

Something From Absolutely Nothing

How The Universe Exists

or

The Only Rule At a College Fraternity Party

Is That There Are No Rules

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Overview

Ok, *the* Big One...

The essential secret as to how the universe exists, is explained here. This includes an explanation as to how the physical constants of physics are finely tuned, to wit: it is claimed that if they differed by a tiny amount, we would not exist.

The key bit of the approach is that I propose, and justify by physical evidence and logic, new axioms of physics:

A.1 Empty space can and does randomly generate physical objects.

A.2 The laws of physics are caused by the existence of physical objects.

A.2 is trivially obvious and correct, and is explained in this paper in detail. The idea that they is something outside of physics that dictates its laws is entirely equivalent to a belief in a god. However, such a daft transcendental idea is promoted by quite weighty dudes in Physics, for example Lee Smolin.

An empty universe, is dah...now get get this, empty...

Introduction

Professor Lawrence Krauss Ph.D has wrote a book, "A Universe From Nothing". I haven't actually read it yet, but it is a book that attempts to explain just how the universe came into existence from known Quantum Mechanics. What I have seen from the reviews, extracts, and

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YouTube, is that it appears to do pretty good job. The however though...is that some believe that it is a bit of a cheat. It is claimed that Krauss's "nothing" is not really nothing. Again, I am not completely clear on Krauss's position, but it does appear to me, at the time of writing this paper, that Krauss's approach is based on the Quantum Vacuum as a starter, and that in my view, I agree that the Quantum Vacuum is not zero, zilch, absolutely no properties whatsoever.

The approach I present here eliminates that objection, and explains where the quantum vacuum actually comes from.

Of course, I may be entirely ignorant of the fact that the approach here is already well known, and that I, myself, live in an intellectual, er... ahmmm vacuum...

However... Its is abundantly clear, that there is stunning confusion by many mainstream, reputable Physicists as to reality. To clarify...

"A belief in a non-conscious 'god' is little better than a conscious god."

*That is, if there is a solid reason for a law of physics, other than random, then there must be a reason for **that** reason. Making the initial reason non-conscious does not prevent the problem simply being replaced one more step up stack of turtles.*

The only reason that does not require a reason to explain it, is if there is no reason at all for that reason. That is, the only rational explanation for existence, must be that it is random.

One key nonsensical idea that needs to be firmly nipped in the bud, but unfortunately, has bloomed into large dandelions, is the idea that "time" itself exists on its tod.

Listen up, time is simply the observation that objects *have changed their position relatively to other objects*. That's it. If nothing changed position, time would be stopped. If there were no objects, there would be no time.

So, time is essentially, $dt = f(dx)$, i.e. a delta time period is a function of an objects change in position. The simplest function f can be is:

$dt = dx/c$...where c is some magic constant relating to some magic process.....

If all physical processes depend physically on that magic constant, then it won't be surprising that detecting a change in that constant might well be futile...

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Physical laws, i.e. laws of physics are simply and only relations between physical objects such as mass-energy. Period. End of Story.

It is only physical laws that make statements and give any logical rational as to why actions of physical objects are restricted at all.

For example, $E=mv^2/2$, conservation of momentum or invariance of the speed of light. These physical laws *can only be defined with reference to physical objects such as mass-energy* A physical law such as $E=mc^2$ is clearly completely meaningless if there is no mass and no light to define and measure those terms.

In a truly empty universe, without physical objects, laws of physics simply do not exist. That is, "the only rule, is that there are no rules". Indeed, I am not the first to notice this. J. A. Wheeler (1983) has stated "there are no laws except the law that there are no laws", although I was not aware of this until after I started to write this paper.

To those that suggest otherwise, how do you expect to prove such an assertion? Even a transcendental to mass-energy god can not verify relations between mass-energy, if there is no mass-energy. The assumption of independent laws of physics from physics itself is simply nonsensical. Effectively, it is declaring another god. That is, something that transcends anything, based on faith.

The Big Question

The question that is probably most often asked with regard to creation from nothing ideas is:

"How will anything happen in an empty universe?"

This is the wrong question. Asking how anything should happen is just a prejudice created from existing in a universe with mass-energy in it, and possibly by reading too many books by physicists.

The question that actually needs addressing is:

"In an empty universe, what is it that can *prevent* anything from happening?"

In our universe, the only logical rational reason, or physical reason for denying anything can happen, is because some law actually prevents it happening. In an empty universe there can be no reason to deny anything.

All prior physical evidence and arguments for the conjecture that objects never appear from nothing are false. Quantum Mechanical physical measurements and theoretical analysis has concluded beyond reasonable doubt that a something exists in what was previously regarded classically as an empty vacuum. This means that whenever an object was prior witnessed to not be created, there was always a something near it!

In an empty universe, there are no laws of physics, and no logical arguments or principals of physics to prevent anything physically happening at all.

Fundamental Axioms Of Physics

The above arguments results in additional axioms to physics:

A.1 Empty space can and does randomly generate physical objects.

A.2 The laws of physics are caused by the existence of physical objects.

Physical objects are objects such as energy, mass, charge, photons or whatever one declares is physically real.

A.2 Forms a circular relation to itself. Laws of physics (physical objects) are only definable with reference to physical objects.

This circular nature of interaction of physical objects and the laws of physics that describe such interaction, logically results in a possible infinite number of ways that our existence in this particular universe could have been implemented. That is, circular relations between entities result in the notion that anything at all may be consistent within that loop. This is, essentially, equivalent to that produced by a divide by zero. That is, a divide by zero in an equation can also result in any output number.

Axiom 1 is justified by noting that extensive astronomical evidence and theory indicates almost overwhelmingly that that the universe began from a singularity.

Axiom 2 is justified by the simple fact that laws of physics such as $E=mv^2/2$ cannot exist if any of E, v or m do not exist.

Thus, it is argued from these axioms, that a true singularity exists for physical objects, such that it follows that:

Corollary:

C.3 Empty space represents a true physical singularity of random physical object generation.

These axioms are inferred from logic and physical results, and cannot be proved. They constitute examples of additional Kurt Gödel axioms to the axioms of physics.

Big And Micro Bangs

The key point here, is not to get stuck in the mud trying to imagine just how a something is generated from a nothing. Just accept the axiom, and examine whether or not its predictions agree with reality.

So, it is therefore reasonable to suggest that, in the beginning, there was nothing. This nothing become something simply because there was no physical reason for it not be something. Once there was something, physical laws were created from that something. This is the Big Bang.

The nice thing about nothing, is that there was quite a lot of it. It is therefore reasonable to suggest that lots and lots and lots of Big Bangs were created wherever there happened to be nothings. All of these Big Bangs had their something's that were different, and had their different laws of their something's. We just happen to live in one of those Big Bangs where the laws of its something's, allow us to exist. Hence, why the specific characteristics of mass-energy and the constants of physics appear to be tuned to our existence.

It is also suggested that many nothings, being quite a popular commodity, continue to exist in our Big Bang universe in little pockets of nothingness within something's. These nothings, spread about the universe and continue generating little something's, that are passed to other nothings, making those other nothings something's, and turning themselves back to nothings. It is suggested that this is the Quantum Vacuum as understood by current Quantum Mechanics. That is, the Quantum Vacuum are Micro Bangs, generated by the same mechanism as our Big Bang.

It is suggested that Quantum Mechanic's indeterminacy, is essentially due to empty space being a singularity.

Discussion

The assumptions 1 and 2, essentially, lead to the conclusion that Multiverses exist, without having any actual detailed theory such as String Theory to deduce such existence. The creation from nothing is a singularity, that rationally automatically generates lots of universes, i.e. lots of big bangs, with lots of micro bangs within those universes, with each universe having different laws of physics.

String Theory is argued to have 10^{500} possible universes, and many have criticized this as being an unscientific theory because of this, because it allows for pretty much anything. But hey, *that just might be the way things really are*

There are many attempts to try and reconcile General Relativity, and its inherent Big Bang singularity. The idea is to "correct" GR by constructing a Quantum Gravity theory. But hey, the singularity, *just might be the way things really are.*

Physics principles like the Higgs Field and Higgs bosons are direct confirmation that it is the general quantum vacuum that is creating the laws of physics. It is the Higgs boson that is attributed to creating the mass of some particles. This is de-facto stating that the properties of mass-energy objects are explicitly determined by other mass-energy objects, and not some sort of out of the system, global transcendental "laws of physics" principles, absolutely divorced from the reality it describes.

However, some potential laws of physics can be concluded to be mandatory for a viable universe by simple observations. Many of these can be derived based on symmetry considerations, such as momentum, energy etc. Some might only require simple logic.

For example, if conservation of energy did not apply in a particular universe, then that universe would either heat up to infinite temperature or cool to zero everywhere, given sufficient time.

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Conservation of momentum means that all things don't eventually grind to a halt, or all things don't jaunt off to infinite Teletubbie land.

Interestingly, conservation of energy would only have to apply on average to eliminate heat gain/loss, which is the case for Quantum Mechanics, where energy can disappear and reappear if the time is short enough.

Summary

In an empty universe, there are no laws of physics, therefore mass-energy can simply come into existence with corresponding laws of physics, for no reason at all. This same creation capability is suggested to not only have created the master Big Bang, but continually allows for the creation of the Quantum Vacuum, by the creation and annihilation of Micro Bangs.

Relevant link: [Universal Existence](#)

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