Fine-tuning arguments and biological design arguments: can the theist have both?

JOEL BALLIVIAN

University of Wisconsin, Madison, 600 North Park Street, Madison, WI 53706, USA.
e-mail: *ballivian@wisc.edu*

Abstract: There are at least two kinds of design arguments for theism: fine-tuning arguments and biological design arguments. Dougherty and Poston (2008) have argued that the success of one requires the failure of the other, and vice versa. The reason is that the success of these arguments hinges on the following crucial probability: the probability that biological life exists somewhere in the universe given that (a) our universe is finely tuned *and* that (b) biological development is unguided by intelligence. According to Dougherty and Poston, fine-tuning arguments require that the crucial probability is high while biological design arguments require that the crucial probability is low. As a result, at most *one* of these design arguments can factor into a cumulative case argument for theism. I argue that this is mistaken. Specifically, I show that fine-tuning arguments can succeed even if the crucial probability is low.

There are a variety of design arguments for theism, the belief that God exists.[1] This article is concerned with recent probabilistic formulations of such arguments. The fine-tuning argument (FTA) typically begins with the claim that it is extremely improbable, relative to chance alone, that various physical constants and quantities have the life-permitting values they in fact have.[2] According to the FTA, these values are more likely given theism than given non-theistic competitors.[3] The biological design argument (BDA) begins with a similar claim: it is extremely improbable, relative to chance alone, that various biological organisms and processes exist. According to the BDA, the existence of these organisms and processes is more likely given theism than given non-theistic competitors.[4] On the basis of these probabilistic claims, it is concluded that fine-tuning and/or certain biological organisms serve as evidence for theism.

Trent Dougherty and Ted Poston (2008) have argued that, at most, *one* of these arguments can factor into a cumulative case argument for theism. Roughly, their argument is this: the FTA requires that the universe be highly hospitable to

biological life, whereas the BDA requires that the universe be *in*hospitable to biological life. Consider: if the universe were highly hospitable to biological life so that biological life would be likely to develop on its own, then theism would not be needed to make sense of the origins and development of biological things. Consequently, the BDA would fail. On the other hand, suppose the universe were highly inhospitable to biological life, making it unlikely that biological life would develop on its own, unguided by intelligent agency. In that case, why would fine-tuning be evidence for theism? As some have argued, fine-tuning is more likely given theism than given non-theistic competitors because God values biological life, and fine-tuning is a means for getting biological life (Swinburne (2004), and Collins (2009)). But if fine-tuning does not make it likely that biological life emerges, it's hard to see how God's interest in biological life could give him a reason to fine-tune. Without some other reason for thinking God values fine-tuning, the theist loses her justification for thinking that fine-tuning is more likely given theism than given competitors. Hence, the FTA fails. At most, therefore, one of these design arguments can succeed. Call this the *Not Both Argument*.

I argue that the *Not Both Argument* fails. In the following section, I fill in the probabilistic details of Dougherty and Poston's case. Then, I argue that a crucial claim of theirs is false, undermining their conclusion that FTAs and BDAs cannot both factor into a cumulative case argument for theism.

The *Not Both Argument*

Having given a rough sketch of the *Not Both Argument*, I turn to its mechanics. Consider the following glossary:

T = theism

B = *biologically complex life exists somewhere in the universe.*

C = *the initial conditions and values of the constants of the fundamental laws of nature have such-and-such life-permitting values.*

P = *there are intelligently guided processes directed towards producing biologically complex life.*[5]

A common probabilistic version of the FTA claims that:

(1) $\Pr(C|T) \gg \Pr(C|\sim T)$.

Likewise, a common probabilistic version of the BDA claims that:

(2) $\Pr(B|T) \gg \Pr(B|\sim T)$.

If the inequalities expressed by (1) and (2) are true, C and B each count as evidence for T.[6] As is typical of probabilistic versions of these arguments, the *Likelihood Principle* is the bridge between the above inequalities and the corresponding claims about their evidential significance for T. The principle says this:

Likelihood Principle: E is evidence for H iff Pr(E|H) > Pr(E|~H).[7]

Now, according to Dougherty and Poston, an evaluation of the FTA and the BDA turns crucially on this probability:

The Crucial Probability: Pr(B|C&~P).[8]

As they argue, the FTA succeeds only if the crucial probability is high. The BDA succeeds only if it is low.[9] I'll grant the latter claim and focus entirely on the former.

The FTA succeeds only if the crucial probability is high. Begin with this question: why think the inequality expressed in (1) is true? Some have argued for it on the basis of the plausible idea that God has a reason to fine-tune because a finely tuned universe has a high likelihood of bringing about something else God values: biological life.[10] B is valuable to God and C is a means to B. Intuitively, then, we have some reason to expect that God would aim for a finely tuned universe were he to create.

More precisely, the *Not Both Argument* hinges on the following assumption regarding the *explanatory grounds* of God's reason to create a finely tuned universe:

(EXPLANATORY CLAIM) That God desires/values biological life explains why he has a reason to create a finely tuned universe.[11]

If the EXPLANATORY CLAIM is true and God has no relevant countervailing reasons, we are in a position to justifiably believe that Pr(C|T) ≫ Pr(C|~T). But according to Dougherty and Poston, God's desire for B provides a reason to fine-tune only if (and because):

(HIGH) Pr(B|C&~P) is high.

Fine-tuning has to make it likely that B will obtain in a manner that is unguided by intelligent agency. This leads to a crucial claim in the *Not Both Argument*:

(CRUCIAL CLAIM) God has a reason to bring about C for the sake of B only if (and because) Pr(B|C&~P) is high.[12]

To see the plausibility of the CRUCIAL CLAIM, suppose Pr(B|C&~P) were low or even somewhat below .5. 'In this case', Dougherty and Poston argue, '. . . it's very puzzling that God would bring about C for the means of producing B when C is inefficient for that goal' (Dougherty & Poston (2008), 106). Compare: without additional reasons or desires to go to the party, if going to the party is highly unlikely to further my desire to dance – making it an inefficient way of achieving my desire – I do not have a reason to go to the party. For these reasons, the argument goes, if HIGH is false, the theist loses her justification for thinking that God has a reason to fine-tune. The BDA might succeed, but the FTA will not.

Why the *Not Both Argument* fails

I argue that the CRUCIAL CLAIM is false. For the sake of argument, I grant the EXPLANATORY CLAIM. God's desire for B may very well explain why he has a reason to fine-tune. However, the EXPLANATORY CLAIM does not require HIGH, since HIGH is not a necessary condition for C's being a valuable means for B. Possibly, an agent can have a reason to ø (or will value ø-ing) because ø-ing is a necessary means to a desired outcome, G, even though ø-ing (on its own) is insufficient (or unlikely) to procure G. Or so I'll argue.

Consider: setting an oven to 425°C is a precondition for baking a good pizza (suppose this is true). Unless the oven's temperature is set to that temperature, the pizza will not turn out good. It will either overcook or undercook. For simplicity, let TEMP = *setting the temperature of the oven to 425°C* and PIZZA = *making a good pizza.*[13] TEMP is not a means to PIZZA in the strong sense. It does not guarantee or even make it likely that a good pizza will be made. To make a good pizza, you need to bake the pizza for the right amount of time, add the right ingredients, butter the crust, etc. Hence, unless guided further, setting the temperature properly will not itself result in a good pizza. Nevertheless, a good chef has a reason to set the temperature properly and, therefore, we should expect that she will do so.

Call a means that guarantees an outcome (or which makes it highly like to occur) an 'effective means'. If I go to the party, it is highly likely that I'll dance. All else being equal, then, going to the party is an effective means for dancing. As I've shown, TEMP is not an effective means for PIZZA. However, it is not for that reason irrelevant to the rationality or value of setting the oven to 425°C. Because of the chef's desire to make a good pizza, she has a good reason (or it is still valuable for her) to set the oven's temperature properly. And that is because TEMP is a valuable means to PIZZA in the weaker sense of being an *enabler* for PIZZA. Call any means that is necessary for achieving an outcome in some particular way an 'enabling means' or an 'enabling condition'. TEMP is not enough to get the desired outcome (a good pizza baked in the oven). Nonetheless, it is an enabling condition for that outcome.[14]

Clearly, the fact that TEMP is an enabling means for PIZZA can explain why the qualified chef has a reason (or will find it valuable) to set the oven to the right temperature: doing so is necessary for securing a desired end (i.e. making a good pizza). Further examples abound. Hydrating oneself is an enabling means for finishing a marathon. Without proper hydration, you cannot finish. However, hydrating yourself is not enough, on its own, to get you across the finish line (or does not, on its own, make it likely that you'll finish the marathon). Nonetheless, the trained athlete has a reason to hydrate.

Here's the general lesson: ø-ing can be a valuable means to some desired outcome, G, even if ø-ing is not an effective means for G. As the above cases show, an enabling means can be highly valuable as a means to a desirable outcome precisely because it is an enabling means for that outcome. For this

reason, it is possible to acquire an all-things-considered reason to ø merely because ø-ing is an enabling means to G. The rationality or value of ø-ing does not necessarily hinge on ø-ing's ability to probilify or guarantee the outcome.

An important qualification needs to be made. It might seem that there is a crucial dissimilarity between the pizza case and the case of fine-tuning. Unless we have in mind miracle-working chefs, ordinary chefs *must* set the oven's temperature properly in order to cook a good pizza whereas it is not the case that God *must* set the constants and quantities of the universe just right in order to enable the existence of biological life. After all, God could sustain biological life in a poorly tuned universe by means of a constant miracle. Hence, fine-tuning isn't an enabling condition for the existence of just any kind of biological life. This point is often overlooked in defences of the FTA. However, I suspect that defenders of the FTA intend to argue that God desires *naturally sustained* biological life. I'll take this assumption for granted, letting B refer to 'naturally sustained biological life'. On this understanding, fine-tuning is an enabling condition for B and, therefore, the analogy holds.

Here's a final insight concerning the pizza case. Knowing that TEMP is an enabling means for PIZZA gives us good reason to think that *the temperature is set to 425°C* (SET) is more likely given the hypothesis that *a qualified pizza chef is cooking* (H) than given the hypothesis that *no such chef is cooking* (~H). In other words, that TEMP is an enabling means for PIZZA provides some justification for believing that $Pr(SET|H) > Pr(SET|{\sim}H)$. A qualified pizza chef desires PIZZA and, hence, will want to set the temperature properly. Unqualified chefs might care less about the quality of the pizza. And even if some unqualified chefs value PIZZA, they're more likely to be ignorant of the fact that TEMP is an enabling condition for PIZZA. All else being equal, therefore, these considerations give us some reason to believe that $Pr(SET|H) > Pr(SET|{\sim}H)$.

Applying these insights to the FTA is straightforward. Understood as an enabling condition, C can be a valuable means to B. If God desires B, and has no countervailing reasons to bring B about, we have some reason to expect that he will create a universe where C obtains. But none of this requires that $Pr(B|C\&{\sim}P)$ is high. 'Fine-tuned' does not mean or imply 'life-securing'. C may merely constitute an *enabling condition* for B. In that case, God may have to guide biological development through some additional means after he fine-tunes the universe. However, this does not undermine God's reason to fine-tune any more than the chef's need to guide the pizza-making process after setting the temperature undermines her reason to set the temperature properly. And just as the qualified chef values TEMP because of her desire for PIZZA – despite the fact that TEMP is not an effective means to PIZZA – God may value C because of his desire for B, even when C is not an effective means for B. Therefore, there is at least a *pro tanto* reason for God to create a finely tuned universe: a finely tuned universe is an enabling means for something he desires. Moreover, if God has no countervailing reasons for fine-tuning or for creating

biological life, his desire for B gives him an all-things-considered reason to fine-tune. These considerations may be enough to justify believing that $\Pr(C|T) \gg \Pr(C|{\sim}T)$. At the very least, my argument shows that the appeal to God's desire for B as justification for believing that $\Pr(C|T) \gg \Pr(C|{\sim}T)$ is not undermined by the fact that $\Pr(B|C\&{\sim}P)$ is low.

Conclusion

The upshot: Dougherty and Poston's justification for the *Not Both Argument* (i.e. the CRUCIAL CLAIM) is undermined. Suppose the success of the BDA requires a low value for the crucial probability. Nevertheless, as I've argued above, it is false that the FTA requires that the crucial probability be low. Possibly, therefore, $\Pr(B|C\&{\sim}P)$ is low and each design argument succeeds. And, hence, without some independent reason for thinking otherwise, it is possible to incorporate both the FTA and the BDA into a cumulative case argument for theism.[15]

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Notes

1. By 'God' I mean a being that is immaterial, personal, all-powerful, all-good, and all-knowing.
2. The probability of fine-tuning is determined relative to a specific set of background information, K. For stylistic purposes, I suppress K. The same goes for the probability of biological complexity. The reader should assume that all subsequent probabilities include K in the background.
3. For example, see Leslie (1989), Swinburne (2004), and Collins (2009).
4. For example, see Lydia McGrew (2004) and Timothy McGrew (2005).
5. An example of P is 'the process of divine intervention whereby God guides the process of evolution along' (Dougherty & Poston (2008), 101).
6. Notice that, while the FTA typically begins with the claim that the probability of fine-tuning relative to chance alone is very small, this fact isn't technically necessary for the success of the argument. So long as the inequality expressed in (1) is correct, $\Pr(C)$ can be high and C will still be evidence for theism. The relevant inequality is all that matters for determining whether C confirms T or not. Still, supposing $\Pr(C|T)$ remains constant, as $\Pr(C)$ goes down, the degree of confirmation C provides for T goes up. So the strength of the FTA as a reason for theism may be helped by the fact that $\Pr(C)$ is very low. The same point applies to the BDA and its corresponding probabilities.
7. On another version of the Likelihood Principle, the evaluation concerns incompatible but non-exhaustive competitors (e.g. theism and naturalism, or theism and chance, or theism and the multiverse). Consequently, the epistemic upshot is different. Instead of showing that E is evidence for (or that it

confirms) one hypothesis over the other, the inequality indicates evidential *favouring*. Spelled out, this version of the Likelihood Principle says: E favours H1 over H2 iff Pr(E|H1) > Pr(E|H2). Dougherty and Poston's criticism applies regardless of which version of the Likelihood Principle is used.

8. Read: 'the probability that biological life exists somewhere in the universe given that the universe is finely tuned and that there are no intelligently guided processes directed towards producing biologically complex life'.

9. Dougherty and Poston write: 'the strength of the FTA relies on the value of P(B|C&~P) being fairly high while the strength of the BDA relies on the same quantity being low. The point can be put thus: the strength of each argument is inversely proportional to the other' (Dougherty & Poston (2008), 102).

10. For example, Swinburne defends this claim. He writes: '[T]here will be an argument from the existence of human (and animal) bodies to the existence of God of any great strength, via the route of "fine-tuning", only if it follows that a finely tuned universe will (not merely possibly but with significant probability) lead to embodied humans and animals' (Swinburne (2004), 189). As Dougherty and Poston note, others make similar claims. God may have a reason to fine-tune the universe because he values life (Leslie (1989)) or embodied moral agents (Collins (2009)). Dougherty and Poston's argument applies to any of these other B-like views about God's desired outcome for fine-tuning. Likewise, my response to Dougherty and Poston applies to any of these B-like construals.

11. Two clarifications are in order. First, I follow a standard view of the grounds of practical reasons (see Schroeder (2007)). The idea is that an agent's actual or counterfactual commitments (e.g. her desires, preferences, values, goals, etc.) serve as the grounds for her reasons. If S desires to dance, she has a reason to go to the party: she will dance. Her desire explains her reason. In the case just cited, the target action is *going to the party*. So, to fill out the entire reason-theoretic story, we can say that S has a reason for *going to the party* since going to the party is a way of fulfilling her desire, and the desire explains why she has that reason at all. For simplicity, I'll usually refer to God's 'desire' for B rather than his 'valuing' of B as the grounds for his reason to bring C about. Second, The sense of 'reason' invoked here and throughout this article is that of '*practical* reason' — a reason that favours acting (or refraining from acting). It is widely believed that practical reasons come in two types (at least conceptually): justifying and motivating. Roughly, a justifying reason to ø favours ø-ing; a motivating reason to ø inclines the agent to ø. The type of 'reason' referred to in the EXPLANATORY CLAIM is, at the very least, a justifying reason. However, it may be that an agent like God is always motivated by his all-things-considered justifying reasons. I think defenders of the EXPLANATORY CLAIM need to invoke a sense of 'reason' that incorporates both. After all, were God's reason for fine-tuning merely a justifying reason and not also a motivating one, why would we *expect* God to fine-tune? Facts about God's *motivational* states seem crucial to the argument.

12. Dougherty and Poston write: 'The reason for [believing that Pr(C|T) ≫ Pr(C|~T)] is that the Pr(B|C&~P) is fairly high and a good God has a desire to bring about B' (Dougherty & Poston (2008), 105).

13. PIZZA and TEMP refer to action types.

14. The reader should assume that the goal is to make the pizza in an oven rather than, say, on the stove. TEMP may not be an enabling condition for making a good pizza on the stove. But, we are assuming, TEMP *is* an enabling condition for making a good pizza *in the oven*.