, you could be almost sure that he wouldn't disappoint you on that round. (This is not, it will be noted – an inadequacy of the analogy raises itself here – as a result of your performing an induction along the following lines: 'Well, he's never disappointed me in the past, so ...'. Rather, it is the result of your performing a calculation of this sort: 'the people he disappoints on any round of the bar have to be infinitely thinly distributed and thus the chances of my being one are infinitely small.') So, the continuing tractability of our universe to induction as we find ourselves utilizing it is indeed a feature which needs explanation, someone pushing this line might concede, but it gets an adequate explanation in terms of the maximal multiverse hypothesis, an explanation no better indeed than the one in terms of God, but no worse either. However, this counterargument does not work. Just as the ways in which the universe could diverge from the present in the future and surprise us are more frequent in logical space than are those in which it could continue more or less according to our expectations, so the ways in which the universe might converge on the present and not be anything like we suppose our history to have been are more frequent than those in which it does so more or

Unsurprisingly (in that it could hardly do worse), the God hypothesis does better at explaining the fine tuning of us to the universe; in fact, it does much better.

The reason God would create a universe which is consistently inductively tractable to its morally sensitive and significant creatures is easy to see: these creatures' moral sensitivity and significant freedom would be in vain, devoid of the necessary conditions for responsibility, to the extent that the world around them proved unpredictable. Of course at the extreme, without any inductive tractability at all, creatures could not *be* morally sensitive - often knowing what they ought to do - or significantly free - able, in principle, to choose whether or not to do as they ought. So, pending a conclusive argument in favour of the trans-universality of the disvalue of lack of moral sensitivity and significant freedom, we cannot draw out with confidence a reason God would not have created such a world. In a world that was not entirely inductively intractable but just significantly less inductively tractable than ours (for example, irregularly, but on average every five minutes or so, the laws of nature as its inhabitants had been led to think of them might 'suspend' themselves for a moment or two in localised patches before re-establishing themselves), creatures could plausibly retain at least some moral sensitivity and significant freedom, but - in proportion to the unpredictability of their world - they would find that they would nevertheless not end up doing that at which they had aimed; their freedom would be - in proportion to their universe's inductive intractability - evacuated of its moral significance and to this extent, this world would be bad for them. So, given that God had - if needs be one can say, whimsically - decided to create a world with morally sensitive and significantly free people in it, He would then have good reason, indeed overwhelming reason, to create it with natural laws that were to a large extent inductively tractable to them, the more inductively tractable, the better His reason for creating it.^{30 31 32}

less via the processes we suppose it to have followed. The issue here then may be put as one of whether we have any reason to think that induction has worked in the past. In a maximal multiverse most people like us (except for some of their relational properties) believing induction has worked in the past are in a temporal 'oasis'; in other words, they are mistaken in thinking it has worked in the past. Even amongst that relatively rare group who find themselves with what they take to be good evidence that it has worked in the past (it doesn't seem to them as if they're in a temporal oasis), the majority are mistaken. In essence then, the force of the argument in the main text may perhaps better be put like this: either abandon the view that one knows induction has worked in the past (absent supernatural intervention) and that it will continue to work in the future (absent supernatural intervention) or abandon the maximal multiverse hypothesis and believe instead in the God hypothesis.

³⁰ There is a variant of the Problem of Evil to be addressed at this stage then: given that the universe does sometimes do unpredictable things, how is this to be reconciled with its being created by the classical theistic God? But this is a topic for another paper.

The sort of inductively tractable universe that God would have good reason to create creatures of our sort in would only require of course inductive tractability at the level of the sorts of objects and actions which had moral salience for such creatures; our easy understanding of sub-microscopic properties, e.g. the more recondite recesses of Quantum Mechanics, would not have its probability appreciably raised by the hypothesis that the universe was created by God; nor would the discovery that Quantum Mechanics is easily understandable by the majority of people exposed to it increase the probability of the God hypothesis. This would be or is (depending on how easily one believes Quantum Mechanics is in fact understood) another bit of 'over design'.

³¹ Of course, a universe where things proved as inductively tractable to its morally sensitive and significantly free creatures as ours has done to us up until a certain time and then took a radical turn would be a universe where the morally sensitive and significantly free creatures had enjoyed effective freedom up until that time, and God might plausibly be argued to be acting permissibly were He at that time to disestablish the harmony (although of course He

With that, it is time to conclude. Allow me to sum up.

The argument has progressed as follows. Initially, it appeared that the best explanation of the fine tuning of *the universe to us* – a fact which *did* need explanation on the assumption of the trans-universality of the value of life of our sort – was the maximal multiverse hypothesis. That hypothesis raises the probability of this universe existing to one and, it was argued, is simpler than the God hypothesis. By contrast, the God hypothesis raises the probability of this universe existing to less than one and, it was argued, is more complex. *However*, as we went on to see, the best explanation of the continuing fine tuning of *us to the universe* is the God hypothesis. On the maximal multiverse hypothesis, the probability of any universe in which there are morally sensitive and significantly free persons being a universe which those persons can more or less consistently understand through induction is infinitely small. On the God hypothesis, that probability is one. As it is infinitely small on the maximal multiverse hypothesis and one on the God hypothesis, so these hypotheses exclude one another: if there were a God, He would not have created any universes where there were morally sensitive and significantly free beings who found their universes significantly inductively intractable and there are an infinite number of these on the maximal multiverse hypothesis. The hypotheses excluding one another in this way means that we must abandon one of them. Taking all of these things into the balance then, it is obvious which one we should abandon. We should conclude that, despite its rational attractiveness in explaining the fine tuning of the universe to us in a more conclusive and arguably simpler manner than the God

could not disestablish it whilst preserving His creature's effective freedom and thus responsibility), especially were He to do so as a metaphysically necessary means to some higher end. But this sort of end to the pre-established harmony is not only compatible with Theism, it is exactly what most variants of Theism predict: we will continue to be permitted to act freely and with responsibility just up until the end of the world, the Last Judgement.

³² I am grateful for having discussed another solution – although not one open to someone holding the maximal multiverse view – with Walker, who is now more sympathetic to it than he was when he first wrote on this topic.

We may posit that there is a metaphysical distinction between what we might call 'real' properties (green and blue, for example), on the one hand, and what we might call 'non-real' ones (grue and bleen, for example) on the other; and we may posit that there is a metaphysical principle dictating what we might call 'an ontological preference' for universes which instantiate real, rather than non-real, properties. These posits, taken together, would then explain (to a greater or lesser extent, depending on the strength of the preference posited) why we find ourselves in a universe where things are green and blue, rather than grue and bleen. One might suggest that we could get away with positing an ontological preference for real simplicity and letting the rest take care of itself: given that green and blue are, one may contend, really simpler than grue and bleen, and given that it would be really simpler for creatures to be directly aware of the really simple properties, rather as Russell thought we are directly aware of universals, from this preference for real simplicity alone we could explain why it is that we find ourselves in a universe where things are green and blue and where we have managed to discover this feature and innumerable other similar features. We cannot of course posit an ontological preference for what would be really simplest: ours is not the really simplest world (for there is stuff – a whole universe at least – in it). So we would need to posit a preference for 'relative real simplicity' and work from there. In that this preference is being designed to do the job God's choice in creation does on the God hypothesis and may, in principle, be reworked and reworked without limit until it does so, it would be futile to maintain that strategies of this type will *inevitably* leave unexplained something the God hypothesis explains. But there is something rather unsatisfactory about them nonetheless, indeed precisely because they seem so *ad hoc*. Going down this road, it seems, we may in the end be left with a Parfitian 'selector' that is less plausible as a necessity than the God hypothesis. Some of these issues come up in my 2008, but I do not feel I have plumbed the depths and hope to be able to return to it at a later date.

hypothesis, due to its abject failure to explain the continuing fine tuning of us to the universe, we should discard the maximal multiverse hypothesis and instead believe in the God hypothesis. The God hypothesis is the best explanation of the fine tuning of the universe to us and the fine tuning of us to the universe.³³ *

25th Oct 2010

* **Endnote**

The following works have been helpful to me in considering what I should think about this topic or, in one case, in reminding me what I once thought about it.

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³³ I am grateful to Sophie Allen, Rodney Holder, Dennis Lehmkuhl, Richard Swinburne, and Ralph Walker for their comments on drafts of this talk, versions of which I started presenting in 2006. A version was presented at Birmingham University in 2007 and I am grateful for the questions received on that occasion. I am also grateful for the chairmanship of Anthony O'Hear at the meeting of the Royal Institute of Philosophy on 10th October 2008 where a version was delivered as a lecture and for the questions and comments which he and those attending the lecture provided on that occasion. Finally, I am grateful for the chairmanship of Peter Harrison and for his comments and those of the audience at an Ian Ramsey Seminar in Oxford, where I delivered another version as a lecture more recently.

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