

The problem of polytheisms: a serious challenge to theism

Raphael Lataster¹ · Herman Philipse²

Received: 12 July 2015 / Accepted: 14 December 2015 / Published online: 21 December 2015
© Springer Science+Business Media Dordrecht 2015

Abstract Theistic and analytic philosophers of religion typically privilege classical theism and monotheism by ignoring or underestimating the great threat of polytheism (We take ‘theism’ to mean ‘classical theism’, which is but one of many possible monotheisms. Avoiding much of the discussion around classical theism, we wish to focus on the challenges in arguing for monotheism over polytheism. We take monotheisms and polytheisms to be versions of supernaturalism, and not of ‘theism’. We consider monotheisms and polytheisms to entail the notion of divine transcendence). We develop an argument from infinitely many alternatives, which decisively demonstrates that if a monotheistic or polytheistic god-model obtains, it will almost certainly be polytheistic. Probabilistic calculations are performed in order to illustrate the difficulties faced by the monotheistic proponent. After considering possible objections, such as whether there should be limits placed on how many possible god-models could obtain, we conclude that our argument from infinitely many alternatives is sound, and highly unlikely to be overcome.

Keywords Polytheism · Monotheism · Theism · Argument from infinitely many alternatives

Raphael Lataster is the lead author. Herman Philipse served as inspiration for the project, provided many helpful criticisms, and was heavily involved in substantial revisions.

✉ Raphael Lataster
raphael.lataster@sydney.edu.au

Herman Philipse
h.philipse@uu.nl

¹ University of Sydney, Sydney, Australia

² University of Utrecht, Utrecht, Netherlands

The problem

Numerous sceptical scholars analyse and scrutinise arguments for the existence of at least one god, generally finding them wanting.¹ Furthermore, when such arguments are combined, and contrasted against *contra* arguments, critical scholars conclude that such cases are not sufficient to demonstrate the existence of god/s. Whilst we concur, we also reflect on what can be known about the existence of god/s if (many or most of) the arguments are, rationally or charitably, generally assumed to be persuasive.² In other words, for the sake of argument, and whilst formulating our argument within the framework of a Bayesian approach,³ we shall temporarily suppose that there is good evidence that supports divine existence, and overlook the many good arguments for ontological naturalism. Of course, accepting the existence of one or more transcendent gods is not equivalent to asserting the existence of just one transcendent god. This seems especially pertinent, given that many philosophers seem to view ‘naturalism’ and ‘classical theism’ as the only two options worth considering.⁴ Given the unpersuasive nature of the few arguments for monotheism per se, we shall argue that there are reasons to believe that the totality of evidence does not support monotheism in particular, and that monotheism is indeed improbable, compared with polytheism.

The simple but inadequate solution

Once transcendent divine existence is accepted, there are many resulting concerns, though we shall focus on the issue of how many gods might exist. For the purposes of this discussion, we shall temporarily overlook the fact that there are actually many possible monotheisms, and even many possible theisms (though a particular theistic philosopher would generally hold to just one), so that the focus remains on how many gods must exist, *ceteris paribus*. It is not at all obvious, for example, that the Creator god of the Kalam cosmological argument must be the same god as the one that communicates with her subjects. Nor is it necessary that the Intelligent Designer be the same being as the one that gifts humanity with an objective standard of morality. The honest philosopher may wonder why it should be granted that there could only be a single transcendent and necessary god.

¹ Sobel (2004), Oppy (2006).

² We are currently involved in interdisciplinary ‘*contra* theism’ projects, which highlight the many deficiencies in the most sophisticated cases for the existence of God. Such arguments include cosmological, teleological, axiological, and historical arguments.

³ For a discussion of the failure of alternative apologetic approaches, such as the use of deductive arguments, and the benefits of examining inductive/probabilistic arguments through a Bayesian lens, see Philipse (2012). In Bayesian reasoning, we refer to the inherent plausibility of the theory as the ‘prior probability’, the likelihood of the evidence on the theory as the ‘likelihood’ (or the ‘consequent probability’), and the overall result as the ‘posterior probability’ (or simply, the ‘probability’). See also Lataster (2013).

⁴ For example, see Cottingham (2014).

Such arguments for divine existence do not explicitly place limitations on how many gods might exist. It could be that the posited Creator of the universe may be the offspring of another god, and/or may have had a divine helper. There are however, additional arguments that argue for the existence of only one god, with the most prominent relying on appeals to simplicity, and the unitary system of natural laws. Regarding the former, the monotheist could appeal to Ockham's razor, further claiming that positing one god is simpler than positing more than one. Richard Swinburne utilises this approach:

There could in this respect be no simpler explanation than one which postulated only one cause. Theism is simpler than polytheism.⁵

While simplicity is a controversial topic, we shall accept, for the sake of argument, the premise that monotheism is simpler than its polytheistic alternatives.⁶ Of far more import is the relevance and impact of simplicity. Curiously, Swinburne's own attempts to highlight the ontological relevance of simplicity might accomplish the opposite of what he intends:

Likewise in the Middle Ages people believed that light travelled with an infinite velocity rather than with some large finite velocity equally compatible with observations. Only when observations were made by Römer in the seventeenth century incompatible with the infinite-velocity theory was it accepted that light had a finite velocity.⁷

People preferred what is apparently the simpler theory; and people were wrong. However, that quotation concerned God's properties. More relevantly, as we are more concerned with Swinburne's views about the simplicity appealed to by his positing of fewer entities, he says:

The simplicity of a theory, in my view, is a matter of it postulating few (logically dependent) entities, few properties of entities, few kinds of entities, few kinds of properties...⁸

Generally speaking, this appeal to simplicity is the approach taken by theistic philosophers, when it comes to considering the profound challenges of alternatives to theism and monotheism, such as the polytheisms. For example, William Lane

⁵ Swinburne (2010).

⁶ It would not necessarily be obvious to all that one entity is simpler than several, or that infinite beings or qualities are simpler than finite ones. For example, it could be considered simpler that there is a different god for each task, highly proficient in its role, rather than one god that fulfils all roles. Furthermore, stressing the importance of fewer entities would surely raise questions as to whether other certain alternatives—such as naturalism(s)—are simpler still, though this falls outside the scope of this article.

⁷ Swinburne also asserts that scientists see infinite degrees of some quantity as simpler than some large finite degree. See Swinburne (ITG), pp. 40–41. If infinity accords such simplicity, perhaps there is also the possibility of infinitely many gods, and that this could be considered a very simple theory. Note that while in this quotation Swinburne is claiming that an infinite property of a kind (such as omniscience) is simpler than a finite property (such as being very knowledgeable), rather than arguing for the simplicity regarding the quantity of gods, he is still arguing for simplicity, and in an unconvincing way.

⁸ Swinburne (2004).

Craig invokes Ockham's razor in restricting the discussion to a single cause of the universe.⁹ However, even if monotheism were 'simpler', it may not be more probable as a result. Simplicity is not necessarily truth-conducive; perhaps it could be, but this would need to be comprehensively demonstrated, which the likes of Swinburne and Craig have failed to do. Numerous scholars, such as Kosso and van Fraassen, recognise the pragmatic aesthetic of simpler explanations, but stop short of declaring that simpler theories are more probable.¹⁰ In fact, as Swinburne demonstrated himself, there are instances where the simpler explanation turned out to be wrong.¹¹ Nevertheless, that such theistic philosophers have failed to demonstrate that simplicity is conducive to truth, crucial as it is, is not the most problematic issue, as we shall soon see.¹²

Concerning the unitary system of natural laws, Swinburne asserts that given the existence of more than one god, "some explanation is required for how and why they cooperate", which apparently makes monotheism simpler, and more probable.¹³ Among other considerations, this too, suffers from the problem that a theory's simplicity does not necessarily render it more probable. That the numerous gods posited by polytheistic proponents could hinder each other and cause conflict in the

⁹ See Craig (2008, p. 152). Note that this approach can also raise questions as to the reasonableness of Trinitarians positing three persons in the godhead. It seems simpler to posit one, as Muslims will agree! Some philosophers may object that there are other arguments attesting to the uniqueness of God, such as considerations that God is omnipotent or the source of moral value. Of course, as indicated in the introductory remarks, we do not find such arguments persuasive. For example, regarding the former, a god that is more powerful than necessary tends to be posited. Plantinga's ontological argument shall be discussed soon. Also, the existence of an omnipotent god does not necessarily preclude the existence of other gods. Regarding moral values, it is again not obvious that there could not be a multitude of gods, with one—possibly lesser—god being the source of these hypothesised moral values. That causal considerations favour God's uniqueness has also been found to be unconvincing. For an example, see Bartel (1983). One interesting possibility raised by Bartel is that there could be "several causally-independent beings who are collectively responsible for the existence of all contingent beings". He also notes that some forms of polytheism could offer other advantages "which outweigh its lack of causal simplicity", which we shall somewhat elaborate on and express more formally via probabilistic calculation. On the trinity, Philipse attended the Platinum Jubilee Celebrations of the Indian Philosophical Congress (in the year 2000), and asked some of the beautifully dressed Brahmans, "In how many gods do you believe?" Usually, they would laugh and respond, "at least 50,000!" Philipse further questioned them about their thoughts on Christians, with a typical reply being, "Oh, these people are not very good at maths. They cannot count to more than three!"

¹⁰ Philosopher of Science, Peter Kosso, explains that "Simplicity is clearly a pragmatic virtue, and for that reason it is a good thing to strive for. But we have yet to see the connection between being simple and being true". See Kosso (1992, p. 46). Noting that equating truth and simplicity is groundless, van Fraassen argues along similar lines. See van Fraassen (1980). For critiques on this notion relating to Philosophy of Religion (specifically Swinburne's appeal to simplicity), see Göhner et al. (2008, pp. 33–46), Korbmacher et al. (2008, pp. 47–60); Cf. Philipse (GAS), pp. 212–220, 245–255.

¹¹ There are many more examples of simpler theories being replaced by apparently more complex theories. In classical thought, for example, four or five elements were postulated, though scientists now identify approximately one hundred elements. Young-earth creationism has also been soundly discredited as an explanation for the diversity of species on Earth, by Darwin's much more complex theory of evolution, which involves billions of years of mutations and bloodshed.

¹² Some may object that Swinburne has argued for this at length. The crux of his argument is that monotheism is simpler, which is not necessarily obvious, and also that simplicity is related to truth, which has never been established.

¹³ Swinburne (EG), p. 147.

universe also poses no definite problems.¹⁴ In fact, such conflicting gods may better explain why there are great differences and conflicts in the universe, and on Earth, such as the apparent conflict between good and evil, and the conflicts between different species. These gods could be egalitarian and democratic, dictatorial, peaceful and cooperative, combative, they may all have different powers and also different roles to play, or they may be very similar and forever compete or collaborate with each other. This latter option allows for a (still infinite) subset of the polytheistic alternatives, which may help in our calculations.

All of these appeals to simplicity suffer from even greater problems. Firstly, if it is granted that the simpler hypothesis is indeed more probable, it has not been explained by how much it is more probable. This is crucial, given that alternative hypotheses could overcome this initial setback, via superior likelihoods, or, collectively. In other words, monotheism might be 50 % more probable on account of its simplicity, compared to a particular polytheistic rival, or it may be 10, 1, or 0.0000000000001 % more probable. The same problem faces many other potential arguments concerning monotheism's being more probable than polytheistic scenarios. For example, Alvin Plantinga's argument from revelation could be considered.¹⁵ His Aquinas/Calvin model involving the *sensus divinitatus* lacks empirical justification, and, being presumptive, it is not made obvious why alternative (such as polytheistic) god-concepts could not also provide such warrant for religious belief. Indeed, that different believers in different parts of the world claim different experiences, could render certain polytheisms more probable. There is simply no sound argument here for monotheism's being more probable, nor for how much more probable it is, relative to alternatives. Staying with Plantinga, his ontological argument could also indicate the existence of a single god, and yet he himself acknowledges the failure of the argument as a proof for God's existence, since it commits the fallacy of ambiguity, falsely equating epistemic possibility and metaphysical possibility.¹⁶

And, once more, even if Plantinga's arguments provided good reasons for thinking monotheism more probable, this must be quantified (and alternatives cannot simply be ignored). These considerations dictate that we practice restraint when it comes to factoring in the probabilistic impact of these direct and indirect appeals to simplicity. With monotheists' lack of justifications and quantifications, granting equal plausibilities seems fair and necessary. This cannot be stressed enough: monotheists must demonstrate that monotheism's simplicity makes it more probably true, and must clearly explain by how much. This has yet to be done. Secondly, monotheism's being more probable may be inconsequential, given the sheer number of possible polytheisms, which shall be revealed by our simplified

¹⁴ Swinburne does indicate that theism is simpler than the polytheisms due to considerations such as the cooperation of many gods and the expectation of observing different deities' handiwork. Given the very different regions on Earth, and in the Universe, it is not difficult to imagine that we actually do have evidence of different deities' handiwork, and this evidence actually coheres well with certain, ancient (i.e. Mesopotamian) polytheisms. See *ibid.*, p. 147. Nevertheless, we shall eventually consider the probabilistic impact of monotheism serving as a superior explanation of the available evidence.

¹⁵ Plantinga (2000).

¹⁶ Plantinga and Sennett (1998, pp. 65–71).

calculations. These are no small matters. These appeals to simplicity surely do not render alternative (i.e. polytheistic) hypotheses impossible, as simpler explanations have often been replaced by more complex ones, which is made clear by empirical evidence. It is crucial then that the probabilistic effects of these appeals to simplicity are left unstated by theistic philosophers.¹⁷

The most pressing concern with the alternative polytheisms is that there are infinitely many possibilities, with none reasonably argued as being impossible or very implausible—assuming for the sake of argument that the arguments for the existence of god(s) have any force at all. More so than for any of the other major rivals to classical theism, or monotheism, polytheism allows for a straightforward and lucid discussion of the problem of theism's infinitely many epistemic alternatives. After all, it is exceedingly simple to continuously imagine 'just one more' god. There may be 27 gods, but there also may be 28. There could be 330,000,000 gods, but then again, there could be 330,000,001. When the theist has not decisively ruled out polytheism, the realisation that 'polytheism' is actually a catch-all hypothesis which includes infinitely many scenarios, could lead to a seemingly insurmountable problem.

There are infinitely many alternatives to monotheism that are logically coherent. Furthermore, from a Bayesian or probabilistic standpoint, the probability of theism cannot be calculated or even reasonably approximated, when faced with infinitely many alternatives, particularly if they are equally plausible. The latter point is crucial, and cannot be dismissed, due to a lack of decisive evidence for monotheism's higher inherent plausibility. In other words, it might be that theism cannot reasonably be claimed to be the most probable god-model. Polytheism—which is a catch-all hypothesis—may be more probable, as indicated by our calculations below. Theism is but one god-conception among an infinite sea of possible alternatives. Several simple calculations will demonstrate how the probability of the truth of theism can be said to be virtually zero, even if the number of possible alternatives is inexplicably and arbitrarily limited. We shall demonstrate via Bayesian reasoning that whether we consider infinitely many polytheistic alternatives, or a limited number of polytheistic alternatives, monotheism—and by extension, classical theism—appears to be very improbable indeed.¹⁸

Calculations

First, let us contrast monotheism with its infinitely many polytheistic alternatives. We effectively have an infinite number of hypotheses: one entailing one god, one entailing two gods, one entailing three gods, and so on. It is primarily in the number of gods that these hypotheses differ, with almost everything else considered equal

¹⁷ The likes of Swinburne and Craig seem to ignore this fact, carrying on with their theorising about God whilst ignoring alternatives that are apparently less simple and probable. That is not how proper probabilistic reasoning is done.

¹⁸ The equations may appear different to standard Bayesian equations, because of certain assumptions made regarding prior probabilities and likelihoods. Nevertheless, they are still Bayesian.

(there are yet more polytheisms that are possible). Relevant to any sound probabilistic comparative analysis are the prior probabilities of the various hypotheses. Unfortunately, we have no reliable background knowledge regarding the inherent plausibility of a god-model that entails the existence of one god, compared with the inherent plausibilities of models that entail the existence of more than one god. Therefore, we have no choice but to invoke the principle of indifference, and also the principle of countable additivity, which would yield equal prior probabilities to all the hypotheses, so that the prior probability for monotheism is nearly 0.¹⁹ The theist needs not be concerned at this stage. Likelihoods could, at least in principle, overcome this handicap and ultimately reveal the monotheistic hypothesis to be the most probable one.

The direct evidence, which should include *all* existing evidence, is not obviously more or less expected on any of the polytheistic alternatives to monotheism. This point may be contentious, so consider that no convincing argument leading to comparative probabilistic analyses to this effect has yet been put forth by monotheists. In other words, just as we have assigned equal prior probabilities, we should also assign equal likelihoods. The theist may now become concerned. Equal priors and equal likelihoods necessarily entail equal posterior probabilities. Note that if the person who believes in one god finds this distressing, the person who believes in 6.022×10^{23} gods will be just as horrified, as will the person who believes in 153 gods.²⁰ Inevitably, with equal prior probabilities and equal consequent probabilities, the entirety of the calculations required to deduce the posterior probability of monotheism's truth relative to its polytheistic rivals can be rendered simply, akin to rolling an infinitely sided die²¹:

$$P(\text{monotheism}|e.b) = 1/\infty$$

Effectively:

$$P(\text{monotheism}|e.b) = 0$$

This is obviously quite far removed from the more than 0.5 (in other words, 50 %) that would be required to convince the non-monotheist. Now the probability that polytheism obtains would be:

$$P(\text{polytheistic alternatives}|e.b) = (\infty-1)/\infty$$

¹⁹ The first principle is used due to insufficient background knowledge; all possibilities should thus be considered equally probable. The second principle is used, as the prior probabilities of all exclusive and exhaustive hypotheses must add to 1. As such, each prior is effectively (but not actually, as it approaches) 0.

²⁰ Though possibly humorous and flippant, this is mentioned to clarify that 'polytheism' is not being favoured; it is a catch-all hypothesis. All these individual models suffer equally. It just happens that many of the religious adherents who would care to read this article believe in only one god. If an apologist asserts that there are three or thirteen gods instead of one, we would present the same argument.

²¹ The notation on the left hand side of the equation simply means, "the probability of the truth of monotheism, considering all the evidence and background knowledge".

Effectively:

$$P(\text{polytheistic alternatives}|e.b) = 1$$

This conclusion is inescapable. The truth of monotheism is virtually impossible, based on the evidence currently available (which has not been convincingly argued as being more likely on monotheism), when faced with an infinite number of equally plausible alternative god-models.²² This also holds for each individual polytheistic model. However, effectively the same result would be achieved if we were to arbitrarily limit the number of possible polytheisms. Though we have seen no reason to do so, we shall proceed by doing just that. In another project, Lataster has conceived of a very large number, making use of numbers significant to various religious adherents and large numbers such as the googolmax,²³ called *gods number*.²⁴ It is equal to equal to: (googolmax ^ googolmax ^ googolmax ^ googolmax ^ googolmax ^ googolmax ^ googolmax ^ one vigintillion ^ one centillion ^ one millimillion ^ Graham's number ^ Asamkhyeya ^ 23) × π. Employing this number in our calculations instead of infinity is technically being very charitable. After all, infinity is vastly greater.²⁵ Nevertheless, the revised calculations yield identical results:

$$P(\text{monotheism}|e.b) = 1/\text{gods number}$$

$$P(\text{monotheism}|e.b) = 0$$

The probability that polytheism obtains would be:

$$P(\text{polytheistic alternatives}|e.b) = (\text{gods number} - 1)/\text{gods number}$$

$$P(\text{polytheistic alternatives}|e.b) = 1$$

Returning to the possibility that monotheism is more probable on account of its apparent simplicity, and the unitary system of natural laws, it seems that the sheer number of alternative god-concepts could still be overwhelming.²⁶ Monotheism

²² We refer to epistemological possibility rather than ontological possibility. We do not know with certainty how many such god-models are *actually* possible.

²³ One googolmax is equal to $10^{10^{10^{10^{10}}}}$.

²⁴ The grammatical choices are intentional and respects that there may indeed be more than one god, and that an existing god may not be the God (often portrayed with a capitalised 'g') of classical theism. This large number was also chosen to be intentionally far greater than any number employed by various confessional philosophers of religion, when arguing that a naturalistic or non-theistic explanation is highly improbable (such as with fine-tuning arguments).

²⁵ Of course, infinity is an abstract concept, and not a number, but is often treated as a number in numerous mathematical fields.

²⁶ Let us grant that the unitary system of natural laws is much more likely given monotheism, than on each polytheistic alternative. This would, of course, ignore the infinitely many possible polytheisms entailing like-minded and totally collaborative gods (this would technically be a subset of the possible polytheisms—there will also be models entailing conflicting gods). With such polytheisms, the observed evidence is just as expected as it is on monotheism. Subsequent claims about prior probabilities would need to be quantified, and seem unhelpful given the very small prior probabilities we have alluded to. Any arguments against all this should clarify just how much more probable monotheism is, so that a calculation is possible.

would thus be exceedingly unlikely to be true, even in many cases where it is—inexplicably—considered much more likely than any other alternative. This can also be demonstrated mathematically. Let us consider monotheism as being one trillion²⁷ times more probable than any of the polytheistic alternatives, in our limited scenario:

$$P(\text{monotheism}|e.b) = 1,000,000,000,000/\text{gods number}$$

$$P(\text{monotheism}|e.b) = 0$$

The result is the same. This latter calculation may seem unfair (and shall be elaborated on in the following section), so allow us to retreat a little. If monotheism is in fact more likely than polytheism in that it provides a better explanation of the evidence, we must remember that the polytheistic alternatives—individually or collectively—may yet triumph based on how much more probable monotheism is (we have no clear evidence to suggest that monotheism is at least 10 % more probable than all polytheistic alternatives, let alone one trillion times more probable), how many alternatives there are, and whether alternative hypotheses benefitted from superior prior or consequent probabilities, which are currently unknown. This seems to be a comprehensive result, considering that no convincing argument has yet been presented by theists in arguing for the relative plausibility of monotheism (whether on the prior or consequent sides of the equation) and that much of the evidence arguably contradicts it; indeed, much of the existing evidence could be considered to be more expected in polytheistic scenarios.

To give only one example, many polytheistic god-conceptions offer greater explanatory scope than monotheism, with regards to explaining personal religious experiences and claims to miracles of non-monotheistic (and also non-Christian) religious believers. While less important, given our latter calculation, the positive result monotheists seek might still be elusive even if monotheism is said to be a trillion trillion (one septillion) times more likely than any polytheistic alternative on account of its alleged simplicity. In other words, we lack the evidence to conclude that monotheism is more probable than all individual polytheisms, and more probable than the catch-all hypothesis of polytheism. It would seem then, given the current state of the evidence, that the problem of polytheism is effectively insuperable, to say nothing of similar issues with other major rivals to theism (and polytheism). This is not simply due to the many alternatives that are conceivable, but also to the unknown prior probabilities, and to the fact that the evidence supporting monotheism does not obviously overcome its crippling prior probability.

Possible objections

The monotheist may accuse us of *privileging polytheism* which is here not a single god-model that can be directly compared to monotheism, but a catch-all hypothesis representing an infinite number of possible alternatives. We have been transparent

²⁷ This is using the short-scale system for naming large numbers, though we can confirm that the results will be identical for those preferring the long-scale system.

about this, and about the fact that the same challenge awaits the adherent of any one polytheistic model. The aim of this essay is not to argue that any one of the possible polytheistic models is *more probable*, but to show that the case for theism's supposed probability is severely deficient. The burden is on the monotheist, and also the bitheist, the tritheist, the tetratheist, the triskaidecatheist, the enneacosioitheist, the myriatheist, and so forth, to demonstrate why their chosen god-concept probably—or perhaps, certainly—obtains.

Another objection may be that *monotheism truly is the simpler theory*, simpler theories truly are more probable, and monotheism further provides a better explanation of the available evidence. None of this has been justified, but assume it has. Recall that the 'polytheism' considered is actually a catch-all hypothesis. There are infinitely many reasonable polytheistic alternatives to monotheism, meaning that monotheism's superiority over any particular polytheistic model *could* be inconsequential, depending on the (totally unknown) probability distribution. This seemingly entails that monotheism can only reasonably be preferred over all polytheisms if and only if it can be argued convincingly that a specific monotheism is more probable than each polytheistic alternative. With unknown prior probabilities, even revealing one option as being a better explanation of the evidence is technically not enough. In other words, the monotheist would effectively need to show convincingly that the idea that more than one god could exist is logically incoherent. No such argument currently exists.

A related objection could be that *there are not infinitely many (or gods number) possible polytheisms*. It could be that there is some limit to how many gods, could possibly exist, and thus, to how many polytheistic alternatives are possible. This would have to be demonstrated. That this has never been demonstrated is one of the key problems for the theistic case. This is the very reason for our focus on the *gods number*, rather than infinity; to demonstrate that even limiting the possibilities to such an absurdly large, though finite, number is arbitrary. We suspect that the monotheist may find more luck in proving the logical necessity of monotheism's obtaining—already a seemingly impossible task—than proving that there could be only 69 possible polytheisms, for example. On that perspective, 70 or more possible polytheisms would presumably be impossible. But why not 70? Or 71? Or... *ad infinitum*. Recall also that appealing to infinitely many possibilities is not required to highlight the grave problem that polytheism presents. We only needed to appeal to a mere *gods number* of possibilities, with one *gods number* being equal to: $(\text{googolmax} \wedge \text{googolmax} \wedge \text{googolmax} \wedge \text{googolmax} \wedge \text{googolmax} \wedge \text{googolmax} \wedge \text{googolmax} \wedge \text{googolmax} \wedge \text{one vigintillion} \wedge \text{one centillion} \wedge \text{one milli-millillion} \wedge \text{Graham's number} \wedge \text{Asamkhyeya} \wedge 23) \times \pi$. Of course, even 10 possible polytheisms present serious challenges to the monotheist, and there is no sound argument to limit the possible alternative god-concepts to that number, or any other number.

Another similar objection is that this appeal to infinitely many alternatives is unreasonable, as it could *cause doubt over any other claim*. This truly is a valid concern, but falls flat on closer inspection (recall that the primary issue is that we currently have no way to convincingly argue that monotheism is relatively more probable, regarding prior probabilities or likelihoods). Consider the case of Bobby-Joe, who is told by his friend Peggy-Sue that a particular chicken egg carton

contains 6 chicken eggs. The critic may say that our approach would result in Bobby-Joe being unable to decide how many eggs are in the carton, on account of the infinitely many alternatives. Despite his humble beginnings, Bobby-Joe is quite a Bayesian and factors Peggy-Sue's honesty and the historically verified average size of eggs into his prior probabilities. Unlike with the inherent plausibility of the various God-models, Bobby-Joe *does* have access to well-established and universally accepted information that allows him to properly calculate prior probabilities of the available theories. Moving on to likelihoods, he holds the egg carton and immediately eliminates some impossible alternative explanations. There is some weight in the egg carton, so there cannot be less than 1 egg. The egg carton holds a maximum of 12 eggs, so there cannot be more than 12 eggs.

Utilising his specialist knowledge of the weights of eggs and egg cartons, as well as his ability to approximate weight, Bobby-Joe also rules out as extremely improbable (it is unreasonable to even entertain the notion) that there are 1, 2, 3, 10, 11, or 12 eggs in the egg carton. There certainly cannot be a *gods number* of eggs therein. He judges that there can only be 4–9 eggs in the egg carton, and considering Peggy-Sue's impeccable record for honesty, accepts her claim that there are 6.²⁸ Returning to the number of gods that could exist, philosophers have no credible information that places limits, either logically/absolutely or reasonably/probabilistically, on the infinitely many possibilities. The humble poultry farmer turned philosopher of religion, Bobby-Joe, knows much about eggs and egg cartons, but, like all scholars, knows essentially nothing about what lies beyond the known universe, and about what god-models are inherently plausible and implausible. Also, thorough probabilistic analyses can be framed so as to avoid the problem of infinitely many alternatives. For example, we could contrast the probabilities of the hypothesis that Julius Caesar existed historically, with the antithesis that he did not. This cannot be simply done when contrasting monotheism with polytheism, where, in principle, infinitely many polytheisms seem reasonable, so that there are actually many more than two hypotheses being compared.

A rather clever objection may be that, if the critic focuses her attention on our use of the *gods number*, we avoided, on purpose, focussing on infinity in our calculations, which would have revealed the absurdity of them. Being able to produce an actual result was indeed one of our motivations in using an astoundingly large yet relatively minute number and placing less focus on the use of infinity. Probabilistic calculations and infinity (also zero) get along about as well as religious exclusivists and pluralistic and open-minded Religious Studies scholars. Nevertheless, as above, the monotheist would need to argue that the number of gods that could exist in the realm of possibilities is limited, or at least that certain possibilities are exceedingly more probable than others. Monotheists tend to appeal to simplicity, which we found to be irrelevant and indecisive.

One final objection by the theist may be that, according to these calculations, *the probability that no gods exist is also effectively 0*, so that this entire argument is

²⁸ There could be other objects in the egg carton, but this would be unreasonable cavilling, and avoided by expanding the details of the story. Some of these 'alternatives' would also be judged as impossible, at least by current knowledge (which is the cornerstone of Bayesian reasoning), such as there being 420 full-size aeroplanes in the egg carton.

self-defeating in rendering naturalism and ‘strong atheism’ virtually impossible. In other words, while the monotheist—and hence, the classical theist—may be defeated, the ‘atheist’ is too, as polytheism is almost certainly true. Recall that our argument and subsequent calculations actually assumed that at least one god existed, after it was decided that no convincing argument demonstrating naturalism’s improbability has yet been formulated. That naturalism may be more probable than *any* god-model is a topic for another article.²⁹ This unsophisticated *tu quoque* criticism is also irrelevant, as we are not arguing for naturalism. Instead, we are highlighting the improbability of certain god-models, relative to divine alternatives.³⁰ This objection is also counter-productive, as it does nothing to absolve the problem facing the monotheist. Note that this agnostic position (in the scenario where ‘no gods’ is not excluded) would actually suit most atheists who do not necessarily believe in or assert ‘no god’, and are quite comfortable with the sort of agnosticism that our calculations rendered necessary.

Summarised argument

The following is a summarised form of our ‘lesser’ argument from infinitely many alternatives, which assumes that some god-model obtains³¹:

- (1) There are infinitely many logically possible god-models, of which theism is one.
- (2) All these models can reasonably explain the relevant evidence.
- (3) There is no universally accepted background information allowing for any of these models to be deemed inherently implausible or ontologically impossible.
- (4) Therefore, it is reasonable to consider all logically possible god-models as being equally probable (from 1,2,3).
- (5) Therefore, it is reasonable to consider the probability of theism’s being true as being effectively 0 (from 1,4).

²⁹ There are numerous reasons to suppose that naturalism is more plausible than supernaturalism, while there is no clear evidence to suggest that monotheism is more plausible than polytheism(s). We view this work as occurring after initially considering naturalism (as a catch-all hypothesis) and supernaturalism (as a catch-all hypothesis). The supernaturalist may say that the naturalist also must deal with infinitely many possible naturalisms, but that seems to do no harm to the naturalist, who merely denies supernaturalism, and does not claim to have all the answers. The classical theist, however, must seriously contend with the other, infinitely many, supernaturalisms. Again, we can charitably accept that naturalism is virtually impossible; it does not absolve (mono)theists of their responsibilities.

³⁰ While it is irrelevant, we shall be transparent regarding our own positions. One author is a naturalist, while the other is not.

³¹ A ‘greater’ form of the argument would also consider naturalistic hypotheses, and perhaps other god-models that may better explain the evidence. Note also that this argument is transparent, in differentiating between epistemic/logical and ontological possibility (unlike certain forms of the ontological argument). We acknowledge that some god-models included in our calculations may actually be impossible, though we do not know that they are. Interestingly, one of them could be classical theism.

The first premise is obviously true. Infinitely many god-models can be conceived, and theism, or an individual's specific brand of theism, is but one of them. (2) is also true. Even when it is challenging to do so, a hypothesis can be refined until it perfectly fits the evidence. Theists do this, for example, in defending theism against the arguments from evil and hiddenness. Reasonable evidence-based judgment would then rely on prior probabilities, which is alluded to in the third premise, which is also true, as we have demonstrated. The most sophisticated apologists have merely appealed to simplicity, unconvincingly, and without thorough argumentation as to simplicity's being conducive to truth.³² These three premises logically lead to (4); all the possible god-models should be considered equally probable, until we properly know that they are not. Given infinitely many god-models, the probability of theism's being true—based on current knowledge—is infinitely miniscule, being effectively 0 (5). Furthermore, it should be considered a near-certainty, based on currently available evidence, and when the existence of at least one god is conceded for the sake of argument, that some form of polytheism obtains.

Conclusion

Thus is our (lesser) *argument from infinitely many alternatives*. For the sake of argument, we have assumed that the evidence is sufficient to demonstrate that at least one god exists. However, if so, the evidence is not sufficient to determine how many gods exist, or even to determine which scenarios are more probable—and to what extent. There exists no credible and objective evidence that allows philosophers to limit the possibilities or prepare a reliable probability distribution chart, so it should be conceded that there are infinitely many polytheistic god-models that could obtain. Given infinitely many possibilities, and the inadequate evidence, we must conclude that the resulting probability of monotheism's obtaining is approximately 0, which bodes ill for classical theism, which is but one of the many possible monotheisms.

We shall refrain from calling theism or monotheism impossible, as 'almost impossible' is not 'impossible', just as the illogical 'nearly infinite' is not 'infinite'. However, the result is clear. Interestingly, if monotheism is effectively ruled out, so too is classical theism. Even if monotheism is granted, classical theism may still be very unlikely, but that is a topic for another paper. It is our hope that this brief essay will inspire educated monotheistic philosophers of religion to address the central question: Why should the believer accept the existence of only one god? We wish them god(s)speed.³³

³² The third premise is actually being charitable to theism. In Lataster's upcoming work, he shall argue that certain supernatural alternatives are more plausible than classical theism. Furthermore, as our calculations revealed, it may be that only the latter portion of (3) is truly relevant. Other scholars, such as Herman Philipse, have already argued for the superiority of naturalistic models. See Philipse (GAS).

³³ We wish to thank James East, Renee Lockwood, Robin Le Poidevin, and the anonymous reviewers for their helpful suggestions.

References

- Bartel, T. W. (1983). Cosmological arguments and the uniqueness of god. *International Journal for Philosophy of Religion*, 13(1), 23–31.
- Cottingham, J. (2014). *Philosophy of religion: Towards a more humane approach*. Cambridge: Cambridge University Press.
- Craig, W. L. (2008). *Reasonable faith: Christian truth and apologetics* (3rd ed.). Wheaton, IL: Crossway Books.
- Göhner, J., Kaiser, M. I., & Suhm, C. (2008). Is simplicity an adequate criterion of theory choice? In N. Mößner, S. Schmoranzer, & C. Weidemann (Eds.), *Richard Swinburne: Christian philosophy in a modern world*. Berlin: De Gruyter.
- Korbmayer, J., Schmoranzer, S., & Seide, A. (2008). Simply false? Swinburne on simplicity as evidence of truth. In N. Mößner, S. Schmoranzer, & C. Weidemann (Eds.), *Richard Swinburne: Christian philosophy in a modern world*. Berlin: De Gruyter.
- Kosso, P. (1992). *Reading the book of nature: An introduction to the philosophy of science*. Cambridge: Cambridge University Press.
- Lataster, R. (2013). Bayesian reasoning: Criticising the ‘criteria of authenticity’ and calling for a review of biblical criticism. *Journal of Alternative Perspectives in the Social Sciences*, 5(2), 271–293.
- Oppy, G. R. (2006). *Arguing about gods*. Cambridge: Cambridge University Press.
- Philipse, H. (2012). *God in the age of science?: A critique of religious reason*. Oxford: Oxford University Press.
- Plantinga, A. (2000). *Warranted christian belief*. Oxford: Oxford University Press.
- Plantinga, A., & Sennett, J. F. (1998). *The analytic theist: An Alvin Plantinga reader*. Grand Rapids, MI: W. B. Eerdmans Publishing Company.
- Sobel, J. H. (2004). *Logic and theism: Arguments for and against beliefs in god*. Cambridge: Cambridge University Press.
- Swinburne, R. (2004). *The existence of god* (2nd ed.). Oxford: Oxford University Press.
- Swinburne, R. (2010). *Is there a god?* (Revised ed.). Oxford: Oxford University Press.
- van Fraassen, B. C. (1980). *The scientific image*. Oxford: Clarendon.