

# Interpreting the Probabilities in Plantinga's Evolutionary Argument Against Naturalism<sup>‡</sup>

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## Introduction

In this paper, I examine Plantinga's (1993, 2000, 2011) Evolutionary Argument Against Naturalism (EAAN). While there has been much discussion about Plantinga's use of probabilities in the argument,<sup>1</sup> I contend that insufficient attention has been paid to the question of how we are to interpret those probabilities. In this paper, I argue that views Plantinga defends elsewhere limit the range of interpretations available to him here. The upshot is that the EAAN is more limited in its applicability than Plantinga alleges.

## 1 The EAAN

The EAAN proceeds as follows:

1.  $P(R|N \wedge E)$  is low.
2. Anyone who believes  $(N \wedge E)$  and sees that  $P(R|N \wedge E)$  is low has a defeater for  $R$ .
3. Anyone who has a defeater for  $R$  has a defeater for all her beliefs, including the belief in  $(N \wedge E)$ .

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<sup>‡</sup>Thanks to Chris Stephens, the students in his seminar "Evolution of Rationality" and referees.

<sup>1</sup>See, for example, Fitelson & Sober (1998), Alston (2002), and Otte (2002).

4. If one who believes  $(N \wedge E)$ , thereby acquires a defeater for  $(N \wedge E)$ ,  $(N \wedge E)$  is self-defeating and cannot be rationally accepted.
5. Conclusion:  $(N \wedge E)$  cannot be rationally accepted.<sup>2</sup>

Some explanation is in order:  $R$  refers to the proposition that our cognitive faculties are reliable. That is, do they produce a preponderance of true beliefs?<sup>3</sup> Plantinga does not specify precisely what proportion of true beliefs is sufficient for  $R$  to be true. With respect to memory, he says it would need to be greater than two thirds (2011, p.323). However, a little later in the chapter, he suggests that the proportion must be at least three quarters in order for a cognitive faculty to be reliable (p.332-333). Precisification is likely not the point here. Requiring inerrancy is too stringent, getting things right only half the time is too lax, and perhaps that is all Plantinga means to say here.

$N$  is the claim that naturalism is true. Again, Plantinga does not mean to give a fine-grained definition of naturalism. We can consider it a conjunction that includes as a minimum that there is no such person as the God of Traditional Theism (TT).  $E$  is the claim that contemporary evolutionary theory gets things correct with respect to its description of how our cognitive equipment came to be.

A defeater for a belief  $B$  is another belief  $B^*$  such that once I believe  $B^*$  I can no longer rationally hold  $B$ . Suppose I believe that I would remember if I ran around campus with no pants last night. However, you point out to me that I drank an enormous amount of alcohol last night. If I believe you, I can no longer rationally believe that I would remember if I ran around campus with no pants last night. Drinking an enormous amount of alcohol would compromise my ability to recall what happened during that time frame. Plantinga's contention is that  $(N \wedge E)$  is such that it provides a defeater for itself, provided one recognizes that the conditional probability  $P(R|N \wedge E)$  is low.

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<sup>2</sup>This presentation is found in Plantinga's most recent expression of the EAAN (2011, p.344-345). I would note here that 5 doesn't strictly follow from 1-4, since accepting  $(N \wedge E)$  is not sufficient to acquire the defeater. One must also see that the conditional probability mentioned in premise 1 is low.

<sup>3</sup>Plantinga seems to be concerned here with what Peter Godfrey-Smith calls "head-world" reliability (1991, p.711). Head-world reliability is concerned with eliminating false beliefs. It contrasts with world-head reliability, which is concerned with eliminating true non-beliefs.

Note that Plantinga does not hold that anyone needs an argument for the belief that our cognitive faculties are reliable. On his account, it is fine to treat our cognitive faculties as proverbially innocent until proven guilty. This is sensible; once one begins to doubt the reliability of their cognitive faculties, they are in a bad way, epistemically. The only means at their disposal to overcome this doubt are their cognitive faculties, whose reliability is precisely the object of this doubt. His contention is that believing ( $N \wedge E$ ) puts someone in a position where their cognitive faculties have been “proven guilty” (in the sense that this person has a defeater for the belief that their cognitive faculties are reliable).

## 2 Interpreting Plantinga’s Probabilities

By presenting his claim in explicitly probabilistic terms, Plantinga raises an important question as to how we are to interpret probability in this context. In addressing this question, he claims “we could think of this probability in two ways: as a conditional *epistemic* probability, or as a conditional *objective* probability. Either will serve for my argument, but I think the better way to think of it would be as objective probability” (p.220, fn7). In *Where the Conflict Really Lies*, he again expresses his preference for understanding this claim in terms of objective probability: “The probability we are thinking of here is objective, not the personalist’s subjective probability, and also not epistemic probability” (2011, p.332).

It is not always clear what people mean when they speak of objective, subjective and epistemic probabilities.<sup>4</sup> I take it that the distinction between objective probabilities on the one hand and epistemic (and/or subjective) probabilities on the other hand, is that objective probability is a mind-independent notion. Epistemic probabilities, by contrast, are mind-dependent in the sense that they reference a rational agent’s degrees of belief. Examples of objective interpretations of probability include frequency interpretations, propensity interpretations, and logical interpretations<sup>5</sup> in-

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<sup>4</sup>See (Gillies, 2000) and (Hájek, 2019) for extensive overviews and classifications of the various interpretations of probability.

<sup>5</sup>As Plantinga notes (1993, p.144), logical interpretations actually have both objective and epistemic aspects. On the one hand, they interpret probability as a mind-independent relation of partial entailment that obtains between pairs of propositions. On the other hand, these interpretations make normative claims about how degrees of belief ought to comport with these relations.

terpretation.

Epistemic conceptions of probability interpret probabilities as the degree to which a proposition is believed. Examples of subjective interpretations of probability include the classical interpretation of Laplace and Pascal, Williamson's (2000) Objective Bayesian view ]<sup>6</sup>, and the standard (sometimes called "subjective" or "personalist") Bayesian view. What these all have in common is that they interpret probabilities as a degree of *belief*. What separates them is the normative constraints they pose on rational degrees of belief. The standard Bayesian account is more permissive, allowing a broad range of permissible probability distributions. Classical probability, with its Principle of Indifference (PI), is more stringent. In his discussions of epistemic probability, Plantinga eschews the permissive Bayesian view, for the more stringent. Indeed, as we will see, he invokes the PI to defend the first premise of the EAAN.

In what follows, I will argue that no Traditional Theist<sup>7</sup> can interpret the conditional probability referenced in his first premise as objective. Doing so would be self-defeating, since (as I shall argue) those interpretations entail the falsity of traditional theism. The upshot here is that traditional theists must interpret the conditional probability referenced in Plantinga's first premise in terms of epistemic probabilities. Further, I argue that Plantinga's use of the principle of indifference in defending his first premise is at odds with his Reformed Epistemology. The upshot here is that Plantinga's defence of premise 1 is at best incomplete.

## 2.1 Why Traditional Theists Can't Interpret Premise 1 as Objective

In this section I argue that interpreting Plantinga's first premise in terms of objective probabilities entails the denial of TT. Recall that premise 1 claims that a certain conditional probability, namely  $P(R|N \wedge E)$  is low. Note first, that this claim entails that  $P(N) \neq 0$ .

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<sup>6</sup>See footnote 15 for more on Williamson's view.

<sup>7</sup>It is not entirely clear what Plantinga has in mind when he references TT. I will assume that according to TT, God exists necessarily and eternally.

*Proof.* First note that by Bayes' Theorem:

$$P(R|N \wedge E) = \frac{P(N \wedge E|R)P(R)}{P(N \wedge E)}$$

Now, suppose that  $P(N) = 0$ . It is a theorem of the probability calculus that  $P(N \wedge E)$  cannot be greater than  $P(N)$ . So,  $P(N \wedge E) = 0$ . In that case, since the denominator on the right side of our equality is 0,  $P(R|N \wedge E)$  is undefined. So, if  $P(N) = 0$ , then  $P(R|N \wedge E)$  is undefined. By contraposition, then, if this conditional probability has a value (even if it is low, as Plantinga claims),  $P(N) \neq 0$ .  $\square$

Central to Plantinga's concern here is the question of the existence of God. Recall that  $N$  was defined as a conjunction that included at a minimum the claim that God does not exist. If  $P(N) \neq 0$ , then the probability that God exists is less than 1.

*Proof.* Suppose  $P(N) > 0$ . Observe that (in Plantinga's characterization of naturalism)  $\neg G$  is a conjunct of  $N$ . Since  $P(N) > 0$ , and  $\neg G$  is a conjunct of  $N$ , it follows that  $P(\neg G) > 0$ . It is a theorem of the probability calculus that  $P(G) = 1 - P(\neg G)$ . From this it follows that  $P(G) < 1$ . Thus, if  $P(N) > 0$ , then  $P(G) < 1$ .  $\square$

Now consider three common interpretations of probability that are objective (in the sense of being mind-independent described above). First, objective probability can be understood in terms of frequencies. On this view, probabilities are understood in terms of how often a particular outcome obtains, relative to some set of alternatives. Note that the frequency interpretation only references how often the outcome obtains in the actual world. A commonly recognized problem here is that this view can't make sense of attaching probabilities to one-time events (think of a coin that is flipped once and then immediately destroyed). In order to make sense of probabilities of one-time events, one might turn to hypothetical frequencies or propensities. Here, probability is not understood in terms of how often an outcome *actually* obtains, but in terms of a *tendency* for the outcome to obtain. It is a measure of how often the outcome *would have* obtained if the trial had been repeated. Given the standard semantics for subjunctive conditionals, we can think of the propensity view in terms of how often

the outcome obtains in nearby possible worlds. A third interpretation of objective probability that might be relevant here is Carnap's logical interpretation. On this interpretation, probability is understood in terms of the proportion of logically possible worlds the outcome obtains. This proportion is a function of the logical syntax of the description of the outcome in question.

We have seen that Plantinga's premise 1 entails that  $P(G) < 1$ . Now, let us consider what that means on these interpretations of probability. First, consider the frequency interpretation: if the probability of God's existence is less than 1, on this interpretation, this would amount to there being times at which God does not actually exist. TT claims, though, that God is eternal, existing from everlasting to everlasting. So, if we are talking about frequencies in the actual world, TT entails that  $P(G) = 1$ . In other words, Plantinga's premise 1 entails the falsity of TT on this view.

Next, consider the logical interpretation. On this interpretation, the probability of God's existence represents the proportion of possible worlds in which he exists. A common claim by traditional theists is that God exists in all possible worlds. Indeed, Plantinga himself defends a modal version of the ontological argument according to which the sentence "God exists" is either necessarily true or necessarily false (Plantinga, 1974, p.213-217). That is, its probability is either 1 or of 0 according to the logical view of probability. According to TT,  $P(G) = 1$  on this interpretation. Note that on the standard account of subjunctive conditionals, this consequence will also hold for the propensity view. On either the propensity or logical interpretation, then, Plantinga's premise 1 entails the falsity of TT.

While Plantinga formulates his argument in terms of standard probability theory, which derives conditional probability from unconditional probability, one might be tempted to think he could salvage the argument by using an alternative system.<sup>8</sup> Karl Popper famously articulated a system in which conditional probability is primitive (1959). Can Plantinga's premise 1 be salvaged from the problem I have described if it were formulated using Popper functions? In short, no. To see why, note that it is an axiom for Popper functions that if  $\models \neg N$  and  $\models T$ , then  $P(N|T) = 0$ .<sup>9</sup> Letting  $T$  stand for a tautology, TT is committed to both  $\models \neg N$  and  $\models T$ , and so TT

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<sup>8</sup>Thanks to an anonymous referee for suggesting this possibility.

<sup>9</sup>See Hawthorne (2016) for a complete axiomatization of Popper functions.

is committed to  $P(N|T) = 0$ . As a result, Plantinga's premise 1 entails the falsity of TT, even when treated as a Popper function.

*Proof.* First, by an axiom of Popper functions, since  $N \wedge E$  is logically equivalent to  $N \wedge E \wedge T$ ,  $P(R|N \wedge E) = P(R|N \wedge E \wedge T)$ . Further, by another axiom of Popper functions:

$$P(R|N \wedge E \wedge T) = \frac{P(R \wedge E \wedge N|T)}{P(E \wedge N|T)}$$

The denominator here,  $P(E \wedge N|T) = P(E|N \wedge T)P(N|T)$ . But as I argued above, on TT,  $P(N|T) = 0$ , and thus the denominator here is 0. So, just as with standard probability, on Popper functions, the conditional probability  $P(R|N \wedge E \wedge T)$  is undefined. Popper functions pose the same problem for Plantinga's premise 1 as do standard conditional probabilities.  $\square$

There is a work-around available here. One can define a Popper function as follows:<sup>10</sup>

$$P(A|B) = \begin{cases} \frac{P(A \wedge B)}{P(B)}, & \text{when, } P(B) > 0 \\ 1, & \text{when, } P(B) = 0 \end{cases}$$

While this work around could solve the problem of  $P(R|N \wedge E)$  being undefined (by the lights of TT), it is of no help to Plantinga. He claims that  $P(R|N \wedge E)$  is low, but on this approach it would be maximal, rendering premise 1 false.

To sum up: if we interpret Plantinga's premise 1 in terms of objective probabilities, it entails the falsity of TT. This result obtains whether we use standard probabilities (as Plantinga does) or Popper functions. So, despite his claims to the contrary, I conclude that Plantinga is committed to an epistemic interpretation of the probabilities in his EAAN. I turn now to explicating the challenges Plantinga faces in defending his premise 1, given that we need to interpret it in terms of subjective probabilities.

## 2.2 Difficulties in Interpreting Premise 1 as Epistemic

There are two problems for Plantinga if we interpret the probabilities as epistemic. On the one hand, his argument does not work given the permis-

<sup>10</sup>See Hawthorn *op cit.* and van Fraassen (1995) for more details.

siveness of the standard Bayesian view. On the other hand, the normative constraint he leans on in defending his first premise, the PI, is at odds with his Reformed Epistemology.

On the standard Bayesian view there are two normative constraint on degrees of belief. The first is probabilistic coherence. That is, in order to be rational, they must comport with the axioms of probability theory. The second constraint dictates how one must update her credences, given new information. This updating, since it is represented using conditional probabilities, is often called conditionalization. Prior probabilities are represented using unconditional probabilities, and posterior probabilities are represented using conditional probabilities. Consider some proposition  $P$  you believe. And consider some new propositional evidence  $E$  that you come to learn.  $P(P)$  represents your initial degree of belief in  $P$ . According to the Bayesian, rationality requires that, once you come to learn  $E$ , your updated degree of belief in  $P$ , should be  $P(P|E)$ .<sup>11</sup> By Bayes' Theorem:

$$P(P|E) = \frac{P(P \wedge E)}{P(E)} = \frac{P(E|P)P(P)}{P(E)}$$

In terms of an *interpretation* of probability, this is perhaps not so controversial. Since its inception, probability theory has at least partly been about reasonable degrees of belief.<sup>12</sup> However, since this interpretation also purports to answer epistemological questions, controversy looms. Many, including Plantinga,<sup>13</sup> hold that this view is too permissive, and are motivated to pose further constraints on the prior probabilities.

Note that the standard Bayesian view is too permissive for Plantinga's EAAN to work. Consider the presentation of the argument in *Warrant and Proper Function* (1993). In this presentation, Plantinga notes 5 different possibilities with respect to the question of how actions and beliefs are causally connected:

1. Beliefs are epiphenomenal.
2. Beliefs are not the cause of action, but the effects.

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<sup>11</sup>For simplicity's sake, I assume that  $E$  comes with complete firmness, that is when  $E$  is learned,  $P(E)$  becomes 1. For a more nuanced version, see Jeffrey (1965).

<sup>12</sup>See Gillies (2000, p.18-22) and Hacking (2006, p.11-17).

<sup>13</sup>See chapters 8 and 9 of *Warrant and Proper Function* (Plantinga, 1993), for Plantinga's critique of the standard Bayesian view.



3. Beliefs have causal efficacy, but not by virtue of their content.
4. Beliefs have causal efficacy, by virtue of content, but are maladaptive.
5. Beliefs have causal efficacy, by virtue of content, and are adaptive.

These possibilities are mutually exclusive, and jointly exhaustive. The first, epiphenomenalism is the view that beliefs are not causally connected to actions. With respect to evolution, on epiphenomenalism, beliefs are invisible. What matters for natural selection is behaviour. If beliefs are not part of the causal history of any action, they can in no way be selected for. The second does not fare much better. If beliefs are caused by actions, then they are downstream of evolution. Their truth or falsity have no bearing on behaviour. According to the third, beliefs play a role in causing action, but not by virtue of content. Plantinga illustrates with an example from Dretske. If one reads a poem so loudly that the sounds break glass, the sounds have meaningful content. But that content is not causally relevant to the glass breaking. On each of these three possibilities, beliefs could not be selected for their truth. Since the truth of a belief is causally irrelevant with respect to action, they are invisible to natural selection. On the fourth possibility, beliefs are similar, evolutionarily speaking, to sickle-cell anemia. The traits are maladaptive, but connected to genes that code other behaviour that is conducive to survival. The fifth possibility is the common sense view that beliefs indeed cause behaviour and are adaptive.

Since these possibilities are mutually exclusive and jointly exhaustive,  $P(R|N \wedge E)$  is just the weighted average:

$$\begin{aligned}
 P(R|N \wedge E) = & \\
 & P(R|N \wedge E \wedge 1)P(1|N \wedge E)+ \\
 & P(R|N \wedge E \wedge 2)P(2|N \wedge E)+ \\
 & P(R|N \wedge E \wedge 3)P(3|N \wedge E)+ \\
 & P(R|N \wedge E \wedge 4)P(4|N \wedge E)+ \\
 & P(R|N \wedge E \wedge 5)P(5|N \wedge E)
 \end{aligned}$$

We may be able to simplify this a bit. It seems to me that the truth of  $(N \wedge E)$  is not relevant to the question of which of these options holds. For our

purposes, this would indicate that they are probabilistically independent. If that is the case, we get:

$$\begin{aligned}
 P(R|N \wedge E) = & \\
 & P(R|N \wedge E \wedge 1)P(1)+ \\
 & P(R|N \wedge E \wedge 2)P(2)+ \\
 & P(R|N \wedge E \wedge 3)P(3)+ \\
 & P(R|N \wedge E \wedge 4)P(4)+ \\
 & P(R|N \wedge E \wedge 5)P(5)
 \end{aligned}$$

For the reasons mentioned above, Plantinga contends that  $P(R|N \wedge E \wedge 1)$  (that is, the likelihood of our cognitive faculties being reliable given the conjunction of naturalism, evolution, and epiphenomenalism) is very low. Similarly, for 2-4. However,  $P(R|N \wedge E \wedge 5)$ , he concedes might be “somewhat greater than 1/2” (1993, p. 227).<sup>14</sup> Why only “somewhat more than half”? Here Plantinga relies on Stich’s (1990, p.62) observation that a rule like “better safe than sorry” will enhance fitness while leading to many false beliefs. Wilkins and Griffiths counter with the claim that truth-tracking is “the means by which fitness is achieved” (2012, p.138). What Wilkins and Griffiths overlook, however, is that truth-tracking is only half of the story when it comes to the action-selection we are talking about when we discuss biological fitness beyond phenotypic plasticity. Desires also play a role. As Stephens notes, “One might think that for each combination of beliefs and desires, there is a kind of mirror image where one has beliefs that deviate from the true and desires that deviate from the good in such a way that these are behaviourally equivalent” (2001, p.184). Stephens concedes that this may be true if we consider particular action-belief combinations. However, he identifies a range of conditions in which rule-based reasoning (such as Stich’s “better safe than sorry” proposal) will select for rules that lead to accurate beliefs and desires. So, it may be that Plantinga is being a little pessimistic here. However, even if we take his assessment of “somewhat more than half”, it will be sufficient to undermine his conclusion on a

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<sup>14</sup>Later, he suggests that this probability might be “inscrutable”. I take it this claim presupposes some additional constraints on the priors than the view currently under consideration. I discuss a prominent proposal for such a constraint a little later in this section.

Bayesian interpretation.

We are now in a position to see why the subjective Bayesian view<sup>15</sup> is not sufficient for Plantinga's argument. In short, it threatens to render his Premise 1 inapplicable to a wide swath of his audience. Consider someone whose prior distribution for 1-5 is that  $P(5)$  is very high, and that each of  $P(1) - P(4)$  is vanishingly low. Since 5 is the common-sense position, I take it that this distribution will accurately describe the distribution of the majority of people who consider Plantinga's argument. If we take Plantinga's estimates for the likelihoods, and weight those according to the common-sense distribution,  $P(R|N \wedge E)$  will be "somewhat more than 0.5". This hardly seems low, certainly not low enough to generate a defeater for  $R$ . Premise 1, then, is false for anyone whose prior probabilities are as described in the preceding paragraph. Plantinga's argument fails to produce a defeater for anyone who holds  $N$ ,  $E$ , and the common-sense view with respect to the causal relation between belief and action.

So, the standard Bayesian account is too permissive, and further normative constraints on epistemic probabilities are needed. One constraint Plantinga (2003, 2011) mentions in defending the EAAN is the Principle of Indifference (PI). PI is a feature of classical treatments of probability, such as those of Pascal, Fermat, and Laplace. It also features in more recent treatments, such as Keynes' "logical view" mentioned in footnote 3. According to PI "if there is no known reason for predicating of our subject one rather than another of several alternatives, then relatively to such knowledge the assertions of each of these alternatives have an equal probability" (Keynes, 1921, p.42). So, Plantinga might argue, since we have no reason to assign higher probability to any of 1-5, we must assign them each 0.2. Indeed, as we have seen, without PI, it is difficult to imagine any reason for excluding the distribution that strongly favours the eminently plausible 5 over 1-4.

PI is contentious, generating a family of paradoxes, the Bertrand paradoxes.<sup>16</sup> In addition to these, I claim that Plantinga specifically has strong reasons to refrain from endorsing PI. In what has come to be known as "Re-

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<sup>15</sup>Note that this problem arises equally on Williamson's (2000) *objective* Bayesian view (sometimes labelled "epistemic probability"). On that view, prior probabilities are not credences, but "a measure of intrinsic plausibility" (p.212). Whatever intrinsic plausibility amounts to, it is hard for me to imagine that any of 1-4 are remotely close to as intrinsically plausible as 5.

<sup>16</sup>For an overview of these paradoxes, and some strategies that have been put forward for dealing with them, see Gillies (2000, p.37-49).

formed Epistemology" (RE), Plantinga (1981, 2000) has famously argued that belief in God can be "properly basic". There are two components to this claim. First, the language of basicity derives from a foundationalist approach to epistemology. A basic belief serves as foundational for other beliefs, but itself needs no other belief to serve as its foundation. Examples of such a belief might be my belief that there is a tree in front of me. While this belief derives from my visual experience of a tree in front of me, it is not derived inferentially from more basic beliefs. Second, the language of *proper* basicity is normative. A properly basic belief is a belief for which it is (epistemically normatively) ok for one to hold non-inferentially. A key part of Plantinga's claim, then, is that belief in God is the sort of belief that one can hold non-inferentially in an epistemically acceptable way.

I contend that this claim is at odds with Plantinga's endorsement of PI. In terms of epistemic probability, anyone who has a non-inferential belief in God assigns a high prior probability to the proposition "God exists." Note that both basic beliefs and prior probabilities are non-inferential. The prior probability of a proposition  $P$  is its probability considered apart from evidence. This can only be done non-inferentially. Presumably, beliefs have epistemic probabilities greater than 0.5.<sup>17</sup> But, the highest probability the PI will allow for any proposition is 0.5. To see why this is so, recall that PI applies when one has no known reason for deciding among a set of alternatives. The smallest set of alternatives has at least two members.

We are now in a position to see why RE is at odds with PI. Suppose someone has a properly basic belief that God exists. Since it is basic, it is non-inferential. Since it is non-inferential, the person knows no reason to decide between believing that God exists or not believing. Then, applying PI, the person ought to assign a probability of no more than 0.5 to the proposition that God exists. Now a dilemma: if they assign greater than 0.5, they believe, but not properly. If they assign less than 0.5, they do not believe. In either case, they do not have a properly basic belief that God exists, contradicting our initial supposition. So, the PI is incompatible with the claim that belief in God can be properly basic.

We could make the point in the other direction. Consider the 5 possibilities for how belief and action are causally connected. Could a naturalist

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<sup>17</sup>This assumption is known as the "Lockean Thesis" in the literature on bridge principles between full and partial belief.

not accept the 5th option as a properly basic belief? It seems to me that the answer is clearly yes. The 5th option has a lot in common with many of the examples (beside belief in God) that Plantinga suggests are properly basic beliefs: belief in other minds, belief in a world external to our minds. These are highly intuitive, common sensical beliefs. So is the belief that our beliefs cause actions that promote our survival. And so, any adherent in RE should have no qualms allowing that belief to be properly basic as well.

To recap, then, objective probabilities are not suitable for Plantinga's argument insofar as they entail that TT is false. Permissive subjective probabilities, like the Bayesian view, leave many of Plantinga's interlocutors unaffected by his claim. And PI, along with the more restrictive view of epistemic probability it posits, is eliminated from the arsenal of adherents of RE.

### 3 Going Forward with the EAAN

So, where does this leave the EAAN? In the space remaining, I will sketch several ways forward for a defence of this argument available to defenders of both RE and the EAAN.

First, they might be content to leave things here. The argument is still powerful. It constrains the would-be naturalist to a common-sense view about how beliefs hook up with actions. To be sure, a number of naturalist philosophers do not endorse this common-sense view, and may still be subject to the defeat problem alleged in the argument.

Second, they might develop a more nuanced version of PI. This theory would prescribe more subtle criteria than Keynes' for when the principle applies. If they could develop a plausible version of the principle according to which it did not apply to basic belief in God, but did apply to the question of how beliefs hook up with action, the EAAN would be back in business.

Third, they might argue against an assumption I made in §2. I assumed there that the values for the prior probabilities of the 5 possibilities of how beliefs hook up with action are probabilistically independent with respect to  $(N \wedge E)$ . One might object that this is incorrect. According to this objection, the adherent of  $(N \wedge E)$  is committed to assigning a lower value to  $P(5|N \wedge E)$  than to  $P(5)$ . In order for that to be the case, they would need to be committed to assigning a higher probability  $P(n|N \wedge E)$  than to  $P(n)$ , for at least one of

1-4. It is difficult to see why this would be so. Consider epiphenomenalism. Most naturalists, I take it, are physicalists with respect to the mental. The claim that dualism entails epiphenomenalism has often been used as an argument by physicalists against dualism. Physicalism seems to be the default view for naturalists in philosophy of mind. So, it does not seem like the naturalism commits someone to 1 more than non-naturalism does. Or consider 3. Plantinga considers this to be part of the computational theory of mind. However, it seems there are plenty of variants of the computational theory of mind that subscribe to 5 rather than 3<sup>18</sup>, so that seems an overstatement. I can't think of any reason to suppose that 2 and 4 should be more probable given  $(N \wedge E)$ . At any rate, it is hard to see what about  $(N \wedge E)$  would commit someone to assigning a lower value to  $P(5|N \wedge E)$  than to  $P(5)$ . It seems to me that the prospects for an argument against this assumption are dim. If successful, however, such an argument would show that the naturalist's commitments force them to assign higher probability to one or more of the 4 problematic views. The result would be that the naturalist's commitments would force them to accept Premise 1.

Fourth, they might further develop Plantinga's (2011, p.348-350) suggestion of a version of the EAAN that reduces the scope of the argument. Note that the original EAAN makes a claim about *all* of our cognitive faculties. That is, it casts suspicion on *all* of our belief-forming mechanisms, given  $(N \wedge E)$ . However, a more fine-grained approach might identify faculties that are more likely to be reliable, given  $(N \wedge E)$ , and some that are less likely. Plantinga suggests that the faculty that produces metaphysical beliefs is among the latter. This seems plausible. Consider the metaphysical dispute between persistence and perdurance theories. On the former objects are 3-dimensional, persisting through time, and are wholly present at each moment they exist. On the latter, objects are 4-dimensional, extended through time just as they are through space, and at each moment only a slice of them exists. When encountering a tiger, this question has no relevance with respect to biological fitness. Fitness only requires recognizing that I need to put distance between myself and the object before me. Getting that correct will enhance my fitness, regardless of whether I am wrong with respect to the question of whether the object is a persistent one or a perdurant

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<sup>18</sup>See (Rescorla, 2020) for a taxonomy of the variations of the computational theory of mind

one. A promising line of inquiry here would be Stephens'(2001) "sandwiching" argument. On this account, some propositions are such that there is selective pressure in two directions: both against being too gullible and against being too skeptical with respect to that proposition. An example of such a proposition is whether some patch of mushrooms is safe to eat. If the organism is too skeptical, they miss out on nutritional opportunities. If the organism is too gullible, they ingest poison. Metaphysical propositions would seem to lack the material consequences needed for this type of sandwiching of selective pressures. If this approach is correct, then naturalism (as a metaphysical position) would still be subject to the defeat problem described in the EAAN.

A fifth option to consider is whether the EAAN needs to reference probabilities at all. It seems like premise 1 could be expressed as a subjunctive conditional instead. Perhaps something like, "If it were the case that  $(N \wedge E)$  were true, then it would be the case that our cognitive faculties are unreliable". For this claim to be expressed in a way consistent with TT, adherents of TT would need to consider it as a counterpossible conditional. But that should not be a problem for Plantinga. After all, he argues, "Philosophers regularly and quite properly use counterpossibles in arguing for their views" (2011, p.338). Perhaps the EAAN should be one of those arguments.

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