

A Universe Fine Tuned for the Possibility of Life

Presented by Tony Feiger

This is a key apologetic for the existence of God.

So What is Fine Tuning?

So What is Fine Tuning?



Read "A Universe Creating Machine" from The Privileged Planet, p. 195 & 196.

“Objection !” Some scream.

- Are we allowed to think that way in science?



Can we talk about intelligent causes like “tuning” in science? Many people cry foul, yet in the historical sciences, like forensics, detectives look for intelligent causes. Often we cannot repeat the event in the laboratory. When we want to know what happened in the past, we look for the best explanation for the data.

Philosophy of Science

- Historical vs. Experimental Sciences

So in philosophy of science we have Historical vs. Experimental Sciences.

Philosophy of Science

- Historical vs. Experimental Sciences
- Methodological vs. Philosophical Naturalism

I should also point out the difference between Methodological and Philosophical Naturalism.

Methodological Naturalism means that when we practice medicine or engineering, we assume that God is not interfering with our tests, that data is the result of natural processes according to the laws of physics. In this framework we look for natural causes for the events we are studying.

Philosophical Naturalism goes a step further and assumes that God never interacts with the creation and never has.

Philosophy of Science

- Historical vs. Experimental Sciences
- Methodological vs. Philosophical Naturalism
- Science education has largely adopted the "no God" Philosophical Naturalism

Unfortunately, the norm in today's academic environment is to allow only the "no god" assumption of Philosophical Naturalism in the study of human and cosmic origins. This is a recent development. The history of science is filled with Christians and theologians like Newton, Kepler, Faraday, Maxwell & Calvin.

Believe it or not, those who think God is the best explanation for certain features of our universe are often denied advanced degrees and professor tenure.



Richard Lewontin,
Harvard Research Professor

"Our willingness to accept scientific claims that are against common sense is the key to an understanding of the real struggle between science and the supernatural. We take the side of science

**in spite of the patent absurdity of some of its constructs,
in spite of its failure to fulfill many of its extravagant promises of health and life,
in spite of the tolerance of the scientific community for unsubstantiated just-so stories,**

because we have a prior commitment, a commitment to materialism..."

Here is the situation today.



Richard Lewontin,
Harvard Research Professor

"...It is not that the methods and institutions of science somehow compel us to accept a material explanation of the phenomenal world, but, on the contrary, that we are forced by our a priori adherence to material causes to create an apparatus of investigation and a set of concepts that produce material explanations,

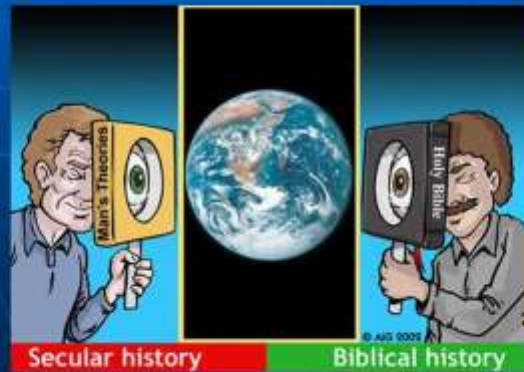
**no matter how counter-intuitive,
no matter how mystifying to the uninitiated.
Moreover, that materialism is absolute, for**

we cannot allow a Divine Foot in the door."

Can you believe this?! They are willingly, knowingly and forcefully keep God out of science! Again, I can understand this methodology for engineering, but the position seems unwarranted in origins science.

Philosophy of Science

- Why should we be limited to the atheist perspective?



There are often two ways of looking at data. Depending on our worldview we will see either God's handiwork or we will see a void or a mystery.

(Tell story of astronaut and cosmonaut who went to space and looked for God there)

Importance of Worldview

Naturalism

Atheism

Material

Supernaturalism

Theism

Spiritual

Effects of Worldview:

- **How we interpret data**
- **How we live**

Here are two ways of looking at the world. First you have Philosophical Naturalism, then you have what I will call Supernaturalism.

Philosophy of Science

- The pitfalls of operating under philosophical naturalism

So, what are the dangers or pitfalls of operating under philosophical naturalism?

Philosophy of Science

- The pitfalls of operating under philosophical naturalism
 - You may spend valuable resources on fruitless projects

If you assume that God has not intervened you will develop various theories and come to certain conclusions based on that assumption. You may spend countless hours and millions of dollars pursuing those theories and practical applications.

However, if it turns out you were wrong, and God has intervened, you may have spent valuable resources pursuing the wrong theories, wasting time and money on fruitless projects. You may get way down the road before you find out you are going the wrong direction. More progress may have been made assuming that certain complex systems were designed by a super intellect.

Philosophy of Science

- The pitfalls of operating under philosophical naturalism
 - You may spend valuable resources on fruitless projects
 - SETI Program
 - "Junk" DNA
 - Random mutation of crop experiments

I can point to several examples of this:

First, the assumption that there is nothing special about our home, planet Earth. The SETI program has operated for forty years with no results.

Second, that the non-Coding sections of DNA are junk left over from evolution. For a long time scientists ignored the so called junk because they thought it was useless. Now we are finding that there are layers of embedded information in DNA. There are codes within the code.

Third, that wonderful improvements to food plants can be generated by random mutations. John Sanford describes his experience in his book Genetic entropy.

Philosophy of Science

- The pitfalls of operating under philosophical naturalism
 - You may spend valuable resources on fruitless projects
 - You may end up destroying your culture

Worse than just wasting resources is that you may destroy your culture.

How Philosophy Effects Culture

Naturalism, Atheism



Universities



**Immoral Movies, Music,
Books & Art**



Social Problems

According to the preeminent Christian philosopher of the 1960's, Francis Scheaffer, the prevailing philosophies of the university affect their graduates, who in turn affect the entire culture through their popular movies, music and art. And that's where we are today.

What is Truth?

The Story of Science

Vs.

God's Story

In his book, *Epic*, John Eldredge writes

"The world has lost its story. How that happened is quite a story as well, one we haven't time for here. But the latest chapter of that story had to do with the modern era and how mankind looked to science to solve the riddle of our lives. Neil Postman said about the scientific view:

The Story of Science

'In the end, science does not provide the answers most of us require. Its story of our origins and our end is, to say the least, unsatisfactory. To the question, "How did it all begin?", science answers, "Probably by an accident." To the question, "How will it all end?", science answers, "Probably by an accident." And to many people, the accidental life is not worth living.'

(Postman, Neil. "Science and the Story that We Need" *First Things* 69 [January 1997]: 29-32)

Is there any question why we have so many social problems today in spite of great affluence in western culture?

God's Story

God created the Heavens and the Earth and all that is in them.



And then there is God's story. "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. 21For although they knew God, they neither glorified him as God nor gave thanks to him, but their thinking became futile and their foolish hearts were darkened. 22Although they claimed to be wise, they became fools" (Romans 1:19-22)

God's Story

The Crown of God's creation was Man, male and female, in His image.



Man is truly fearfully and wonderfully made. This is, you guessed it, my wife and I.

God's Story

Man was made to keep the Earth, to Love one another and to Know Him.

God's Story

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Although Man chose to rebel against God, God sent His only begotten Son to die in our place, to bring us peace once again.

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Although some have received this forgiveness and peace with God, the world is still broken because of rebellion against God. One day Christ will come again and make all things new. Paradise will be restored!

God's Story

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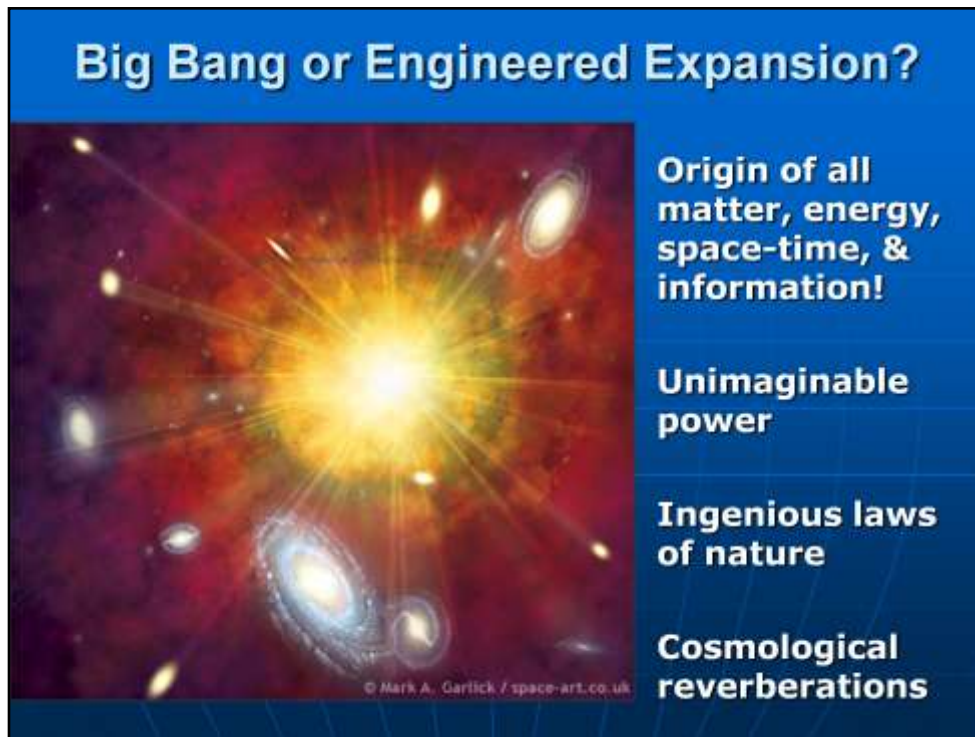
Although Man chose to rebel against God, God sent His only begotten Son to die in our place, to bring us forgiveness and peace once again.

Although some have received this forgiveness and peace with God, the world is still broken because of rebellion against God. One day Christ will come again, bring justice and make all things new. Paradise will be restored!

For now, we are Christ's ambassadors, introducing men and women to God's story and to God Himself.

The story of science brings little purpose, little hope. The details of the story are ever changing.

God's story gives us peace, purpose and hope. God's story never changes!



I'm not really convinced that the current story of science is true anyway. For example, the Big Bang theory is full of fudge factors and unverified parameters to hold the story together. One wild idea is the inflationary expansion, where space and matter supposedly moved faster than the speed of light. Another is the existence of so called "exotic dark matter", which supposedly accounts for 95% of the mass of the universe but doesn't hold any heat, and has not been captured or identified. In fact, certain predictions of dark matter have come up negative. Dark matter sounds very sketchy, yet it's existence is vital to big bang cosmology, so the belief in dark matter persists. Another mystery is "dark energy" which accounts for supposedly accounts for certain observations, yet again has not been identified.

Michael Disney, certainly no theist, wrote in the American Scientist, "...my view, is that modern cosmology [The Big Bang Model] has at best very flimsy observational support." He continues, "While it is true that we presently have no alternative to the big bang insight, that is no reason to accept it. Thus it was that witchcraft took hold." You really should read the whole article, which I have copied for you, over there.

I'm also going to comment on science's story of origin of life and common descent, and say that they are also built on flimsy observational and experimental support. They are widely accepted, not because of convincing evidence, but because there are no alternative natural explanations in sight. Again, that is not a good reason for a believer in God to accept those theories.

So what alternatives to the big bang do "free thinking" Christians have? There are some creationist cosmologies, but I have not studied many of them, except for this one in Starlight and Time by Russell Humphreys. It's interesting and well worth the read.

I should say at this time that you can be a Christian and believe in the big bang, evolution and even common descent, but it will affect your theology and your view of the Bible. The principle of the Authority of Scripture is that to disbelieve the scripture is to disbelieve God. Furthermore, if we disbelieve any part of scripture, it will for you, cast doubt on the rest of Scripture.

So I'm skeptical of the modern science of origins. I stand with Paul who wrote, "May God be found true and every man a liar" and with Jesus who said that "Heaven and Earth will pass away, but my Word will never pass away." and with Isaiah who wrote, "Flowers fade and grass withers, but the Word of God stands forever."

With that extended introduction, let's now look more closely at fine tuning in the Universe.

Fine Tuned Universe

- Fundamental Forces and physical constants
- Our Galaxy
- Our Solar System
- Our Planet

Fine tuning of the Universe includes a wide array of parameters and properties which literally make life possible in the universe, in our galaxy, in our solar system and on our planet. If any one of these parameters were out of tolerance, BOOM! No life...

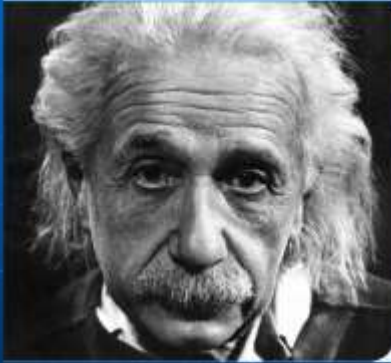
Fine Tuned Universe

Fundamental Forces and physical constants

- Gravity
- Weak nuclear force
- Strong nuclear force
- Electromagnetic force
- Electron mass
- Proton mass
- Speed of Light
- Planck's Constant
- ...

Here is a short list of some of the critical forces, parameters and constants which if altered just a bit would destroy life and the naturalist story of creation.

Fine Tuned Universe



"Natural law...reveals an intelligence of such superiority that, compared with it, all the systematic thinking and acting of human beings is an utterly insignificant reflection."

Albert Einstein, Ideas and Opinions – The World As I See It (New York: Bonanza Books, 1931), p. 40.

Einstein understood that behind all the fine tuning was a superior intelligence. I bet you didn't learn that in High School!

Fine Tuned Universe



"The more I examine the universe and the details of its architecture, the more evidence I find that the universe in some sense must have known we were coming"

Physicist Freeman Dyson, Disturbing the Universe (New York: Harper and Row, 1979), p.250.

Why did he say that? Because the universe looks as though it was specially prepared for life. Let's look closer at a few examples of fine tuning.

Fine Tuned Universe

Gravity

If the force of gravity were changed by just one part in 10^{40} , stronger or weaker, stars like the sun would not exist in the Universe and nor would life!

(According to the calculations of Brandon Carter, physicist, per Show Me God, by Fred Heeren, p. 210)

The balance between the electromagnetic force and gravity in stars is critical. Physicist Brandon Carter found that if the force of gravity were altered just one part in 10^{40} , we would have only blue giant or red dwarf stars, and life could have never developed anywhere in the universe.

Fine Tuned Universe

Fundamental Forces and physical constants
Mass of protons and neutrons

A proton is 1836 times heavier than an electron, while a neutron is only .1% heavier than a proton. If neutrons were another .1% heavier, all protons would convert to neutrons, leaving no possibility for atoms in the universe!

Here is another example of fine tuning. What can you do without atoms? Not much...

Fine Tuned Universe

Charge balance of protons and electrons

"The charges of the electron and proton have been measured in the laboratory and have been found to be precisely equal and opposite. Were it not for this fact, the resulting charge imbalance would force every object in the universe--our bodies, trees, planets, suns--to explode violently. The cosmos would consist solely of a uniform and tenuous mixture not so very different from air." George Greenstein, THE SYMBIOTIC UNIVERSE.

Here is another example of fine tuning.
(read slide)
Wow! That would sure be a mess!

He continues, "Relatively small things like stones, people and the like would fly apart if the two charges differed by as little as one part in 100 BILLION. Large structures like the Earth and the Sun require for their existence a yet more perfect balance of ONE PART IN A BILLION BILLION."

And think of this: Protons and electrons are composed of completely different components. One is not just the inverse of the other. An electron is composed of a lepton and a proton is made of 3 quarks. So, why the ultra fine tuning? Where did it come from?

Fine Tuned Universe - Entropy

"If the Big Bang is regarded as only an impressive accident, there is no explanation why it produced a universe with such a high degree of order, contrary to the Second Law...in 1989 (Roger) Penrose computed that to provide a universe compatible with the Second Law the precision needed to set the universe on it's highly ordered course was to an accuracy of one part in $10^{10^{123}}$."

A Case Against Accident and Self-Organization, by
Dean L. Overman (New York: Rowman &
Littlefield Publishers, Inc, 1997), p. 191

The mystery of the low entropy origin of the universe has puzzled physicists and cosmologists for decades. Gravitating matter is far more likely to exist within a huge black hole. The mystery is, how did the universe achieve such a low entropy, with matter so finely dispersed, without violating the Second Law of Thermodynamics (Entropy is always increasing)? Because of the magnitude of the improbability, one part $10^{10^{123}}$, this is the mother of all fine tuning arguments.

What is Entropy?

- The measure of disorder of a system

Let's break this down a little. What is entropy? It is the measure of disorder in a system.

What is Entropy?

- The measure of disorder of a system
- Entropy is always increasing



When you burn gas, entropy increases. When you spill milk, entropy increases. When you breathe, walk, or run entropy increases. Except for God's intervention with the 2nd coming of Christ, science tells us, with it's typical gloomy story, that at the end of all time, the whole universe will wind down and burn out. All chemical reactions will cease. Everything will be at equilibrium, at one temperature everywhere. Matter will be gathered into black holes. That is maximum entropy, maximum disorder.

So, if the end is maximum disorder, how, or more frankly, who ordered it in the first place?! If you follow time backwards, entropy must decrease. So that is entropy. But what about the number $10^{10^{123}}$?

Fine Tuned Universe - Entropy

How big is

$$10^{10^{(123)}} ??$$

So, how big is $10^{10^{(123)}}$? When I first saw the number printed I wondered about the strange form. Is the (123) multiplied by the 10 or is it a superscript? Curious, I found the book and looked it up in the original text. It turns out that the (123) is a superscript, making this an incredible number. How big?

This is a 1 followed by 10^{123} zeros. So, consider how many seconds have passed since the creation of man about 6000 years ago. That's $6000 \times 365 \times 24 \times 60 \times 60 = 1.89 \times 10^{11}$ seconds. So, if Adam was really fast and could write 10 digits every second, he could have written just 1.89×10^{12} zeros by now. That's almost two trillion zeros, yet he wouldn't be anywhere near even writing out the number! What would his work look like?

Fine Tuned Universe - Entropy

How big is $10^{10^{123}}$??

$$\begin{aligned} &6000 \text{ yr} \times 365 \text{ days/yr} \times 24 \text{ hr/day} \times 60 \\ &\quad \text{min/hr} \times 60 \text{ sec/min} = \\ &= 1.89 \times 10^{11} \text{ seconds} \end{aligned}$$

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Fine Tuned Universe - Entropy



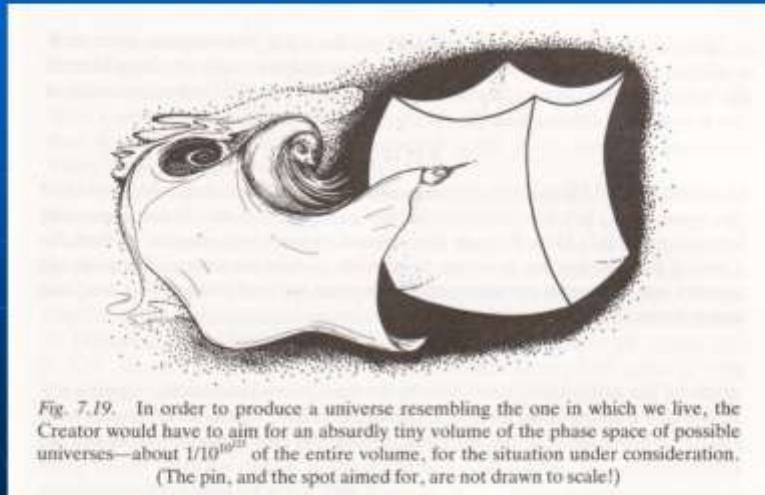
Sir Roger Penrose

So who is Roger Penrose? Is he just a nutty professor, out on a limb, or is he someone who knows what he is talking about? I learned that Roger Penrose is actually Sir Roger Penrose, having been knighted for his mathematical ability. With Steven Hawking, he worked out the implications of the General Theory of Relativity on cosmology and the “big bang”. Penrose is no nutty professor. He is a world class mathematician, a brilliant man.

Sir Roger Penrose

I wondered how he calculated such a large number. Was it just a combination of the other fine tuning arguments rolled into one? Is it a mysterious formulation, decipherable by few mortal minds? Or is it profound yet understandable? So, I found the book where he makes the calculation, ***The Emperor's New Mind***, and began reading with great interest. As it turns out, in a nutshell he is saying that out of all the possible initial entropy states of each particle in the universe, all were at an amazingly low entropy (highly ordered) state. He arrives at the number using relatively simple formulas and justifiable assumptions. He calculates the maximum possible entropy as the entropy when every subatomic particle of matter (protons and neutrons) in the universe are in one massive black hole. He then says the resulting entropy represents the entire “phase space” *available to the creator!* That’s right. The Creator. Here is a diagram from his book...

Fine Tuned Universe - Entropy



From The Emperor's New Mind, by Roger Penrose, Oxford University Press, New York, NY, 1989, p. 343.

Now, in spite of this diagram, Penrose is not a Christian, if even a Deist. He is still trying to come up with a natural explanation for the low entropy origin of the Universe, resorting at times to ideas that he refers to as crazy.

Let's move on to our Galactic Environment

Fine Tuned Universe

Our Galaxy – The Milky Way

- The Milky Way is the right kind of Galaxy, far enough from others to avoid catastrophe.

Colliding Galaxies



Here is a photo of two Galaxies colliding – not a happy place to be. Our Milky Way Galaxy is said to be safe of this danger of billions of years.

Elliptical Galaxy



This is an elliptical galaxy, which is thought to result when galaxies collide. This is also a dangerous place for life. So we live in the right kind of galaxy, in a relatively safe place in the universe.

Fine Tuned Universe

Our Galaxy – The Milky Way

- The Milky Way is the right kind of Galaxy
- Within our Galaxy, we are in the perfect spot, between spiral arms, for resources, safety and discovery!

Galactic Habitable Zone



The center of the galaxy is unsafe
too many stars too close together
radiation danger
supernova danger
this upsets orbits leading to an
unstable environment

The outer regions don't have enough heavy elements
needed for rocky planets

The region in which our solar system is located, in the habitable zone and between spiral arms is free from collision with other solar systems, safe from supernova explosions and gamma ray flare ups. As a suspicious coincidence, we also have a relatively open view of the universe, allowing us to study the creation and ponder the creator's works.

Fine Tuned Universe

Our Solar System

- The right size star (the Sun)

Most stars are too small to host planets which could support life.
Stars much bigger than earth burn too quickly for life to develop.

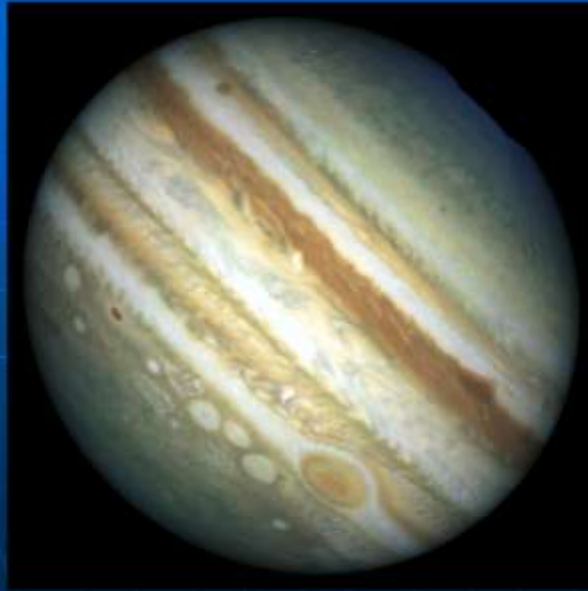
Fine Tuned Universe

Our Solar System

- The right size star (the Sun)
- Large planets orbiting outside of ours, "sweeping" interstellar debris

(next slide Jupiter)

Jupiter



Jupiter absorbs many blows from asteroids which otherwise would have long ago destroyed life on earth.

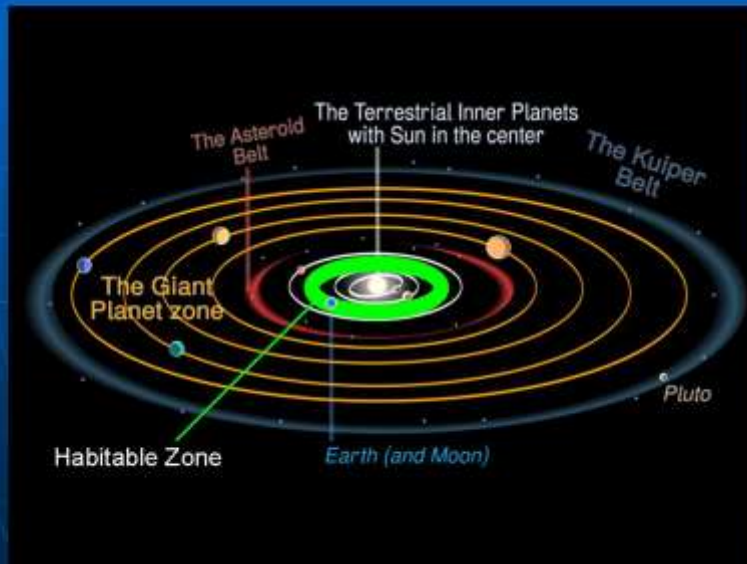
Fine Tuned Universe

Earth: A Privileged Planet

- Distance from Sun

Circumstellar [Solar] Habitable Zone, next slide

Circumstellar (or Solar) Habitable Zone



Astrobiologists have found that most places in the solar system are unfit for complex life. Note how narrow the green habitable zone is for our solar system.

Fine Tuned Universe

Earth: A Privileged Planet

- Distance from Sun
- Rate of Rotation

The 24 hour period of rotation provides somewhat stable day to night temperatures. Planets which do not rotate are swelteringly hot on the bright side and toe freezing cold on the dark side.

Fine Tuned Universe

Earth: A Privileged Planet

- Distance from Sun
- Rate of Rotation
- Angle of Tilt

The Earth is tilted 23 degrees relative to its orbit around the sun.

If the earth were not tilted at all, we would have no seasons and many areas would remain bone dry.

If the Earth were tilted more, like 60 degrees, the seasons would be so severe that much fewer organisms would survive.

Fine Tuned Universe

Earth: A Privileged Planet

- Distance from Sun
- Rate of Rotation
- Angle of Tilt
- Size of and distance to our Moon

The large moon, $\frac{1}{4}$ the mass of Earth

Stabilizes the tilt of the Earth

Provides tides

for the mixing of land and
ocean nutrients

to drive ocean currents

Eclipse allows

study of solar atmosphere,

confirmation of Theory of Relativity

- light from star bent as it passed near
the sun.

Fine Tuned Universe

Earth: A Privileged Planet

- Distance from Sun
- Rate of Rotation
- Angle of Tilt
- Size of and distance to our Moon
 - Tides
 - Eclipse allows study of solar atmosphere, light
- **Size of planet Earth**

Earth needs to be big enough to:

- maintain plate tectonics (carbon cycle)
- retain an atmosphere

If Earth were much bigger, like Jupiter:

- Large organisms like us could not survive the gravitational forces
- The planet much attract more asteroids, potentially wiping out life

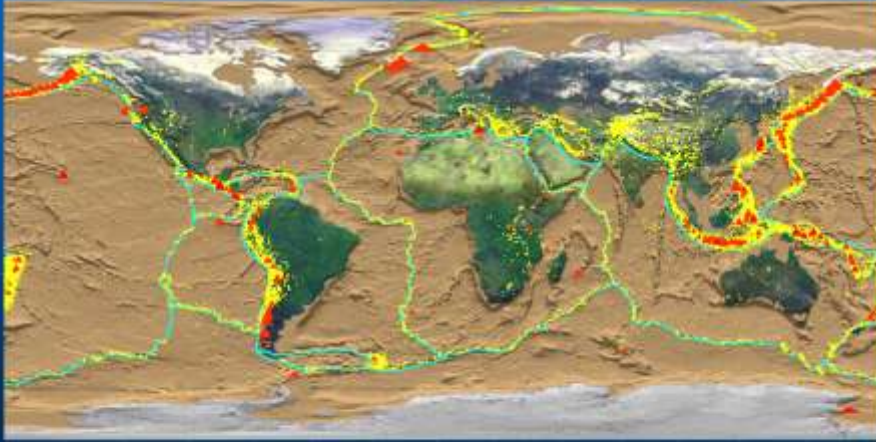
Fine Tuned Universe

Earth: A Privileged Planet

- Thickness of Crust & Amount of Heat Generated from Within

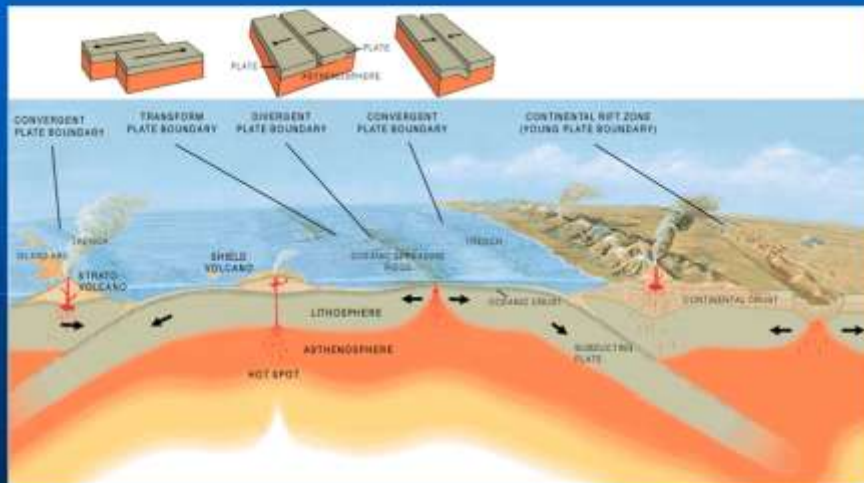
This hot inner core and cool crust results in what is called Plate Tectonics. (Image on next frame)

Moving Plates of Earth



Earth is the only planet in our Solar System with Plate Tectonics. The surface of the earth is broken up into large plates which move slowly around on a pool of viscous rock.

Plate Tectonics



These plates are driven by convection currents from the heat of radioactive decay of rock deep within the core of the Earth. The resulting mixing maintains the carbon balance between the biosphere, hydrosphere, atmosphere and other spheres, which is critical to a stable, life supporting environment. Again, Earth is the only planet we know of with plate tectonics.

Fine Tuned Universe

Earth: A Privileged Planet

- Thickness of Crust & Amount of Heat Generated from Within
- Oxygen rich atmosphere

Oxygen is important for metabolic processes. In chemical reactions, a great deal of energy is released when elements and compounds react with oxygen.

Bonus: Our clear, oxygen rich atmosphere allows study of universe.

Fine Tuned Universe

Earth: A Privileged Planet

- Thickness of Crust & Amount of Heat Generated from Within
- Oxygen rich atmosphere
- **Abundant Water**

Of course you knew this was coming. In fact, some talk as if all you need for life is water. Yeah, it's like a mix – just add water and presto! Life starts oozing out. Well, not exactly. Have any of you read my book, “Have You Done the Math?” It turns out that even when you have all the right ingredients and the perfect environment, you are still very far from achieving chemical evolution into life.

Anyway, Water has some very important properties:

- 1) It's an outstanding solvent. This provides a medium for chemical reactions and helps recycle compounds molecules for other uses.
- 2) It expands when it freezes. If it didn't, lakes would freeze from the bottom up, killing most creatures.
- 3) Water has a high latent heat (energy needed to change phase) which helps moderate the Earth's climate. Note that the triple point for water (the temperature and pressure where all three phases exist) is very near the mean temperature and pressure of Earth's surface, greatly aiding the climate moderating effect.
- 4) Water's very high surface tension is critical for capillary action in plants, soils, and circulatory systems.

Fine Tuned Universe

Earth: A Privileged Planet

- In all, at least 20 factors are needed
- The chance that a randomly discovered planet could support life is estimated by astro-biologists to be just 1 in 10^{15} !!

The factors compound each other so that the resulting chance is very small.

Does all this look like design?

Well, it probably is!

Fine Tuned Universe

"For the scientist who has lived by his faith in the power of reason, the story ends like a bad dream. He has scaled the mountains of ignorance; he is about to conquer the highest peak; as he pulls himself over the final rock, he is greeted by a band of theologians who have been there for centuries."

Robert Jastrow, God and the Astronomers (New York: Harper & Row, 1979), p.250

How do Atheists Respond?

How do Atheists Respond?

- The Anthropic Principal

Some people refer to the The Anthropic Principal, which says that the universe must be finely tuned or we wouldn't be here to talk about it. We are just lucky. I don't think this is very satisfying. It seems a bit weak, like a "cop out".

(share the firing squad illustration)

How do Atheists Respond?

- The Anthropic Principal
- The Multiverse

Others like the Multi-verse explanation. This is becoming very popular. They propose that there are an infinite number of parallel universes, and we just happen to live in the one that works!

How do Atheists Respond?

- The Anthropic Principal
- The Multiverse
 - “It seems that in order to abolish one unobservable God, it takes an infinite number of unobservable substitutes”
 - Physicist Stephen Barr,
Modern Physics and Ancient Faith, p. 157

How do Atheists Respond?

- The Anthropic Principal
- The Multiverse
 - “It seems that in order to abolish one unobservable God, it takes an infinite number of unobservable substitutes”
 - Occam’s Razor Says no way !!

When you have multiple possible explanations, the simplest is probably correct.
“Plurality should not be posited without necessity.”

Rolling dice example.

Practical Applications

- Be skeptical of the story modern science is telling you about origins

You are not getting the whole story from your professors.

Practical Applications

- Be skeptical of the story modern science is telling you about origins.
- Learn more about what God has done through His creation and you will be compelled to worship Him more.

Get some books on origins and read them!

Practical Applications

- Be skeptical of the story modern science is telling you about origins.
- Learn more about what God has done through His creation and you will be compelled to worship Him more.
- Consider starting an Intelligent Design study group at your University

Find some like minded students and share what you have learned.



Can you imagine the effect on our culture, if people everywhere really knew that they were lovingly created, not just a product of chance?

- **Would we not see our culture change in many beautiful ways?**
- **Would we not see a change in our movies, books and music?**
- **And as a people, see each life as valuable?**

Imagine !!

Thank you !!

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