

Evidence for God From Fine Tuning

The Anthropic Argument



Discovering Our Origin and Our Purpose

While there are many compelling arguments for the existence of God, we are about to examine one that has unusual implications in that it not only demonstrates God's existence as the greatest of all designers, but it also gives us a clue as to WHY it is that He designed us in the first place! This argument (which we'll title in a minute) is perhaps the most interesting argument for the existence of God! Now you might think that scientists and mathematicians and other bright people are always opposed to the things of God, but many scientific explorers, when faced with the incredible majesty and immense complexity of their discoveries, have been moved to think of the world in theological terms. Early astronauts, smack dab in the middle of the age of science and reason, have viewed the planet Earth from space and come to the magnificent conclusion that an all-powerful and creative God was the source of everything we see in the universe. When we look at the majestic expanse of the universe we almost always find ourselves asking an important question.



The "Anthropic Argument"

Some might think that question is: "How did we get here?" and that is certainly a reasonable inquiry. But along with the question of "How" is another equally important question: "Why?" If the Cosmological Argument and the Teleological Argument make it clear that an "uncaused causer" and an "undesigned designer" is responsible for our creation, it is reasonable to ask: "Why would He create us"? Why are we here after all? Well, the argument we are about to make will try to address BOTH questions; the "how" and the "why" of our existence. Unlike other arguments for the existence of God, the next argument goes beyond our creation and addresses our purpose. We are going to call this argument the "Anthropic Argument". Let's take a look at it in detail:

The Anthropic Argument':

- (1) Our World has been uniquely designed so that:
 - (a) Life can exist*
 - (b) That same life can examine the Universe**
- (2) This unique design cannot be the result of random chance or probabilities*
- (3) There is, therefore, a God who has designed us for a special cause in the universe*

As usual, the premise of any argument is vital to its conclusion. In this case, if we can demonstrate that our world is uniquely designed for life and discovery, we can follow that argument to the logical conclusion that there is a God who has designed us for a special cause. Track with me here for a minute:



Random or Purposeful?

Now, there are two ways to look at our existence. First, we can assume that we got here through a random set of actions and forces. Earth exists as a matter of "chance placement" and we are largely the result of "accidental" processes. As a result, we are just one of many worlds of our kind and we are actually quite "common" in the universe. The other perspective is that we are here as the result of purposeful design. From this view,

we are actually “specifically placed” in the galaxy and the universe, our placement was “controlled” and purposeful, and we are “unique” in all the universe! There is quite a difference between these two world views, that’s for sure!

Now the earliest of thinkers on this topic tended to think that the earth was the center of the entire universe. In fact, for 1800 years, early scientists and ‘cosmologists’ believed that the Earth sat still in space as the sun, moon and the stars spun around us, centered on our tiny planet. Not until 1543, when the Polish astronomer, Nicolas Copernicus wrote his book, “the Revolution of the Heavenly Spheres” did this view change. Copernicus ignited a revolution in thinking when he argued that the earth actually orbited the sun along with all the other planets in our solar system. We began to understand the nature of the universe following Copernicus and began to move away from the idea that we were in the center of that universe.

And the more and more we explored the universe, the more we came to see ourselves as a tiny speck within an immense expanse of space. In the summer of 1977, the United States launched an historic mission, when it launched the twin spacecraft, Voyager One and Two into space. These two spacecraft were destined for the outer regions of the Solar System, focusing on the large Gas Giant planets. For 13 years these spacecraft explored the outer planets. They sent back thousands of pictures, but the most interesting of these was transmitted on February 14th, 1990. Voyager One, approached the edge of the solar system, turned back toward the sun and captured an image of planet earth, far in the distance. From this perspective, earth appeared to be just a tiny speck in a stream of light. And as we examined photographs such as these, most cosmologists formed the opinion that earth was an insignificant little speck in the vast expanse of space; certainly nothing unusual, just another habitable planet in what they presumed to be an infinite universe.



Are We Just One of Many?

Over time, this idea became very popular. Science fiction writers in the last century have relished the idea that life could exist elsewhere in the universe, and the idea that there might be thousands of worlds just like our own became a widely accepted notion. Most scientists looked at the vast number of galaxies and postulated that the sheer number of star systems made it likely that there could be other planets that could support life just like the life found on planet earth. Most scientists came to believe that Earth was really nothing special at all.

In fact an ideology developed that proposed that Earth was really just another mediocre planet in an incredibly large universe. This idea developed into the “Principle of Mediocrity”. This principle says that our location and our status in the universe are unexceptional. As a result we should not assume that we are special in any way, and therefore, we should also not assume that the universe has been designed with us (or beings like us) in mind. This idea was further popularized in the 1970’s and 1980’s by Carl Sagan, a very famous and well respected astronomer. He wrote a book, “Pale Blue Dot” in which he looked at the image from Voyager One and said:

“Because of the reflection of sunlight the Earth seems to be sitting in a beam of light, as if there were some special significance to this world. But it’s just an accident of geometry and optics. Look again at that dot. That’s here, that’s home, that’s us. Our

posturing, our imagined self importance, the delusion that we have some privileged position in the universe, are challenged by this point of pale light. Our planet is a lonely speck in the great enveloping cosmic dark."

So we have to ask ourselves the question, "Is it possible that there are other planets out there just like ours?" It certainly seems possible based simply on the vast nature of the universe!



No Other Signs of Life

Scientists have been trying for years now to discover other sources of life in the universe. But since 1960, the SETI project (Search for Extraterrestrial Intelligence) has been searching the cosmos, listening carefully for anything that might be considered an intelligent sign of life. But in all these years, we've never seen or heard anything that would indicate that we are anything other than alone. If the universe is truly ancient or infinitely ancient as some scientists would like us to believe, then why hasn't a civilization advanced to the point where it could have reached us by now? After all, they could have developed far past our abilities if they were given enough time, and many scientists would have us believe that they have had this much time if the universe is as old as they say it is. So why haven't we heard from other worlds yet?



The Necessary Forces

The answer to this question may be right under our noses. It might be found in science. You see, there are a number of forces in the universe that are finely calibrated to work together to make it possible for life to exist. The laws of electron mass, atomic mass, proton mass, strong nuclear force, weak nuclear force, speed of light, cosmological constant, gravity, mass of the universe and more are finely tuned to coexist and govern the universe and our world.

If any one of these forces were to be changed by even 1% in either direction (made stronger or weaker) the impact on life would be catastrophic. If, for example, you increased gravity by just a tiny fraction, no large life forms would be able to exist on our planet. They would be crushed under their own weight. Primitive life (like bacteria) may be able to exist in an environment like this, but nothing like the invertebrate life that we see here on earth. You see there are prerequisites for life in our universe, and these laws determine them. In order for there to be life in the universe, there has to be a perfect harmony between the laws and forces of the universe. The more we discover this, the more we realize that although the universe is vast, it may not be vast enough to support much life. Although there may be an incredible number of planets out there, the conditions required to support life may be so restrictive that there may not be enough numerically to beat the statistical improbability that life could exist on them. In short, the requirements for life are just too difficult!



Water

Several factors are required for life to exist. First, you've got to have liquid water present on the planet. The chemical properties of water are perfectly suited for carbon based life forms. Water is able to dissolve and transport all the chemical nutrients that are used by life forms on our planet and it has the unmatched ability to absorb heat from the sun, a process that is critical to regulate the surface temperature of a planet.

2 Distance From the Sun

The presence of water is linked to another important factor that is required for life to exist: a planet's distance from its home star. For life to exist, a planet must not be too close to the star (water would evaporate) or too far from the star (water would turn to ice). In our solar system, for example there is a "habitable zone" that exists around the sun, well outside the orbit of Venus and ending short of the orbit of Mars. If you were to move the earth just 5% closer to the sun, all water would evaporate from the surface. On the other hand, if you were to move earth back just 20% from the sun, all water would freeze. While life could exist on planets under these conditions, it would not be the complex life we find here on Earth.

3 Terrestrial Crust

In addition to these two factors, livable planets must be "terrestrial" in nature. The crust of the planet must be just right in order for life to exist. Here on Earth, the terrestrial crust is paper thin. But if the Earth's crust were any thicker, something called "plate tectonic recycling" could not exist. Our world is covered with a thin terrestrial crust of 4 to 20 miles in depth, and this crust is divided up into large plates that are constantly moving. This is necessary to regulate the planet's interior temperature, to recycle carbon, to mix chemical elements that are essential to living organisms, and to shape the continents. The terrestrial depth has to be the perfect thickness for life to exist.

4 Magnetic Field

This terrestrial depth is important for yet another factor. Under the crust of our planet, the movement of liquid iron is creating a magnetic field around our planet. This magnetic field protects our planet from the solar winds of the sun. If our planet was smaller, or the magnetic field weaker, these winds would strip away our atmosphere altogether.

5 Oxygen / Nitrogen Atmosphere

And our atmosphere is yet another important factor to sustain life. Complex life requires an Oxygen / Nitrogen atmosphere. How many times have you watched an episode of Star Trek and heard them talk about the atmosphere being capable of supporting the main characters before they beamed down? In order for carbon based complex humanoids to exist, the atmosphere must be just the right blend of Oxygen and Nitrogen and this atmosphere is obviously dependant on many other factors we have already discussed, like the distance from the sun and the magnetic field.

6 Large Moon

For a world the size of Earth, our moon is unusually large. But if our moon didn't exist, neither would we. Our moon is 1/4th the size of the Earth, and as a result it has a strong gravitational pull that stabilizes the angle of the earth's rotational axis at 23 ½ degrees. This insures relatively temperate seasonal changes, and the only climate in the solar system mild enough to sustain complex life.

7 Perfect Star

In addition to all of this, in order for life to exist on a planet, it has to have a star just like ours. Our star is categorized as a Spectral Type G2 Dwarf, Main Sequence

Star. If our sun was less massive, like 90% of the stars in the galaxy, the “habitable zone” orbit would be smaller and much closer to the sun. To remain within the boundaries of the “habitable zone” the earth would have to be much closer as well. If this were the case, the gravitational pull of the sun would halt the orbit of the planet and we would have a hot side (always facing the sun and too hot for life) and a cold side (always facing away from the sun and too cold for life)! The perfect size and type of star is required for life to exist here on Earth!

In summary, there are a large number of factors that are required to have life here on planet earth. We’ve only covered seven of these factors but scientists have uncovered 20 or so. In order to determine the probability of life existing somewhere else in the universe, we simply need to factor the probability of each of these conditions existing against each other. If we assign a VERY conservative factor of probability to each condition (say a one in ten chance) and multiply the 20 factors against each other. The resulting probability that life could exist elsewhere in the universe ends up being about one chance in one quadrillion that a world with life such as ours could exist.



The Impossible Odds

Now the problem is that the odds of life occurring are far greater than the available number of stars that we think are in the universe. Scientists estimate that there are 100 billion stars out there, but our conservative probability says that there is a one in one quadrillion chance! There just aren’t enough stars available to overcome the probability! In fact, the odds of OUR world being inhabitable seem impossible in light of all the factors that are required! Certainly we can see the ridiculous nature of chance probability when it comes to the existence of our inhabitable world. The probabilities are so small, that Earth seems to be unlikely at best!

All along, God has been trying to tell us this very thing. He has been trying to tell us that the odds are impossibly unfavorable and that He alone is the only explanation for our existence. God is the creator of the universe and the only being who can transcend the odds. And he created Earth in a special way, unique in the universe:



Psalms 115:15-16

May you be blessed by the LORD, the Maker of heaven and earth. The highest heavens belong to the LORD, but the earth he has given to man.

Once we have conquered the first important question, “How did we get here” the second question must be addressed: “Why are we here?” Scripture gives us the answer:



Colossians 1:16-17

For by him all things were created: things in heaven and on earth, visible and invisible, whether thrones or powers or rulers or authorities; all things were created by him and for him.

God seems to be telling us that we were (1) created BY Him, and (2) created FOR Him. God says that he did, in fact, create us for a purpose and that purpose was to find and know HIM. But is there any scientific evidence that this is true? Well, yes there is!



It All Started With the Solar Eclipse

Years ago scientists realized something while watching a solar eclipse. In a solar eclipse the moon slips between the sun and the earth and covers the sun from our perspective. This doesn't happen everywhere in the universe. In order for there to be a solar eclipse, a world's moon has to be just the perfect size and perfect distance from the planet in order to be the exact same size as the star from our perspective. That happens to be the case here on Earth. Is this just an accident? Is it possible that the moon is this size for a reason?

It just so happens that our ability to observe a complete eclipse of the sun is important to our ability to observe the universe and understand its laws. For example, in May of 1919, a research team headed by British astronomer Arthur Eddington, was able to photograph the sun and adjacent stars during an eclipse. When they examined the photographs later, they were able to verify that the sun's gravity actually bent the light from distant stars as we saw them at the very angle that Einstein had predicted, therefore verifying his Theory of Relativity.



The Recipe for Observation

In addition to this, solar eclipses have allowed us to understand the chemical nature of the universe! It was during an eclipse that something called the 'flash spectrum' was first observed by scientists through a prism. When this was first observed in 1870, we finally understood the structure of the surface of the sun (its chromosphere) based on the colors emitted by each chemical in the flash spectrum and we discovered Helium for the first time. We now know that we can examine the spectrum of the light from distant stars to understand their chemistry, and we would never have been able to do this if not for our ability to see our own sun in a solar eclipse. So, do you remember how we said there was a perfect recipe for life on Earth? Well there is also a perfect recipe for discovery:



Perfect Sized Moon

The first required element is the perfect sized moon that will allow us to discover the flash spectrum and confirm other scientific theories!



Right Kind of Radiation

But that's not all you need to be able to discover the universe. You have radiation, and just the right kind of radiation to boot! We are constantly bombarded by radiation from our own sun and the stars of distant galaxies. This radiation reaches our planet in a variety of wavelengths. But only the visible radiation is usable for us to exist, and it just so happens that this is the same radiation that we need to be able to see and discover the universe!



Thin Atmosphere

But in addition to that, you have to have an atmosphere like ours that is not filled with thick gases. You have to have a transparent atmosphere that is not filled with too much carbon. We have a clear atmosphere filled with just the right elements to both sustain life and allow us to observe and discover the universe.



Location in the Galaxy

There's another really interesting requirement for both life and discovery. It's our

placement within the galaxy. We live in the space between a spiral arm of a spiral galaxy that we call the milky way. Our location is important. We live about halfway from the center of this galaxy and its edge. This galaxy has a lot of inherent dangers and if we were any closer to its center, we would be in a very hostile place, filled with stellar activity and supernovas and far too close to the black hole which is right at the center! There is a ton of particle and electromagnetic radiation, gamma ray and x-rays in this part of the galaxy. But if we were too far from the center and were out on the edge of the galaxy, there wouldn't be enough iron, magnesium, silicon and oxygen to create a world such as ours. It turns out that we are perfectly situated as a solar system, not too close and not too far from the center of the universe. In addition to this we are situated in a place BETWEEN two spiral arms that give us a clear view of the universe when we are not looking at the knife edge of our own galaxy! If we were inside one of these arms, or closer to those areas of the galaxy where gases and stars are more tightly condensed, we wouldn't be able to see the universe as we are able to see it today!

Well it turns out that there are a number of factors required to be able to observe the universe, and guess what; the factors required to see and discover the universe are exactly the same as the factors required to support life in the universe. That is no coincidence. We have been specifically and specially placed here so that we can do something. We are here to discover the nature of the universe. Why? Because when we examine the universe, we will come to the conclusion that GOD DOES EXIST!!!



Does God Specifically Tell Us Why We Are Here?

God has been trying to tell us this all along. He designed us in a special way, and made life possible for a special purpose, that we might observe his creation and discover him personally:



Jeremiah 29:10-14

For I know the plans I have for you,' declares the LORD, 'plans to prosper you and not to harm you, plans to give you hope and a future. Then you will call upon me and come and pray to me, and I will listen to you. You will seek me and find me when you seek me with all your heart. I will be found by you,' declares the LORD

God left us more than just the evidence of his creation. The universe around us is a wonderful way to discover God because this environment appears to be so enduring and obvious. But there is something that is even more enduring than the universe that God has given us to understand His nature. It is the WORD OF GOD:



Zechariah 1:2-5

The Lord Almighty was very angry with your fathers. But he will turn again and favor you if only you return to him. Don't be like your fathers were! The earlier prophets pled in vain with them to turn from all their evil ways. 'Come, return to me,' the Lord God said. But no, they wouldn't listen; they paid no attention at all. Your fathers and their prophets are now long dead, but remember the lesson they learned, that God's Word endures!

The Bible is not simply the work of ancient men. It is the Work of an Eternal God who has revealed himself to both ancient and modern man. The more we come to understand the nature of our universe, the more we come to understand that the Bible has been trying to tell us about God all along. And it has been accurate. More and more, science simply confirms what we see in the scriptures: we were created in a special place and for a special purpose.