

Mr. Roby: We are beginning our study of theology today by considering why *you* should be interested in what the Word says.

Dr. Spencer, I'm guessing that at least some people are wondering about the title of this series, "What does the Word Say?" Why was that name chosen?

Dr. Spencer: That name was chosen because the purpose of these podcasts is to examine what God himself says we should believe and what he says about how we should live. But in order to know what God says, we need to turn to the Bible, which is the very Word of God. Therefore, the name is short for "What Does the Word of God Say?", which is equivalent to asking, "What Does the Bible Say". In other words, these podcasts are going to cover systematic theology, which is simply the study of what the entire Word of God says about any particular subject.

Mr. Roby: For a lot of people today the Bible doesn't seem particularly relevant. Why should they care about what the Bible says?

There are several answers that could be given to that question. Some people, of course, would say that the Bible is only of interest because it is great literature and there are many allusions to it in modern literature, art, and even in our language. For example, when we say that the writing is on the wall, or that there is a fly in the ointment, or we tell someone to go the extra mile, these expressions all come from the Bible.

Mr. Roby: And so many universities have a course called "The Bible as literature", or something similar.

Dr. Spencer: Right. But, there is also a far more important reason why everyone should be concerned about what the Bible says. The Bible claims to be the very Word of God. It tells us that in the beginning God created this universe, including all living beings, and it tells us that in our natural state we are estranged from him and, therefore, we need to be reconciled to him. It also tells us that there is an eternal heaven *and* an eternal hell, and it tells us that so long as we remain estranged from God we are headed for hell. But, praise God, it also tells us what we need to do to be saved; in other words, to be reconciled to God and admitted into heaven.

Mr. Roby: I agree that this is of the utmost importance, but a lot of people are going to say that the Bible has been outdated by what we now know to be true from science. I mean... scientists now say that the universe started with the big bang, a little less than 14 billion years ago, and all living beings are the result of natural processes—evolution. So, many people would argue, we don't really need God anymore, do we?

Dr. Spencer: I think we absolutely do need God to explain the universe. In fact, I think that modern science provides us with tremendous evidence for the existence of God. I'm not saying that you can prove the existence of God, or that true saving faith is founded on external evidence, but I am saying two things: First, true biblical saving faith is perfectly consistent with a proper understanding of modern science, and, secondly, atheism is not.

In fact, it is hard for me to understand how an intelligent, well educated person can be an atheist given all that we now know about this universe and about life. I just don't think it is intellectually tenable to be an atheist any more, it takes far more faith than I have.

Mr. Roby: Why do you say that?

Dr. Spencer: I say that for a number of reasons, but the four most important are: First, that without God you simply cannot explain the existence of this universe. If there ever was a time when absolutely nothing existed, then nothing would exist now. There is a Latin phrase that expresses this basic tenet of philosophy, *ex nihilo, nihil fit*, which simply means, out of nothing, nothing comes. And since we have very strong evidence that this universe is not eternal, but had a beginning, the obvious question is, where did it come from? And the answer is that there must be something, or someone, who is eternal and who created this universe.

Mr. Roby: I always find it interesting that most people want something to be eternal, not someone. What's your second reason?

Dr. Spencer: The second reason I have for saying that I don't find atheism to be intellectually tenable is that it is essentially impossible for life to be created by purely random processes. We now know enough about the nature of living organisms to be able to calculate some of the relevant probabilities, and the numbers are staggering. Let me just give a very quick summary. Proteins are the building blocks of life, and proteins are made up of a sequence of amino acids. There are 20 different amino acids that comprise proteins, but an unimaginably small percentage of the possible combinations form functional proteins. For example, a relatively small protein might comprise a sequence about 150 amino acids long, and roughly only one sequence out of every 10^{164} sequences forms a functional protein.¹

Mr. Roby: 10 to the 164th power is meaningless to most of us non-scientist types...

Dr. Spencer: Trust me Marc, that number is very hard for engineers and scientists to grasp too, but let me try to explain it. First, 10 to the 164th power means a one followed by 164 zeros. As one example, the odds of winning the Powerball lottery on any given ticket are about one in 292 million, so getting a working 150-amino-acid-long protein by a random combination of these 20 amino acids is less likely than winning the Powerball lottery 19 times in a row when buying just one ticket each time. (see Note 1 at the end of this file for the math)

Mr. Roby: That certainly is unlikely, but given billions of years and all the possible planets in the universe doesn't it in fact become quite likely?

Dr. Spencer: Not at all. First, generating a single functional protein is a long way from having a living organism. It is estimated that the simplest possible living cell would require at least 250 proteins. If we ignore for the moment that these would have to be 250 very specific proteins – which is a lot to ignore by the way – and just ask how likely it is to get any 250 functional proteins by random combinations of amino acids, we have to multiply that number, 10^{164} , by

¹ Stephen C. Meyer, *Signature in the Cell: DNA and the Evidence for Intelligent Design*, Harper One, 2009, pp 204-213

itself 250 times. The result is that we have one chance in $10^{41,000}$ of getting those 250 proteins! That number is a one followed by 41,000 zeros!

Mr. Roby: OK – now that number is truly incomprehensible. Can you do anything to put it into perspective?

Dr. Spencer: I don't know if it's possible to put a number that large in perspective, but I'll do the best I can. Scientists have estimated that there are about 10^{80} electrons, protons and neutrons in the visible universe.² This number is unimaginably larger than that. So, finding one particular electron out of all the subatomic particles in our universe would be massively more likely than this.

Mr. Roby: That's a little hard to wrap your mind around when you look out at the night sky and try to think of all the protons, neutrons and electrons present. And you're saying it is vastly *more* likely to find one particular electron out of all of those than it is to get 250 functional proteins by random combinations of amino acids.

Dr. Spencer: Right; and not only is it more likely, but the comparison is so far off I hesitate to give it because it is misleading, but it is hard to come up with examples that are not misleading. In fact, if we have 10^{80} universes each with 10^{80} particles, we would only have a total of 10^{160} particles, so it would still be unimaginably more likely to find one specific electron out of all the electrons, protons and neutrons in those 10^{80} universes than it would be to get 250 functional proteins by random combinations of amino acids! Or, perhaps it will help some people to point out that one chance in $10^{41,000}$ is less likely than winning the Powerball lottery 4,842 times in a row buying just one ticket each time. (See Note 2 at the end of this file for the math)

Mr. Roby: Now you've gone completely past the bounds of my imagination.

Dr. Spencer: And mine as well. To talk about these kinds of numbers at all gets very hard when you can't see them written out, even for those who like math and work with large numbers a lot. So, for those who are interested, there is more information available if you go to our website, whatdoesthewordsay.org, and look at the transcript for this session. But for our purposes today I'll just note that this number is so insanely large that if we increase the number of universes by a trillion, trillion, and increase the number of planets in each universe by a trillion, trillion, and make each universe a trillion, trillion times older, we don't change the overall probability of generating the proteins needed for a single living cell by random combinations of amino acids by enough to even bother mentioning. (See Note 3 at the end of this file for the math)

So, people should not be swayed when someone says that there may be billions, or even trillions, of inhabitable planets out there, it simply doesn't help.

Mr. Roby: I must admit I didn't know just how improbable it is to have life arise by chance... like impossible! And you even have a third reason why atheism is unreasonable?

² See, for example, "Is the Total Number of Particles in the Universe Stable Over Long Periods of Time?", Frank Heile (http://www.huffingtonpost.com/quora/is-the-total-number-of-pa_b_4987369.html)

Dr. Spencer: The third reason is similar to the second. We've been talking about just one cell, but it takes an enormous amount of information to build a living being, much of which is needed to describe how to make the proteins, but there are other things as well. That information is stored in the DNA. Now, I believe there is plenty of evidence to support the idea of micro evolution; that is, for example, that bacteria can evolve into anti-bacterial resistant strains, or horses can evolve into different kinds of horses.

But the idea of macro evolution, that all living organisms evolved from some prototypical life form by natural processes is, again, impossible for me to believe. There is a vast gulf between horses changing size or color or how hairy they are, which just involves changes to existing characteristics, and saying that the horse is directly related to the horsefly biting his neck. The horsefly has an entirely different body plan with different complex structures, like wings. There simply is no reasonable chance of both of them evolving from the same ancestor by undirected natural processes.

Mr. Roby: We probably don't even need a fourth reason to put the lie to atheism, but let's hear it.

Dr. Spencer: The fourth reason is the impossibility of explaining the existence of volitional creatures like you and me.

Mr. Roby: And, by "volitional" you just mean creatures that make real decisions, right?

Dr. Spencer: Right. If there is no God, and no such thing as a spirit, then this universe is simply matter and energy under the rule of physical laws.

Now I don't have any problem believing that the behavior of a fly, for example, can be explained in a purely materialistic way. The behavior of creatures as simple as flies can be understood as purely instinctive. But when it comes to being able to make real choices, you have a serious problem to overcome if you assume the world is limited to mass, energy and the physical laws of our universe.

All physical laws are either purely deterministic or random. Deterministic laws are like Newton's laws, which govern, for example, the movements of billiard balls when you strike them. Randomness comes in because of quantum-mechanical effects, for example, the decay of radioactive substances is a random process. But neither deterministic laws nor randomness, nor any combination of them, can account for a being that makes real free-will decisions.³

Mr. Roby: I see what you mean when you say that atheism is intellectually untenable. But this leads me to ask you an important question... does atheism's failure prove the existence of God? Is that the basis for our faith?

Dr. Spencer: Certainly, any argument against an atheistic worldview is also an argument in favor a theistic worldview, but these arguments are absolutely not the basis for our faith. I don't believe that you can prove the existence of God in any formal sense of the word proof.

³ This argument is also made in the excellent and thought-provoking book *Modern Physics and Ancient Faith*, by Stephen Barr, University of Notre Dame Press, 2003

But, at the same time I want to emphasize what the Bible itself declares, which is that what we observe in nature is sufficient for us to know that God exists. In the book of Romans Chapter 1, verse 20, the apostle Paul wrote that “since the creation of the world God's invisible qualities—his eternal power and divine nature—have been clearly seen, being understood from what has been made, so that men are without excuse.”⁴ He says that men suppress this truth and exchange the truth for a lie because they are in rebellion against God and his rule. In our natural state, we do not want God. We want to live as though we are the ultimate authority and judge.

Mr. Roby: I've noticed that. So, what do these arguments accomplish?

Dr. Spencer: Well, I would say that these kinds of arguments accomplish two things: First, they help to strengthen the faith of true believers by showing our faith to be completely rational and reasonable. Second, for unbelievers, they help to bring to the fore their suppression of the truth that they know.

But, I'll say again that these arguments are not the basis for true saving faith. Anyone who “comes to faith” by virtue of such arguments alone has at best an intellectual assent, not true saving faith. In the book of James, Chapter 2, verse 19, he tells us that even the demons believe there is a God and shudder.

The only foundation for our faith is the truth of the gospel, that Jesus Christ died for sinners, such as us, and that if we will repent of our sins and trust in Christ alone as our Lord and Savior, we will be saved.

Mr. Roby: That's a perfect place to stop for today. I think you've provided some very sound reasons for why all people should be interested in finding out what the Word of God says.

⁴ All scripture quotations, unless otherwise indicated, are taken from the Holy Bible, New International Version®, NIV® (1984 version). Copyright © 1973, 1978, 1984, 2011 by Biblica, Inc.™ Used by permission of Zondervan. All rights reserved worldwide. www.zondervan.com The "NIV" and "New International Version" are trademarks registered in the United States Patent and Trademark Office by Biblica, Inc.™.

Extra material for those who want to see some math:

Note 1: Dr. Spencer said that one chance in 10^{164} is less likely than winning the Powerball lottery 19 times in a row buying just one ticket each time. Here is how you can calculate this number:

The probability of winning the Powerball lottery on any one ticket is about 1 in 292 million⁵, or, if we call that probability p we have

$$p = \frac{1}{2.92 \times 10^8} = 3.42 \times 10^{-9}.$$

Similarly, one chance in 10^{164} yields a probability of

$$p_{\text{protein}} = \frac{1}{10^{164}} = 10^{-164}.$$

If you have N attempts at the lottery, your probability of winning every time is the product of the probabilities; that is,

$$p_{N \text{ wins in a row}} = p^N = (3.42 \times 10^{-9})^N.$$

Finally, we set these probabilities equal and solve:

$$p_{\text{protein}} = 10^{-164} = (3.42 \times 10^{-9})^N.$$

Taking the base-10 logarithm of both sides yields

$$\log 10^{-164} = -164 = \log[(3.42 \times 10^{-9})^N] = N(\log 3.42 \times 10^{-9}).$$

$$-164 = N(\log 3.42 - 9) = -8.466N.$$

$$N = 19.4.$$

Note 2: Dr. Spencer said that one chance in $10^{41,000}$ is less likely than winning the Powerball lottery 4,842 times in a row buying just one ticket each time. Here is how you can calculate this number:

We again have the probability of winning the Powerball lottery on any one ticket is about 1 in 292 million, or, if we call that probability p we have

$$p = \frac{1}{2.92 \times 10^8} = 3.42 \times 10^{-9}.$$

Similarly, one chance in $10^{41,000}$ yields a probability of

$$p_{250 \text{ proteins}} = \frac{1}{10^{41,000}} = 10^{-41,000}.$$

⁵ That number was taken from their official website (<http://www.lotteryusa.com/powerball/>) on February 14, 2017

If you have N attempts at the lottery, your probability of winning every time is the product of the probabilities; that is,

$$p_{N \text{ wins in a row}} = p^N = (3.42 \times 10^{-9})^N.$$

Finally, we set these probabilities equal and solve:

$$p_{250 \text{ proteins}} = 10^{-41,000} = (3.42 \times 10^{-9})^N.$$

Taking the base-10 logarithm of both sides yields

$$\log 10^{-41,000} = -41,000 = \log[(3.42 \times 10^{-9})^N] = N(\log 3.42 \times 10^{-9}).$$

$$-41,000 = N(\log 3.42 - 9) = -8.466N.$$

$$N = 4842.9.$$

Note 3: Here is another way of thinking about this. If you take all of the electrons, protons and neutrons in the observable universe ($\sim 10^{80}$) and let them interact as fast as it is physically possible for them to interact ($\sim 10^{43}$ times per second), and let them do that for 15 billion years ($\sim 4.73 \times 10^{17}$ seconds) – roughly what we think the age of the universe to be – you have less than 10^{141} possible interactions ($10^{141} = 10^{80} \times 10^{43} \times 10^{18}$, where the number of seconds has been rounded up to 10^{18}). This number has been called the probabilistic resources of the universe.⁶

Given that many combinations, which is obviously way more chances than we have for amino acids to combine, you can ask how likely it would be to get the 250 functional proteins. All you do is subtract 141 from 41,000, so your chance is now one in $10^{40,859}$ of creating 250 functional proteins. In other words, having that many chances doesn't appreciably increase the odds at all. In fact, let's get really ridiculous here, and give ourselves way more chances; remember that a trillion is a million millions, which is 10^{12} , or a 1 followed by 12 zeros. Now, if you have a trillion universes and each one of them has a trillion times more particles than ours, and each one is a trillion times older than ours, the number of interactions only increases by 10^{12} times 10^{12} times 10^{12} , which is 10^{36} , so instead of subtracting 141 from 41,000 we now subtract $141 + 36 = 177$ from 41,000, so the chance of getting the 250 proteins with this many tries is one in $10^{40,823}$, which is really not much different at all. In fact, you can increase the number of universes by trillions of trillions many times over and make them trillions of trillions of times larger and trillions of trillions of times older and the chances will not change by an appreciable amount. I know these numbers are insane, but the point is that even though we can't say the probability is zero, it is so small that no rational person should believe it.

That is why many modern scientists believe that there are potentially an infinite number of universes. You need an infinite number of attempts to make this seem at all plausible!

⁶ See Meyer, *Signature in the Cell*, again; pages 216-217 (although his number is smaller because he rounds the number of seconds in the age of the universe down, rather than up)