

# A Note on Richard Dawkins' "Spectrum of Theistic Probabilities"

Paul A. Burchett 

Independent Researcher, Pulaski, VA, USA

Email: burchettd4@gmail.com

**How to cite this paper:** Burchett, P. A. (2023). A Note on Richard Dawkins' "Spectrum of Theistic Probabilities". *Open Journal of Philosophy*, 13, 451-460.  
<https://doi.org/10.4236/ojpp.2023.133030>

**Received:** June 20, 2023

**Accepted:** July 31, 2023

**Published:** August 3, 2023

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## Abstract

In this paper, we look at Richard Dawkins' "Spectrum of Theistic Probabilities" from his book "The God Delusion". The spectrum is edited to account for a mathematical error by Richard Dawkins. Correcting this oversight leads to 2 new theological positions being discovered. One of these positions is defended in detail. In its defense, we argue against a potential flaw of the position and also list a merit for the position among other arguments for the position. The merit involves a rebuttal for Pascal's wager found in no other piece of literature.

## Keywords

Richard Dawkins, Bertrand Russell, Philosophy of Science, Philosophy of Religion, Philosophy of Mathematics, Atheism, Pascal's Wager

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## 1. Introduction

In "The God Delusion", Richard Dawkins expresses his theological views in depth (Dawkins, 2006). Important to this paper is his attempt in "The God Delusion" to label all possible theological views in his "Spectrum of Theistic Probabilities" with its 7 milestones. Many other scholars have weighed in on his views, including (Bingham, 2012; Came, 2011; Daley, 2015; Lane, 2012; McGrath, 2008; Ruse, 2009, Ruse, 2012; Scruton, 2006; Van Biema, 2006) for a small sample of perspectives on Dawkins' work.

Also found in "The God Delusion", and important to this paper, is Richard Dawkins' discussion of the shift in the burden of proof from the theist to the sceptic. This shift occurs when, if instead of asking for proof for God's existence, as the sceptic desires, we instead ask for proof of the non-existence of God. It is the point of the sceptic that the burden of proof should be on the believer to

provide evidence for the existence of God and not on the sceptic to provide proof against the existence of God. After all, in no other place in science do we ask for the evidence against a claim and then conclude its truth unless it's absolutely certain the claim isn't true. While the theist is technically correct that one can't disprove God's existence with absolute certainty, this fact is largely irrelevant to the discussion. In science, it is normal procedure to evaluate a claim directly, then conclude its truth if we find sufficient evidence for the claim. There will be more on this in **Section 4**.

The main objective of the research in this paper is to refine Dawkins' theological views by first correcting a mathematical oversight in the "Spectrum of Theistic Probabilities". This is done by revising statements (2) and (6) of the spectrum, with a detailed analysis of milestone (6). It is now valuable to present Dawkins' "Spectrum of Theistic Probabilities" as it appears in "The God Delusion", with all 7 of its milestones. My version, whose explanation follows in **Section 2**, corrects the mathematical oversight of Dawkins by taking into account a point about certainty in regards to 0% and 100% probability values. Also found in **Section 2** is the main thesis of this paper. It is important to note that in "The God Delusion" Dawkins labels his views as those of milestone (6) in his "Spectrum of Theistic Probabilities" found below. This fact will be important throughout the paper.

#### **Richard Dawkins' "Spectrum of Theistic Probabilities"**

- 1) Strong theist. 100% probability of God. In the words of C. G. Jung: "I do not believe, I know."
- 2) De facto theist. Very high probability, but short of 100%. "I don't know for certain, but I strongly believe in God and live my life on the assumption that he is there."
- 3) Leaning towards theism. Higher than 50%, but not very high. "I am very uncertain, but I am inclined to believe in God."
- 4) Completely impartial. Exactly 50%. "God's existence and non-existence are exactly equiprobable."
- 5) Leaning towards atheism. Lower than 50%, but not very low. "I do not know whether God exists but I'm inclined to be skeptical."
- 6) De facto atheist. Very low probability, but short of zero. "I don't know for certain but I think God's existence is very improbable, and I live my life on the assumption that he is not there."
- 7) Strong atheist. "I know there is no God, with the same conviction as Jung knows there is one." (Dawkins, 2006: pp. 73-74)

## **2. The New "Spectrum of Theistic Probabilities" and Its Explanation**

In this section we will proceed by revising milestones (2) and (6) of Richard Dawkins' "Spectrum of Theistic Probabilities". To revise milestones (2) and (6) note that 0% and 100% probabilities aren't included in these milestones. When

one is dealing with finite sets of things, 0% and 100% probabilities both imply certainty in one's position. However, this is not necessarily the case when dealing with infinite sets of things. When dealing with infinite sets one can have a 0% probability event that could still happen, or a 100% probability event that might not happen (The CTHAEH, 2019). To illustrate this, let's look at an example.

Suppose a natural number is to be chosen at random. Note that when we're talking about natural numbers we're talking about an infinite set of numbers. Before the natural number is to be chosen we're going to attempt to guess the chosen number. The probability that the chosen number is picked out is 0%. The probability the chosen number isn't picked is 100%. Yet, it is still possible to pick the correct number, giving us a 0% probability event that might happen and a 100% probability event that might not happen. Note that the existence of infinite sets is a slightly controversial topic and their existence is needed to have either 0% or 100% probability events that aren't certain to not happen or happen, respectively. We will talk more about this in **Section 3**. For our purposes here, however, let's proceed to attempt to refine the spectrum in light of this.

It is easy to see that Dawkins didn't account for 0% probability events that could happen, or 100% probability events that might not happen. Zero probability events and 100% probability events are accounted for in milestones (1) and (7). However, certainty is included in these statements. Thus we need to include 0% probability in milestone (6) and 100% probability in milestone (2) of any revised spectrum, with uncertainty remaining in the revised statements. Let's now take a look at the revised "Spectrum of Theistic Probabilities" with its adjusted 7 milestones.

The revised "Spectrum of Theistic Probabilities"

1) Strong theist. Certainty in the existence of God. In the words of C. G. Jung: "I do not believe, I know."

2) De facto theist. Sufficiently high probability, including, possibly, 100% probability for the existence of God. Certainty is not concluded, however. "I don't know for certain, but I strongly believe in God and live my life on the assumption that he is there."

3) Leaning towards theism. Higher than 50%, but not very high. "I am very uncertain, but I am inclined to believe in God."

4) Completely impartial. Exactly 50%. "God's existence and non-existence are exactly equiprobable."

5) Leaning towards atheism. Lower than 50%, but not very low. "I do not know whether God exists but I'm inclined to be skeptical."

6) De facto atheist. Sufficiently low probability, including, possibly, 0% probability for the existence of God. Certainty is not concluded, however. "I don't know for certain but I think God's existence is very improbable, and I live my life on the assumption that he is not there."

7) Strong atheist. "I know there is no God, with the same conviction as Jung

knows there is one.”

Two questions now become important. What is meant by the term “de facto atheist” in milestone (6), and also, do we include other probabilities besides 0% in milestone (6) in light of our definition for “de facto atheist”? These questions cut at the very heart of the paper and we will look in depth at milestone (6) of the spectrum in later sections of this paper. For now, it suffices to say that the main thesis of this paper is that we will defend the position to not include any other probabilities besides 0% in milestone (6). This position also revises milestone (5) to take “but not very low” in this milestone as meaning “and a non-zero probability”. Let’s now move on to consider the existence of infinite sets in more detail to combat a potential flaw in our thesis.

### 3. On the Existence of Infinite Sets

As mentioned in **Section 2** of this paper the existence of infinite sets is needed to have a 0% probability event that can possibly happen. It is thus necessary that if we’re to defend our main thesis, then we must have the existence of infinite sets.

In the philosophy of mathematics there are philosophers that reject the existence of infinite sets. These philosophers are known as finitists. However, it is the case that the majority of working mathematicians and philosophers of mathematics accept the use of infinite sets in a variety of settings (more on this soon). The most common setting for infinite sets is in the field of set theory. Due to the theorems of Gödel the utter majority of, if not all mathematicians have either no hope or interest in disproving the consistency of modern set theory at worst, or have embraced its assumptions fully (including the existence of infinite sets).

To further see that the majority of views in the philosophy of mathematics support the existence of infinite sets, we note that finitists are a part of the philosophical camp known as mathematical constructivism (Stanford, 2023). It is the case that not all constructivists are finitists and the majority of mathematicians certainly aren’t constructivists (the most common camp is Platonism for those mathematicians that express a view). All of this is the sociological evidence for the existence of infinite sets. Now, let’s examine the existence of infinite sets in more detail.

Set theory, which holds the existence of infinite sets, serves as a foundation for mathematical fields as diverse as analysis, topology, discrete mathematics, and abstract algebra—fields which contain many applications. Let’s take just one of these fields as an example—say the branch of mathematics known as real analysis. Real analysis begins with the study of infinite sets of numbers—namely the natural, rational, and real numbers. These infinite sets serve as a foundation to arrive at further results in the field. Real analysis is usually required at the PhD level (even if one doesn’t take real analysis it is almost assured they’ll find infinite sets somewhere else). The reason for this requirement is clear, as the course seeks to prove important theorems which function as the building blocks for

many fields of study, including probability theory and statistics. These two fields are used to study stochastic applications as seen in finance, computer science, economics, and many other fields and applications not mentioned. While one can certainly work in these fields without the proofs, most mathematicians would agree that set theory, with the existence of infinite sets, serves as a foundation for discovering (or creating) many of these applications. We now move on to **Section 4** to look at the merits of the main thesis provided by this paper.

#### **4. What Advantages Are There for Holding a Probability of 0% for the Existence of God, but Denying the Certainty of Non-Existence**

What then are the advantages for the atheist to hold to the thesis in this paper? To answer this we should note that while the theist is right in that one cannot disprove God's existence, this fact should be regarded solely as a technicality providing no weight for God's existence. What theists are really wanting with the shift in the burden of proof against the atheist is proof against God's existence from a very conservative and constraining epistemological foundation. The atheist's response in the past has been to point out the ridiculousness of playing along with the shift in burden of proof. While this response is adequate to meet the theist, the thesis in this paper classifies the evidence presented by the shift in comparison to the other evidence. The atheist that holds to the main thesis in this paper is categorizing the shift against the atheist as leading to a technicality that should hold no relevance towards human action, or how we should think about the probability of God's existence. No one should base their life upon the small detail provided by the shift in the burden of proof, especially since there is a wealth of other evidence the atheist could point to for God's nonexistence. Although the available evidence doesn't provide an absolute proof of nonexistence, the evidence should lead the atheist to conclude the probability of interest as both historically overestimated and so unfathomably small that it would be simplifying to just take the probability as zero for our standards.

One other reason to take the probability of interest as zero involves Pascal's wager. Taking the probability of interest as zero allows us to avoid the reasoning inherent in the wager. This is mentioned in (Oppy, 1990: pp. 159-168). Note that when calculating our payouts in Pascal's wager we're left with a payout of 0 multiplied by  $\infty$  for correct belief in God and 0 multiplied by  $-\infty$  for incorrect disbelief of God when taking the probability of interest as zero. With both infinity and zero involved the multiples are in what is known as indeterminate form. Expressions in indeterminate form could take on any value. Thus it is not certain the value will be infinite in these cases. Infinite payouts are needed in the reasoning behind Pascal's wager.

Note that in Pascal's time it was thought that zero probability implied impossibility. However, we now know that this may not necessarily be the case. Pascal thought he tied the atheist to a certain proof against God's existence, for if they

held the probability of interest as anything but zero then they were susceptible to his reasoning. However, now the atheist isn't tied to a certain proof against God in this response to Pascal's wager. The atheist can now hold the probability of interest as zero, without certainty attached in one's position. This particular response to Pascal's wager isn't found in any other piece of literature that the author has come across.

It should be noted that while there are reasons to believe that the probability God exists is zero (beyond taking the probability as zero for a response to Pascal's wager), the thesis in this paper holds more explanatory power if Pascal's wager is accounted for as well in this way. Note that Pascal's wager is still controversial to this day. Atheists could be correct in some, or even all of their arguments against the wager. However, it is my contention that it is likely that Pascal's wager (or reasoning similar to it that sees the wager rewritten to accommodate some of the objections) is explained best by the consequences of the main thesis in this paper. We will, however, leave accounting for all the other objections to the wager for possible future work.

## 5. Accounting for a Historical Objection

There have been many analogies for the existence of God (and its likely improbability) that have been given before the turn towards probability that Richard Dawkins took in "The God Delusion". The most famous of these analogies comes from Bertrand Russell and is known as the teapot analogy. A quotation from Russell here is important.

"Many orthodox people speak as though it were the business of sceptics to disprove received dogmatists rather than of dogmatists to prove them. This is, of course, a mistake. If I were to suggest that between the Earth and Mars there is a china teapot revolving about the sun in an elliptical orbit, nobody would be able to disprove my assertion provided I were careful to add that the teapot is too small to be revealed even by our most powerful telescopes. But if I were to go on to say that, since my assertion cannot be disproved, it is intolerable presumption on the part of human reason to doubt it, I should rightly be thought to be talking nonsense. If, however, the existence of such a teapot were affirmed in ancient books, taught as the sacred truth every Sunday, and instilled into the minds of children at school, hesitation to believe in its existence would become a mark of eccentricity and entitle the doubter to the attentions of the psychiatrist in an enlightened age or of the Inquisitor in an earlier time" (Russell, 1952).

This analogy is what Dawkins points to in labeling the probability of interest as extremely small. If we're basing our beliefs on this analogy of the teapot then that would seem to be a reasonable assumption. As Dawkins notes after citing Russell's analogy, this analogy is meant to meet the shift in the burden of proof. Dawkins then goes on to argue that simply because we can't be absolutely certain when the burden of proof is shifted, we still have the ability to roughly weigh the evidence in regards to God's existence. Hence we have Dawkins' turn towards

probability in regards to the question of God's existence. In the analogy above, if we were to estimate the probability for the teapot to exist then this estimate would be extremely close to zero, if not the exact value of zero.

Why then didn't Russell conclude the probability of interest as zero? After all, Russell was certainly aware of set theory and the point about zero probability and certainty that is seen in this paper. However, it is important here to note that Russell was very likely only aware of his own analogy. While there was one analogy before his that is similar, there is no evidence he was aware of J. B. Bury's similar analogy that came in 1913 (more on this soon). Thus it would've been too contrived for Russell to hold the probability of interest as zero with only one analogy. However, since we now have a few of these analogies we can start to attempt to see patterns in the thought. One could then argue that Russell could've followed with even more improbable examples to continue his argument. To emphasize, that seems to be the point of these analogies—to produce the most unlikely of events that are denied testability, yet still remain possible.

Let's now discuss some of the other analogies, beginning with the first such analogy. This first analogy comes from J. B. Bury and uses the example of a race of English speaking donkeys, on a planet orbiting Sirius, that discuss eugenics as a hobby (Bury, 1913: p. 20). Carl Sagan, in his book "The Demon Haunted World", offers another analogy, that of an invisible and undetectable dragon that exists in a garage (Sagan, 1995: pp. 169-188). Douglas Adams used the analogy of fairies existing at the bottom of a garden (Dawkins, 2006: preface). J. B. Bury's analogy is especially interesting. Out of all the infinite number of languages possible, found on Earth or not, the donkeys spoke English. Out of all interests possible, the donkeys shared an interest in eugenics. Both language (as noted by linguists) and the shared hobby are to a very large extent arbitrary. We'd then have an extreme amount of randomness over both of these infinite possibilities. Therefore, there is a very strong case to be made that Bury's analogy would imply a probability of zero for the existence of God. Sagan's, Russell's, and Adams' analogies are, at the least, extremely unlikely in scope as well. All these examples are bizarre and all four seem to stretch the limits of what is possible. We will now move on to discuss one of Dawkins' important comments on his work.

## 6. Dawkins' "6.9" Comment

On the "Real Time with Bill Maher" show in 2008, Dawkins discussed his theological views. During this interview he stated his views are best described by defining himself as a "6.9" on his "Spectrum of Theistic Probabilities". This goes into conflict with what he had written in his book "The God Delusion". In this comment it is unclear thus far on exactly what Dawkins meant. The value of "6.9" isn't a milestone on his spectrum. This is a problem since we want no undefined terms in analytic arguments. The author chooses to reinterpret the comment in support of the thesis in this paper.

To reinterpret the comment suppose we start with the highest degree of belief

in our spectrum at milestone (1) with absolute certainty in the existence of God and we move on to lower degrees of belief the higher the milestone. In Dawkins' "Spectrum of Theistic Probabilities", milestone (6) doesn't include the probability of zero. Milestone (7) does, however, with certainty against God's existence included. Thus, if we're looking for a milestone between his milestones (6) and (7), this would mean we're left with the probability that God exists as zero, yet not being certain against God's existence. Since milestone "6.9" is a value between 6 and 7, this interpretation takes his "6.9" comment to describe an intuition that holds taking the probability of interest as extremely low, but non-zero, doesn't quite do justice to the evidence at hand. We need to go even lower in probability than the probability values found in milestone (6) of Dawkins' spectrum. Again, the only way to do this is to take the probability of interest as zero (while withholding certainty). It would be interesting to hear Dawkins' take on this interpretation of his comment.

## 7. One Potential Theist Objection

There's no doubt that theists will likely not hold the work in this paper as being of much relevance outside of using the contents to attack Dawkins' work. There's one attack the author wishes to illuminate and respond to. We can imagine a theist right now attacking Dawkins' work in the following statement shown below.

Theist—You see what your work leads to now, right Dawkins? It wasn't enough to have a rough probability for the existence of god—now someone has to give it an exact value! That's par for the course, Dawkins. All of this probability talk is ridiculous and this is proof of it!

The theist is no doubt going to view the work in this paper as an absurdity on top of absurdities—as they would for any work that builds on Dawkins' work. The author would like to note that the thesis in this paper isn't held to be true with absolute certainty. In other words, the author has leanings in the direction of the thesis of this paper. Often progress can surprise, and this work seems to be a natural extension of Dawkins' work. Whether Dawkins' mathematical oversights corrected in this paper are a mere technicality or not, the author finds the evidence for the de facto atheists' position to be overwhelming—no matter what our range of probabilities is for the revised milestone (6).

While we're making no conclusion with absolute certainty in regards to the central thesis, as it is not testable currently, we offer conjecture. It is sometimes the case in science that we must conjecture when we run out of ways to test hypotheses. In this regard we can think of a theory like the many worlds interpretation of quantum mechanics. It would be extremely difficult, if not impossible, to test for the existence of God or for alternate universes. Science, however, shouldn't stop conjecturing in the mean time. It should note conjecture as such, but not stop conjecturing for possible insight in the case where we cannot provide a test in the here and now.



## 8. Conclusion

In this paper, Dawkins' "Spectrum of Theistic Probabilities" is adjusted to take into account a mathematical oversight on the part of Richard Dawkins. The other strengths of this paper include introducing two new theological positions. These are holding the statement "God exists" as having either 0% or 100% probability without certainty being concluded in either position. The former position is examined in detail. We find a merit in the former position that gives us a rebuttal to Pascal's wager found in no other piece of literature. We also list a potential flaw in the former position (one must reject finitism). There are also other arguments in this paper that hold we should take the probability that God exists as zero, yet withhold certainty against God's existence.

## Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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