The Probability of God *and* Superior Beings

Reviewed by Hemant Mehta

The Probability of God: A Simple Calculation That Proves the Ultimate Truth
Stephen Unwin
Three Rivers Press, 2004, paperback
US$12.95, 272 pages, ISBN 978-1400054787

Superior Beings: If They Exist, How Would We Know?
Steven Brams
Springer, 2nd edition, 2007
US$41.95, 202 pages, ISBN 978-0387908779

Both Stephen Unwin and Steven Brams have their work cut out for them in trying to mathematize God. Theologians, scientists, and atheists all have their opinions on God's existence (or lack thereof), but these authors want to throw numbers into the mix. Both books offer creative approaches to the problem in their own unique ways. Still, one book is much easier to comprehend and a joy to read; the other, while fascinating in its own right, will most likely be found only on professors' bookshelves.

Stephen Unwin, a physicist and risk-analyst, is the author of *The Probability of God: A Simple Calculation That Proves the Ultimate Truth*. Unwin admits that an exact answer to God's existence won't be found but feels that he can contribute where great minds before him have failed: "[They] did not think of addressing the issue of God's existence in a formal, probabilistic setting. They looked at the question in a strictly binary, deterministic way. They asked, 'Is there a God, yes or no?'"

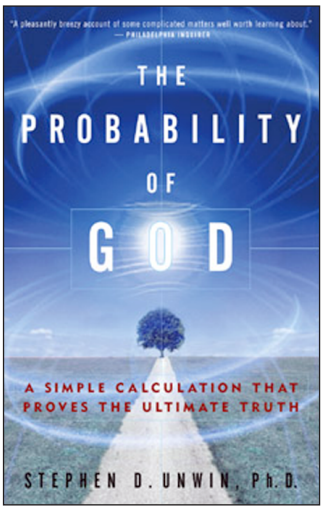
Here is the mother of all spoilers: The probability that the monotheistic, prayer-answering God exists is… 67%.

That may be the conclusion to the book, but it's hardly the climax. Rather, the focus is on the process of getting to that number. The questions I asked myself as I read the book included: What equation(s) did Unwin use? How did he find numbers to plug into it? Is there any merit to his method?

Unwin has asked himself all of these questions, and although one may not agree with his responses, he does explain them throughout each chapter. One of the more pleasant surprises in this book is how transparent his method is every step of the way. When a number is subjective (and there are many that are), Unwin says so, and he urges readers to plug in substitute values as they see fit. That's the enjoyment in his approach. In the appendix, he even offers a step-by-step tutorial for readers so they can set up spreadsheets on their computers and calculate the probability of God using their own values.

Before getting to the math, Unwin reaches out to those who may be skeptical of this entire process in the first place. He explains precisely the type of God he will be referring to and dismisses many of the "proofs" of God that are popular among Christians, including Intelligent Design and the Fine-Tuned Universe argument. He says that the

Hemant Mehta is a math teacher at Neuqua Valley High School in Naperville, IL, and is the author of I Sold My Soul on eBay: Viewing Faith Through an Atheist's Eyes *(Random House, 2007). His email address is* hemant_mehta@ipsd.org.



probability of God—whatever it will be—does not imply the literal truth of the Bible. He also boldly suggests that science-based arguments for or against the existence of God are "troublesome" and that they do not provide us with meaningful evidence to help us answer the God-existence question. This is a radical departure from the thinking of scientist and atheist Richard Dawkins, whose book *The God Delusion* states that the existence of God *is* a scientific hypothesis and must be treated as such.

Eventually, we get to the numbers by invoking Bayesian theory. Reverend Thomas Bayes was a Presbyterian minister and mathematician in the eighteenth century. Bayes' theory, expanded after his death, provides a systematic way to adjust a probability based on the evidence. However, to use it, a starting point is needed.

Unwin decides that "maximum ignorance" on the question of God would lead to a 50-50 chance that God exists. He adds that "this is the perfect, unbiased expression of agnosticism." I'm not convinced this is the proper starting place. However, to try to find a starting point upon which all people would agree would be futile. Without *some* initial number, though, there is no way to move forward. So we are forced to accept Unwin's 50% number so that further calculations can be made. Of all the numbers Unwin throws at the reader, I would argue that this is the most egregious one.

The other numbers are used to judge various areas of evidence that could be used in support of (or against) God. On the "Divine Indicator Scale", a "D-value" of 10 is used in an area if the evidence is much more likely to be produced *if God exists*, a D-value of 0.1 means the evidence is much more likely to be produced if God *does not exist*, and a D-value of 1 means the evidence is "God-neutral". There are numbers in between as well. These values are assigned to a variety of areas that cover everything from the "recognition of goodness" to the "existence of natural evil". All of this culminates in the final 67% probability of God's existence using Unwin's calculations.

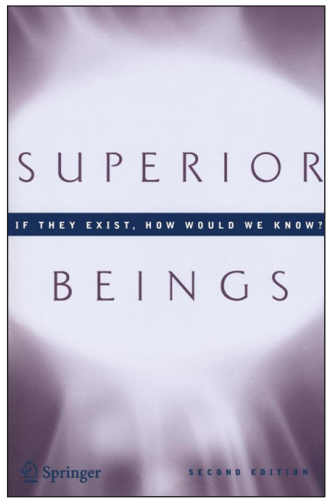
Unwin admits that this number is unique for him and others may achieve different results:

> Your assessment of the evidence may differ. So now that you have the hang of the process, you may wish to adjust the numbers as you see fit and see what results you derive. You may even have new evidentiary areas to add. (p. 129)

This book makes for a wonderful thought experiment and provides fodder for some great discussions. Trying to come up with rationales for different D-values and adding other evidentiary areas to the mix will produce a wide variety of probabilities of God's existence.

Once you realize the book is more philosophical than it is mathematical, it's much easier to digest. You focus less on the numbers and more on the technique.

Readers will appreciate the orderly way Unwin goes about finding his answer. I suspect, though, that if his final result of God's probability of existence had been 10% instead of 67%, religious readers would not be so keen to accept his method, just as non-religious readers may be skeptical of Unwin's 67% conclusion. Atheist readers will further object to many of Unwin's D-values (and his 50% starting point) as well as his statement that he finds "none of the atheistic explanations of compassion and morality highly convincing" (p. 108). However, they might appreciate, as I did, his attempt to put God's existence to the test.



The beauty of this book is that both ends of the religious spectrum can simply plug their own numbers (however produced) into Unwin's equation to get satisfying results. That also means people on neither side are likely to change their minds as a result of reading this book. However, the discussion shifts from debating God's existence to discussing whether goodness, evil, and miracles are more likely to result in a world with God rather than without—and this is a much more satisfying conversation than the ones that usually occur between theists and atheists.

Unwin does a particularly good job of warning lay readers when a more difficult math concept is approaching and reassuring them that it will be comprehensible. Also, along the way, we are treated to scripted vignettes that take place in a mall, a bevy of pop culture references, and plenty of sarcastic and humorous asides. They make the book easy to read and distinguish Unwin as a scholar who can certainly relate to nonmathematical people. At the same time, while the humor was appreciated early in the book, it became irritating later on when I wanted to get to the actual math.

The writing does get especially murky when Unwin discusses "faith", which he says lies outside the equations he had been using up to that

point. He assessed his own belief probability to be 95%, meaning he was fairly certain that God existed. This, along with the 67% "reasoned truth probability" he had figured out earlier in the book, resulted in a 28% "faith factor", which Unwin says is necessary to bridge the discrepancy between the equation's result and his personal belief.

Incidentally, Michael Shermer, the publisher of *Skeptic* magazine, calls the book "innovative" and "an entertaining exercise in thinking." When Shermer plugged in his own numbers (again ranging from 0.1 to 10) into Unwin's equation, he found that the probability of God was only 2%.[2] All of Shermer's values were the same or lower than Unwin's, but it goes to show how the method described in this book can produce wildly varied results.

While Unwin's book makes for easy reading, the same cannot be said about Steven Brams's *Superior Beings: If They Exist, How Would We Know?*

In the introduction to the book, Brams writes,

> I know of no reasons, in principle, why some of the great religious-theological-philosophical questions of our age cannot be made more perspicuous, their analysis more coherent, and their implications better understood by the use of formal deductive methods appropriate to the problem at hand. The problems will vary, and so will the methods, but the marriage, if consummated, could have auspicious prospects. It will, I trust, not be dull. (p. 11)

Unfortunately, much of the book is dry and difficult to slog through. A bit of Unwin's humor would have benefited Brams's writing.

Brams does not attempt to prove or disprove God. He uses elementary ideas from game theory to create situations between a Person (P) and God (Supreme Being, SB) and discusses how each reacts to the other in these model scenarios. A variety of 2×2 matrices are presented in each chapter to show how the games would operate given God's supposed qualities of omniscience, omnipotence, immortality, and incomprehensibility. Some of these matrices lead to paradoxical outcomes; others are fairly straightforward.

While understanding the math is not out of reach for a layperson, the book is aimed at academics interested in seeing math used in a different way. In fact, once you learn how the hypothetical games are set up, they can become something of a parlor game for even the amateur mathematician.

From the outset, Brams gives the reader a crash course in how these matrices are set up. In the "Revelation Game", for example, the Person (P) has two options:

1) P can believe in SB's existence
2) P can not believe in SB's existence

The Supreme Being also has two options:

1) SB can reveal Himself
2) SB can not reveal Himself

Each player also has a primary and secondary goal. For the Person, the primary goal is to have his belief (or non-belief) confirmed by evidence (or lack thereof). The secondary goal is to "prefer to believe in SB's existence". For the Supreme Being, the primary goal is to have P believe in His existence, while the secondary goal is to not reveal Himself.

These goals allow us to rank all the outcomes for each player from best (4) to worst (1). We end up with a matrix as follows (the first number in the parentheses represents the SB's ranking for that box; the second number represents P's ranking):

	P believes in SB's existence	**P does not believe in SB's existence**
SB reveals Himself	P faithful; belief confirmed with evidence (3,4)	P unfaithful despite evidence; nonbelief is unconfirmed (1,1)
SB does not reveal Himself	P faithful; belief unconfirmed with no evidence (4,2)	P unfaithful without evidence; nonbelief is confirmed (2,3)

The question we must answer is: what is the Nash equilibrium in this case? When P believes in SB's existence, SB is better off not revealing Himself (since (4) > (3)). When P does not believe in SB's existence, the same result follows (since (2) > (1)). Thus, SB will not reveal Himself. Since P knows that to be the case, he must choose between believing (2) or not believing (3). Since (3) is ranked higher, the Nash equilibrium lies in the lower right hand corner of our matrix, showing us that the dominant strategy for both is when SB does not reveal himself and P does not believe in His existence. (Kudos are due to atheists everywhere.)

It takes a while for that game to make sense for those who have not been exposed to game theory before. Now, imagine 78 matrices just like that, many of which are explained in even greater depth. This is not light reading for the average Joe.

In another game that Brams discusses—the famous "Chicken" game—we achieve *two* Nash equilibria. How does this game relate to religion? Brams lets us know that "it is not implausible to think of man and God as being occasionally on a collision course, with possibly doleful results for both players" (p. 71). He also mentions biblical stories where these situations play out, including Cain's murder of Abel and Saul's disobeying of the prophet Samuel, both in defiance of God's will. Since this is discussed in the chapter on omniscience, the paradox lies in the fact that if the

[2]Scientific American, *July 2004. Shermer's article is available online at* `http://www.sciam.com`.

Person knows that God can predict his move, the Person is better off not compromising. God will do what is necessary to avoid disaster, which in this case means compromising. As Brams writes,

> Thus, if P is aware of SB's omniscience, he would prevail over him yielding the Nash equilibrium (2,4) in Chicken… I call [this] the *paradox of omniscience*. This is a paradox, I believe, because one would not expect this superior ability of SB to impede his position—the outcome he can ensure—in a game. Yet, it is precisely his omniscience, and P's awareness of it, which ensures that P obtains his best outcome and SB does not. (p. 71)

When you think about it that way, it's a fascinating concept to play around with. You want to know what other matrix manipulations take place in the book, and you want to create similar situations on your own.

Does Brams ever get the religion aspect wrong? Yes, though only in minor ways. He defines an agnostic as one who "chooses not to believe in [a Supreme Being's] existence" (p.19). In fact, he has defined an atheist. An agnostic would not take a side in the argument since knowledge of the existence (or nonexistence) of God can never be fully obtained. Brams makes a similar mistake later in the book when he writes that an atheist "would say that the question [of God's concern for us] is meaningless because God does not exist" (p. 38). Again, atheists do not assert that God does not exist; rather, that there is no evidence of God so they do not *believe* He exists. These quibbles are minor, though, and bear no impact on the ideas he presents in the book.

There are other compelling examples Brams uses in the book, including a thorough description of Newcomb's Problem and a fascinating matrix on the Punishment Game (where P chooses whether or not to sin, and SB decides whether or not to punish him).

Neither book will change your mind about God, but both offer novel ways of bringing math into the world of theology. This is a potentially ill-fated effort since the authors attempt to bring together a field that relies on certainty and proofs with one where both are elusive. However, both books usher in a novel way to debate the nature of God and the supernatural within a mathematical framework. It's rare to see a book about religion that can speak to multiple faith positions. Here we have two of them. Both can be cited by either side of the argument convincingly, and both will allow for a much more fulfilling conversation with people on opposite sides of the religious divide.