The Argument from Divine Indifference

Jonathan Weisberg
University of Toronto

Abstract. I argue that the rationale behind the fine-tuning argument for design is self-undermining, refuting the argument's own premise that fine-tuning is to be expected given design. In (Weisberg, 2010) I argued on informal grounds that this premise is unsupported. White (2011) countered that it can be derived from three plausible assumptions. But White's third assumption is based on a fallacious rationale, and is even objectionable by the design theorist's own lights. The argument that shows this, the argument from divine indifference, simultaneously exposes the fine-tuning argument's self-undermining character. The same argument also answers Bradley's (forthcoming) reply to my earlier objection.

The fine-tuning argument for design rests on a relatively new discovery in cosmology: that our universe's constants and initial conditions are precariously balanced to allow for the existence of intelligent life. Out of the wide range these values could have taken, only a small subset yield a universe capable of supporting intelligent life. And yet the actual values do lie in that small subset. This discovery is surprising if our universe was not designed. But, the argument alleges, it is to be expected if our universe was created by a designer intent on creating intelligent life. Thus the discovery of fine-tuning fits better with the design hypothesis than with its negation.

Let D be the design hypothesis and N the new discovery that our universe is fine-tuned. The argument turns on comparing the probabilities that D and $\neg D$ each confer on the new evidence, N. According to the argument, $p(N|D) > p(N|\neg D)$, so N supports D over $\neg D$. But in my (2010) I worried that this comparison overlooks an old piece background knowledge, that life exists. Letting O be the old news that life exists, the correct statement of the fine-tuning argument is:

(1) $p(N|D \wedge O) > p(N|\neg D \wedge O)$.

(2) The Likelihood Principle: if $p(E|H) > p(E|\neg H)$ then E supports H over $\neg H$.

(3) So N supports D over $\neg D$ (given O).

I am grateful to Darren Bradley, Lisa Cassell, Kenny Easwaran, Chris Meacham, Roger White, an anonymous referee, and audience members at Amherst College for their helpful feedback and criticism.

My objection was that premise (1) is not compelling. We have known for many years that our universe contains intelligent life, and thus that the constants and initial conditions had to be in the range necessary to support such life. What we did not know was whether that range was wide or narrow. In White's (2011) helpful terminology, what we did not know was whether the laws of our universe are "stringent" or "lax". We have newly learned that they are stringent. But, the objection goes, this is not something we have reason to expect at the hands of a designer, since she could have chosen lax laws instead.

Following White, let S be the fact that the laws of our universe are stringent, i.e. that they will only support intelligent life on a few settings of the constants and initial conditions. S and N are equivalent given O, so (1) is equivalent to:

(1*) $$p(S|D \wedge O) > p(S|\neg D \wedge O).$$

My objection was that we have no reason to accept (1*), since we have no reason to think that a designer would choose stringent laws as her way of creating intelligent life. She could easily have chosen lax laws as a means of creating intelligent life.

White replies that (1*) can be derived from three plausible assumptions. The first is that stringency and life's existence are negatively dependent if we suppose there is no designer:

(4) $$p(O|S \wedge \neg D) < p(O|\neg S \wedge \neg D).$$

If there is no designer, stringent laws make life less likely. Second, stringency and life's existence are independent on the assumption that there is a designer:

(5) $$p(O|S \wedge D) = p(O|\neg S \wedge D).$$

If there is a designer, she will create life come what may. And third:

(6) $$p(D|S) \geq p(D|\neg S).$$

In support of (6) White says:

> [...] the fact that the laws put stringent conditions on life does not by itself provide any evidence against design [...] Of course it is possible that a designer has a preference for laws that put stringent conditions on life's existence, or a preference for lax conditions. But as we have no reason to suspect so either way, S by itself has no bearing on D. (White, 2011, p. 678)

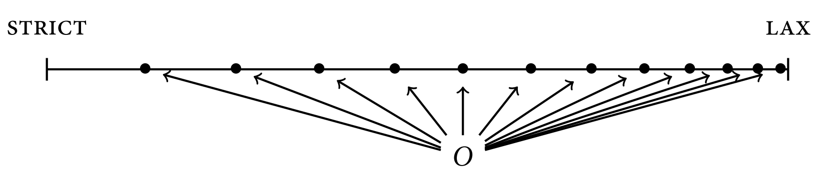
But (6) is not supported by this rationale; indeed, the design theorist's own reasons for (1) actually tell against (6). I will first describe a case that undermines White's rationale for (6). Then I'll argue that the design theorist's own reasoning actually refutes (6), and even (1).

Suppose 100 prisoners are sentenced to death, half housed in cell block A and half in cell block B. The law requires that exactly one prisoner be pardoned, and the lucky prisoner will be selected either by random lottery or by a judge who will be appointed to make the decision. If appointed, the judge will pardon someone who is innocent. We have no reason to think the judge cares where the pardoned prisoner is housed, but as it happens there are 9 innocent prisoners in cell block A, and only 1 in cell block B. It is kept secret how the lucky pardonee is selected.

Now suppose we learn that the pardoned prisoner was housed in cell block B. This discovery has a negative bearing on the hypothesis that the judge was appointed. For she was 9 times more likely to pardon a prisoner from cell block A than from cell block B, whereas it was a 50/50 shot at the hands of chance. So, even though we have no reason to think the judge has any preference about where the pardonee is housed, where the pardonee was housed still bears on the hypothesis that the judge made the decision. So, that we have no reason to suspect a designer would have any preference between stringent and lax laws does not show that *S* cannot bear negatively on *D*.

This shows that (6) is inadequately supported, but it also suggests that (6) is false. Just as the pardoned prisoner being from cell block B has a negative bearing on the hypothesis that the judge issued the pardon, the supposition that our universe's laws are stringent may have a negative bearing on the hypothesis that it is designed. For a designer intent on creating life is more likely to choose one of the plentiful lax options, just as the judge is more likely to choose a prisoner from the cell block with more innocent prisoners. This is a surprising suggestion, as (6) looked plausible enough on its face. So rather than rely on analogy, I will present an explicit argument to this effect: by the design theorist's own lights, both (6) and (1*) are false.

The argument's main idea can be conveyed pictorially. Picture the space of possible universes arranged in a line according to the strictness of their laws, with strictness increasing to the left:



The dots represent the life-supporting universes, those where *O* holds. As the picture suggests, these become more common as we move to the right; by definition, laxer laws yield a life-supporting universe on more of the possible settings of the constants and initial conditions. Now consider how probabilities are distributed over these possible universes supposing D and supposing $\neg D$. If there is no designer, it is a matter of "blind chance" which universe is actual, resulting in a uniform distribution over the whole line; chance "throws a dart" at the interval. If there is a designer though, only the dots are live possibilities, since the postulated designer is intent on creating life. And since we know nothing more about her aims and methods than this, a uniform distribution over the dots represents our expectations.

Now the punchline: chance's dart is more likely to land towards the left end of the spectrum than the designer's. The designer will "land her dart" on one of the dots, so hers is more likely to land closer to the right than to the left. But if there is no designer, the dart may land anywhere in the line, making it more likely than the designer's to land towards the left. Contra (6) then, strictness is negatively relevant to design.

We can go further and see why (1*) is false too. Suppose we learn that the dart landed on one of the O-possibilities. This does not change the way probabilities are distributed supposing design; given design, we already knew an O-possibility would be hit. Supposing $\neg D$ though the probabilities do change: to exactly the same probabilities we get supposing D. Conditionalizing a uniform probability distribution results in a uniform distribution over the remaining possibilities. So now, given $\neg D$, each O-possibility has equal probability of being hit. Thus, once we know O, the probability of selecting a point towards the strict end of the spectrum is the same given D and given $\neg D$, contra (1*).

Let's now make the argument rigorous. The following three assumptions should be acceptable to the proponent of the original fine-tuning argument. First:

Divine Intent: $p(O|D) = 1$.

The justification here is the same as for White's (5): the postulated designer is intent on creating life, and (we may suppose) can be counted on to do so come what may. Second:

Blind Indifference: $p(\cdot|O \wedge \neg D)$ is a uniform distribution over the O-possibilities,

where $p(\cdot|O \wedge \neg D)$ is the probability function obtained by conditionalizing p on $O \wedge \neg D$. Blind Indifference is justified by the design theorist's own rationale for saying that $p(S|\neg D \wedge O)$ is low and thus that (1) is true. If there is no designer, it is a matter of "blind chance" how the world turns out to be, so $p(\cdot|\neg D)$ is a uniform distribution over all possible cosmologies. This makes $p(\cdot|O \wedge \neg D)$ a uniform distribution over the possible cosmologies where O holds. The third premise is:

Divine Indifference: $p(\cdot|O \wedge D)$ is a uniform distribution over the O-possibilities.

Divine Indifference is motivated by the thought that, absent any information or stipulation about the designer, save that she will create one of the O-possibilities, each O-possibility should be regarded as equally probable. More needs to be said about Divine Indifference and we will return to the matter in a moment. First let us see how these assumptions refute (6) and (1*).

Together, Divine Indifference and Blind Indifference entail that O "screens off" D (and $\neg D$) from the O-possibilities. Once O is given, supposing D (or $\neg D$) has no effect on the way probabilities are distributed over the O-possibilities. Thus we have:

Divine Irrelevance: $p(X|O \wedge D) = p(X|O)$ for any X that is a union of O-possibilities.

We can then derive:

$$
\begin{aligned}
(\sim 6) \qquad p(D|S) &= p(D)\frac{p(S|D)}{p(S)} && \text{by Bayes' Theorem}\\
&= p(D)\frac{p(S|O \wedge D)}{p(S)} && \text{by Divine Intent}\\
&= p(D)\frac{p(S|O)}{p(S)} && \text{by Divine Irrelevance}\\
&= p(D)\frac{p(O|S)}{p(O)} && \text{by probability calculus}\\
&< p(D). && \text{by the defn. of } S
\end{aligned}
$$

We can also derive directly from Divine Indifference and Blind Indifference:

$$(\sim 1^*) \qquad p(S|D \wedge O) = p(S|\neg D \wedge O).$$

These results vindicate my earlier objection to (1) in two respects: a crucial assumption in the derivation of (1*) is false, and so is (1*) itself.

These results also answer Bradley's (forthcoming) reply to my objection. While I think S does not support D, I do allow that O may offer some support for D initially; it's just that S offers no additional support. But, Bradley observes, the amount of support O lends to D depends on whether S or $\neg S$ is true. Plausibly, the difference between $p(O|D \wedge S)$ and $p(O|\neg D \wedge S)$ is significantly greater than that between $p(O|D \wedge \neg S)$ and $p(O|\neg D \wedge \neg S)$, so that O offers significantly greater support to D given S than given $\neg S$. Thus fine-tuning does support design, just indirectly, by amplifying the support from our old evidence O.

While Bradley may be right that learning S amplifies the evidential support O lends to D, this does not mean that learning S in addition to O increases the *net* support for D. For S may simultaneously be evidence against D, so that the amplification of O's support is drowned out by the disconfirmation effected by S. In fact, the above argument tells us that this is exactly what happens. (~6) shows that S tells against D. And (~1*) tells us that this disconfirmation of D exactly balances out the amplification of O's support, since learning S after learning O neither increases nor decreases the probability of D.

Let's now return to Divine Indifference with a more critical eye. Indifference-based reasoning is notoriously problematic, so it's natural to wonder whether the above argument uses it illicitly. There are several worries here.

One worry is that the uniform probability distribution posited by Divine Indifference (and Blind Indifference) does not exist, since the space of relevant possibilities is unbounded. The range of possible laws, constants, and initial conditions is not bounded, so any positive uniform distribution over it will be improper. But this is a problem for the proponent of the fine-tuning argument to solve, since she assumes a uniform distribution over the space of possible universes to motivate premise (1) (Colyvan et al., 2005). However she solves it (perhaps by re-parameterizing the space to fit a finite area, or by imposing a finite partition where each cell gets equal prior probability), we can adopt her solution to say that $p(\cdot|O \wedge D)$ is a uniform distribution over the subset of possibilities where O.

Another worry arises in connection with Bertrand's paradox. A uniform distribution over an uncountable set parameterized one way will not be uniform under all alternative parameterizations of the same set. What parameterization is presupposed by Divine Indifference? This again is a problem for the proponent of the fine-tuning argument to solve. Whatever parameterization she uses to motivate premise (1) of her argument, Divine Indifference is to be interpreted using it. It is important to note, however, that her parameterization cannot be the sort usually presupposed in statements of the fine-tuning argument. These statements only provide a parameterization of the space of possible constants and initial conditions for the actual laws of our universe. But we are assessing the import of the discovery that these are the actual laws. So we need a parameterization of the space of all possible laws, not just of the space of possible constants and initial conditions for our laws. It is up to the design theorist to provide such a parameterization if she wishes to have an argument at all, since she must provide some reason for thinking (1*) plausible. Presumably, she will provide this reason by presenting us with a natural parameterization on which S takes up a small portion of the space of possibilities. Blind Indifference then just accepts this parameterization, saying that $p(\cdot|\neg D)$ is a uniform distribution over it, and thus that $p(\cdot|O \wedge \neg D)$ is a uniform distribution over the O-possibilities.

A final worry is that the design theorist might object to a uniform distribution over the space of possible laws given design. Consider the judge: she might pick an innocent prisoner at random, but she might instead flip a coin to settle on a cell block and *then* pick a prisoner at random (or by some other means). In that case, where the prisoner was housed has no bearing on whether the judge was appointed. Similarly, the designer might deal with her indifference about S vs. $\neg S$ by flipping a coin and then choosing from among the S possibilities (or $\neg S$, as the case may be). Of course we have no reason to suspect the designer would use such a method. But the design theorist may argue that indifference should be applied to the possible methods the designer might use, rather than to the possibilities these methods select from. And a natural way to partition and parameterize these methods is by the chance each has of resulting in S, yielding 1/2 probability for each of S and $\neg S$, given D.

This won't help the design theorist's cause though. The division between "stringent" and "lax" laws was an artificial simplification we adopted for convenience. Really, stringency comes on a continuum. So the natural parameterization is $0 \leq x \leq 1$, where x is the portion of the possible settings of the constants and initial conditions that can support intelligent life. And a uniform distribution over this parameter (or, what comes to the same thing, a uniform average of the possible distributions over it) will yield the same uniform distribution postulated by Blind Indifference. For, if the design theorist thinks this parameterization is reasonable given D, it is reasonable given $\neg D$ too. After all, the stringency of our laws is the discovery in question, so a uniform distribution over the possible degrees of stringency is natural given no designer. To make this response work then, the design theorist would have to supply and defend a second parameterization she wants to apply indifference to given $\neg D$. Until she does, her argument is collapsing under its own weight. For the natural extension of her own thinking undermines her key premise, yielding instead our argument for (~1*), the argument from divine indifference.

References

Bradley, Darren. forthcoming. Weisberg on design: What fine-tuning's got to do with it. *Erkenntnis* .

Colyvan, Mark, Jay L. Garfield & Graham Priest. 2005. Problems with the argument from fine tuning. *Synthese* 145(3): 325–338.

Weisberg, Jonathan. 2010. A note on design: What's fine-tuning got to do with it? *Analysis* 70(3): 431–8.

White, Roger. 2011. What fine-tuning's got to do with it: Reply to weisberg. *Analysis* 71(4): 676–9.