

The Universe, According to Jocax

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Abstract

We will address some of the main questions regarding our Universe, such as theories about its origins, types of Universes (Virtual Universe, Parallel Universes), and questions about its finiteness, purpose, eternity, and its end.

Keywords: Universe, Multiverse, Origin of the Universe, Virtual Universe, Parallel Universe, Origin of Universe, Bubble Universe, Big Bang, Definition of Time, Jocaxian Nothingness, Dark Energy, Hubble Law

Introduction

The Universe, although it is an ancient and primitive concept, is not always well understood. In its most rigorous and well-known form, it is defined as the set of everything that exists [17].

With this definition, we can conclude that the so-called "Parallel Universes" (which we will address in more detail later) should also be part of our Universe if they exist.

However, the force of usage and custom should prevail, and thus, when we are talking about 'Parallel Universes', we will call it the 'Multiverse', which is the true Universe – the set of everything that exists, including the hypothetical parallel universes. We will refer to our own Cosmos as the Universe within this context. Outside of this context, the term "Universe" will continue to be the set of everything that exists, including "Bubble Universes".

In our study, we need to understand some concepts that are extremely important to conduct a thorough analysis of the various existing theories. Let's delve into them.

Basic Concepts

Existence and Reality

Considering that the Universe is the set of everything that exists, the question arises: What is "existence"?

For example, if we consider that "Santa Claus," "Little Red Riding Hood," "Tooth Fairy," and other objects of our imagination do not actually exist in reality, meaning they are solely products of our imagination and our brain's processing, they might not necessarily have physical existence but only exist in our minds. This inspires a more precise definition of Existence: "*Something exists when the properties that define it are satisfied by reality*".

Thus, the problem of what it means to exist now becomes a question of what is real or not:

What is "reality"?

To distinguish the imaginary from the real, we can define reality as:

Reality is the set of all facts and events that occur or have occurred, regardless of any form of processing (whether cerebral, computational, etc.).

A seemingly ambiguous question might be: "Does a specific thought about 'X' exist? Is it real?"

Since thought is a set of electrochemical processes that generate a certain image, idea, or consciousness in our brain, we can say yes, a thought about 'X' exists because it satisfies its definition in reality. However, 'X' as a real being may not exist. Therefore, 'X' may not exist, but the thought of 'X' does.

Can we guarantee that what we observe or think exists or even that we ourselves exist? Was Descartes right?

The answer is NO. This is why we will make use of the "Existence Theorem."

The Existence Theorem

The Existence Theorem [01] establishes that there is some physical reality and, furthermore, there physically exists something that thinks, which, contrary to Descartes, may not necessarily be ourselves. Let's delve into the core of the theorem:

I observe or feel something.

If this observed something¹ is reality, the proof ends.

If not:

This something¹ observed is merely an interpretation (or imagination) of a being¹ and, in reality, it would not exist. However, this interpretation, *in itself*, of something¹, made by a supposed being¹, is also something².

If something² is reality, then our proof ends.

If not:

Something² is just the interpretation of a being², whose interpretation, in itself, is something³.

If something³ exists as reality, the proof ends.

If not: and so on.

In a generic form, we have:

If something(i) exists as reality, the proof ends.

If not:

Something(i) is merely an interpretation (or "imagination") of a being(i), whose interpretation, in itself, we shall call something(i+1).

If something(i+1) exists in reality, the proof ends.

And so on, in a manner that if the interpretation never corresponds to a real existence, we would have an infinite recursion, which would be illogical. This means that one of the "something(i)" must have real existence, i.e., it should not be an interpretation of a process.

And thus, we prove our existence theorem: "*I feel, therefore, something exists!*" In other words, there is some reality when one observes, thinks, or feels something, not necessarily our own.

The Time

Time is another extremely important concept to understand, especially when studying the origins of the Universe. We will soon see that we cannot have an infinitely eternal past, so:

The origin of the Universe must also be the origin of time.

Jocax defined time in a straightforward manner:

"Time is the quantity of events that have occurred in the Universe." [15].

In this way, the beginning of time is always taken to be the beginning of the Universe. If a theory suggests that there was time

before its beginning, then it would not be the true beginning, as time, in principle, could not start before the Universe. Otherwise, by the definition of time, there would be events occurring before this beginning.

There are two theorems that are important for the study of the origins of the Universe:

The Kalam Theorem

The Kalam Theorem no establishes that there was infinite time in the past.

This is because if, by absurdity, there were some event that had occurred in an infinitely past time, then our current present would take an infinite time to arrive from that past. But what does an infinite time to occur mean?

An infinite time for something to happen means it will never happen.

Thus, events that occurred at an infinitely past time would imply that we could not have our present, which is absurd because the present exists since we are in it. Therefore, we can conclude that there were no events in an infinitely past time, which means we can deduce another important corollary: time must necessarily have had a beginning.

Now that we have the main concepts and tools regarding time, we can critically analyze theories about the origins of the Universe.

Origin of the Universe

The problem of the origin of the Universe is probably the oldest philosophical question in human history. Countless hypotheses and theories have been created to try to address this issue. Let's examine the main ones:

The Religious Hypothesis

"...The oldest civilizations already had this existential question. And religions, concerned with providing answers to their faithful, could not help but formulate their responses. 'How did everything come into being? What is the origin of the planet, of things, of man? These are the first questions that man asks himself. Whether indigenous, African, Eastern, large or small, new or old, all religions will have answers to these questions..." [08].

We can say that this question probably even encouraged the emergence of various religions in the distant past, meaning the emergence of deity(ies) may be due to an answer to this fundamental question.

The religious approach to the origin of the Universe is resolved through an all-powerful being known as "God." This God would have the power to create the Universe, and according to various religions, that's exactly what happened.

The religious solution, through a creator called God, is unsatisfactory for four major reasons:

1. It resorts to a more complex hypothesis (God) than the original problem it seeks to elucidate. This violates Occam's Razor [04].
2. No clear, indisputable evidence of God's existence has been presented.

3. If God existed, being something complex, there would also need to be a logical answer to the origin of His existence, which is not provided.
4. The idea of God, particularly the Christian one, presents numerous logical contradictions (see the 'Jocaxian blue devil' [11]), rendering this hypothesis invalid as a solution.

The scientific solutions, which we will explore some of shortly, are better than the religious solution, but they are still not entirely satisfactory.

The Steady-State Theory

This theory, known as the Steady-State Cosmology, "was formulated in 1948 by Fred Hoyle, Thomas Gold, and Hermann Bondi as an alternative to the Big Bang model. It describes a universe that expands, and in the growing intervals between galaxies, new matter is created, maintaining a constant density of matter in the universe. Thus, the universe would always preserve the same density at all times" [18].

This theory is very similar to the Quasi-Steady-State Universe theory. In both, the Universe has no beginning in time:

"In the Steady-State Theory, the universe is conceived as being eternal, without a specific point of origin. Instead, the theory suggests that the universe has always existed and will continue to exist indefinitely..." [ChatGPT].

Since this theory contradicts the Kalam Theorem by positing an eternal and infinite universe in the past, it can also be considered invalid.

The Oscillating Universe Theory

"The oscillating universe (or oscillatory) is a cosmological model initially proposed as a hypothesis by Richard Tolman, in which the universe undergoes an infinite series of oscillations, each beginning with a 'Big Bang' and ending with a 'Big Crunch.' Shortly after the Big Bang, the universe expands for a time before the gravitational attraction of matter produces an approach to a collapse, followed by a 'Big Bounce'..." [19].

In this model, there is also no beginning of the process, which implies an infinite past, making it unfeasible. However, if the theory is altered to include a *first* Big Bang, followed by endless cycles in the future, it could, in principle, become a viable theory, although it still lacks answers to the fundamental questions about its origins: How did the first Big Bang come about?

The Big Bang Theory

This is the most widely accepted theory by the current scientific community.

"...Father Georges Lemaître proposed what became known as the Big Bang theory of the origin of the universe, although he referred to it as the 'hypothesis of the primeval atom'... After Edwin Hubble discovered in 1929 that the distances of distant galaxies were generally proportional to their redshifts, as suggested by Lemaître in 1927. This observation was taken to indicate that all very distant galaxies and clusters of galaxies have an apparent velocity directly away from our point of view: the farther away, the greater the apparent velocity..." [06].

It was discovered that galaxies seem to be moving away from each other, and the farther they are, the faster this separation is (this is the famous Hubble's Law [26]).

If we were to reverse time, like in a movie, we would see galaxies getting closer to each other until, after about 13.8 billion years (the age of the universe), they would all be concentrated in a very small, extremely hot, and dense region (some call this point a 'singularity,' and if we played the "movie" forward from this point, we would see the universe expanding. This is all that science currently has to say about the Big Bang.

However, some theorists also argue, without evidence, that time and matter themselves began at this initial point, and therefore, this would be the beginning of the Universe and time. But this is just speculation that, for lack of a better theory, has become a kind of non-religious dogma of the origin of the Universe. We can call it the "Religious Big Bang."

In summary, the Big Bang theory states that our Cosmos began from an "infinitely" dense and hot point that rapidly expanded and cooled as it expanded. This cooling allowed the formation of atoms, stars, galaxies, planets, and so on.

In the case of the Big Bang, science does not have the elements to say that there were no events before this initial expansion, but those who believe in the Religious Big Bang argue that time originated at this moment.

In this scientific (non-religious) model, some questions still have no answers:

- How did this point of extremely high density, the origin of the Big Bang, appear?
- Did time exist before the expansion?
- Why did this 'point' expand?
- Did the laws of physics already exist at the beginning? If not, how were they created?

The lack of answers to these questions leaves much to be desired for us to accept this theory as the real origin of the Universe.

Big Bang in Check

In 2013, this author published an idea with the title: "Dark Energy as an Effect of Gravitational Field" [14]. Over time, it was refined and, in 2019, it was published with mathematical foundations under the title "Derivation of the Hubble Law and the End of the Dark Elements" [13]. In 2023, this idea gained considerable attention, at least in the rankings of major search engines, where it held the top spot for many weeks when searching for "Derivation Hubble." This seems like a promising sign that the theory has merit.

If this theory gains traction, that is, if it passes the numerous tests that will hopefully be conducted, the Big Bang theory will face serious challenges. Here's the explanation:

This new theory asserts that the Hubble Law, which shows the accelerated separation of galaxies, is NOT due to "dark energy," as is currently supposed. In fact, this "dark energy" would not exist. Instead, what causes galaxies to appear to be moving away is the contraction of our space due to various gravitational fields.

According to this theory, we and everything else within the gravitational field are very slowly contracting (at a rate of 50% every 10 billion years or about 7% every 1 billion years). This makes us see distant galaxies moving away because our measurement standards, like the "meter," are decreasing along with us. The theory does not necessarily claim that galaxies are not moving away, but it argues that they are not accelerating in their expansion.

It could happen that, taking this theory as correct and making precise calculations, it shows that galaxies are not even moving away at all, and consequently, this evidence for the Big Bang theory would be invalidated. This would undermine the entire Big Bang theory. The future will tell.

In Summary

Although it has many gaps, the Big Bang theory is superior to religious theories because it doesn't resort to hypotheses more complex than what it seeks to explain and still provides substantial factual evidence to support it.

The "Jocaxian Nothingness Theory," which we will explore next, is a philosophical theory but is more robust and comprehensive, attempting to solve all the problems of previous theories.

The "Jocaxian's Nothingness" Theory

The "Jocaxian Nothingness" [09] is the name of the philosophical theory I consider the most promising for the origin of the Universe. Here's a summary of the theory:

[...] The "Jocaxian Nothingness" (JN) is absolute Nothing, devoid not only of physical elements and physical laws but also of any kind of rules. The JN is different from the Nothing that is usually thought of. The Nothing that is typically conceived, which we can call "Trivial Nothing" to distinguish it from the JN, is something in which nothing can happen, i.e., "Trivial Nothing" follows a rule: "Nothing can happen." Thus, the "Trivial Nothing" that people think of when they talk about "nothing" is not the simplest form of Nothing possible; it has a rule.

Jocax defined the JN as something that:

1. Has no physical elements of any kind (particles, energy, space, fields, etc.).
2. Has no laws or rules.
- 3.

Because it is devoid of any elements, the "JN" does not presuppose the existence of anything, and thus, by "Occam's Razor" [04], it must be the simplest state of nature possible and, therefore, requires no explanation for its origin. The "Jocaxian Nothingness," of course, does not currently exist, but it may have existed in a distant past. In other words, the JN would be the Universe itself – defined as the set of everything that exists – in its most minimal state, and thus the Universe (as an JN) has always existed.

The "JN," like everything else, must follow the tautology: "Can or Cannot Happen." This tautology, an absolute logical truth, as we will see, has semantic value in the "JN": It allows (or not) things to happen.

We cannot assert that in a Jocaxian nothingness, things must

necessarily occur. It's possible that nothing happens, that is, the JN could persist indefinitely without changing from its initial state without anything happening. However, there is a possibility that phenomena can arise from this absolute nothing. This conclusion logically follows from the analysis of a premiseless system: Since the JN, by definition, has no laws, it means it is a PREMISELESS system.

In a premiseless system, we cannot conclude that something cannot happen. There are no laws that allow us to draw this conclusion. In other words, there is no prohibition that something can happen. If there is no prohibition that something can happen, then eventually something can happen. In other words, tautologies remain true in a premiseless system: "Something happens or doesn't happen." If, eventually, something happens, this something should not obey laws and therefore would be entirely random and unpredictable..."] [09].

In the article, you can see how the Universe, initially being an JN, created the laws of physics and why they are consistent and logical. Additionally, you can observe that time began with the first randomization generated by the JN, called the first schizo-creation.

The End of the Jocaxian Nothingness?

If the JN began randomizing schizo-creations (SC), we might wonder:

Why do we not see more schizo-creations being produced by the JN in our current universe? Did the JN stop producing them?

Possible reasons for this could be:

- After numerous schizo-creations (including the Laws), the JN may have randomly generated the following and final schizo-creation, the law: "Nothing more can be generated." If this indeed happened, the Universe would continue with what was created up to this final law. This would explain why we no longer perceive schizo-creations (SC).
- The JN might still be creating schizo-creations but restricted to "parallel universes." In other words, an infinity of bubble universes may still be created, but in dimensions different from our own. Thus, we would not see these SC because they exist in another dimensional domain.
- Within the JN hypothesis of creating SC-Laws that "regulate" the JN itself, numerous hypotheses can be raised, such as SCs not being able to generate anything in a particular region of the Universe.

Schizo-creations are entirely random, and therefore, all possibilities can be imagined and are allowed. For example, an SC-Law of the type: "The next SC can only occur after event 'X' happens in the Universe," or "after 'Y' years have passed" (in this case, we could still have surprises!).

Compatibilities

It's important to note that the JN can be compatible with various other theories about the origin of the Universe. That is, the JN could be the initial driving force that allows other theories to be compatible with the origin of time. In this way:

- The JN could have given rise to the Big Bang.
- The JN could have given rise to a Pulsating Universe.
- The JN could have given rise to a Steady-State Universe.

- Remarkably, although I may not believe in this possibility, the JN could even have given rise to some concept of God!

Some CoJNectures and Hypotheses

Next, we will analyze some ideas and coJNectures about our universe that, in fact, are not in conflict with the theory or theories about its origin. From the realization that our Universe could, in fact, be a Simulated Universe, a simulation that could be taking place in some meta-computer, arises the Hypothesis of the "Virtual Universe."

Virtual Universe

How can we be certain that we live, or that any reality exists, for that matter? In reality, we cannot even be sure that our own "reality" exists outside of some form of processing! However, we can state, according to the "Theorem of Existence" [01], that there is indeed some physical reality that does not depend on any form of mental or computational processing.

A valid question is whether what we perceive as our Universe is, in fact, a physical reality or could be a simulation being executed in some supercomputer located in some "meta-universe" (Meta-Computer), and what we perceive as our reality might not exist physically. This concept is reminiscent of René Descartes' "Evil Genius" [03], and this coJNecture is indeed possible, with some evidence that our universe could be virtual. Let's examine some of these pieces of evidence:

- The laws of physics that govern our Universe follow a completely mathematical pattern, which would be expected for a Universe being simulated by algorithms [02].
- Since the computer has finite precision, the physics of particles in this universe should be quantized (as in the case of our "Quantum Mechanics").
- There must be a maximum speed, in this case, the speed of light, because processing power is finite.
- The laws governing the physical reality of this Universe would be stored in the memory of the meta-computer. Currently, nobody imagines where they are "coded."

Although this hypothesis of the Virtual Universe could, in theory, be true, it is much more likely that it is not. Here's why:

First, because the actual "Meta-Universe" in which the simulator of our 'reality' is located would also need an explanation of its origin. In other words, the problem of the origin of the "meta-universe" and how the meta-computer was created would still remain.

Second, we are trying to solve a complicated problem by appealing to an even more complicated one to solve since the "meta-universe" would need to be even more complex.

complex and larger than our own Universe, thus violating Occam's Razor [04] and Jocax's Razor [05]. Therefore, we can argue that, although the Hypothesis of the "Virtual Universe" is possible, it is more likely not. There is no solid or conclusive evidence that we are in a simulation, and furthermore, the complexity of the computer required to simulate a universe would be much greater than the Universe being simulated. So, by Occam's Razor and Jocax's Razor, we should dismiss this hypothesis unless, of course, new evidence eventually emerges.

An important point to note is that if our Universe is indeed Virtual, and therefore does not exist in physical reality, this does not imply that it or the things being simulated are unimportant. Shutting down a Universe full of "Life" can be as tragic as if it existed in physical reality.

Another interesting point to observe is that even if the Universe is Virtual, it can generate real things, such as the feelings of the virtual beings contained within. Feelings are real, unless this proves that our Universe cannot be virtual. The Jocaxian Paradox [27] may suggest that if there are feelings in the Universe, then perhaps this implies that our Universe must indeed be Real.

The Multiverse

The Multiverse should, in reality, be called the Universe since it would encompass everything that exists. However, as the term has become popularly used to distinguish other cosmos from our own, we will also use it in this topic. Therefore, the term "multiverse" is used to distinguish the set of all the cosmos beyond our own cosmos, of which, if they exist, we cannot have access or information.

Many-Worlds Interpretation

One of the hypotheses, although not widely accepted, about the emergence of these other 'universes' that make up the multiverse is through the so-called "Many-Worlds Interpretation" of quantum physics, which suggests that for every possibility that did not happen in our physical world, a new universe would be created to accommodate it:

"The many-worlds interpretation of quantum physics, which proposed an alternative to the collapse of the wave function. Each non-deterministic event effectively 'splits' the world into two branches." [15].

Schizo-Creations

Another possibility for a multiverse, which I believe to be more plausible, would be a possible natural consequence of the randomizations produced by the "Jocaxian Nothingness" (JN). Thus, each "parallel universe" (also called a "Bubble Universe") that might exist would be one of the schizo-creations of JN.

It is possible, though I consider it unlikely, that within the JN hypothesis, these "Bubble Universes" may still be created. Since they exist in another dimension, we will never know or have access to them.

Finiteness of the Universe

Is the Universe finite or infinite?

If we consider that matter is finite, there are only two possibilities: either the Universe started as infinite, or it is finite. This is because for something that began as finite to expand to infinity would take an infinite amount of time. But an infinite amount of time for something to happen is never! Therefore, for the Universe to be infinite, it would have to start as infinite. However, all theories about the origin of the Universe, even if they could be wrong, do not suggest an infinite space in their origin. Therefore, we can probably conclude that the Universe is finite.

Laws of Physics

Where are the "Laws of Physics" that govern the Universe? In the theory of the "Virtual Universe," this question has a simple answer: in the memory of the Meta-Computer. But in a real universe, this question still remains unanswered. Perhaps in some "dimension of the laws of physics" where they are encoded. But this is still a mystery.

The Destropic Principle

It is very common to encounter the question: If life is so difficult to create, and furthermore, the conditions of the laws of physics need to be so precisely synchronized for life to occur, wouldn't this be strong evidence that the Universe was designed for life to emerge? Many argue that natural selection would be incapable of developing beings with consciousness and that it is more likely that there is a being directing the evolution of life to bring us to where we are. This is the hypothesis of "Intelligent Design" [20].

Furthermore, it is argued that to bring about life, a perfect and exact synchronization in the laws of physics is necessary because even a small, minuscule difference in one of the physical constants, for example, would not allow molecules to be stable long enough for life to emerge. This argument is known as the "Anthropic Principle."

Both "Intelligent Design" and the "Anthropic Principle" tend to explain some complex problems by proposing an even more complex solution: the origin of God. Therefore, if we used the same line of argumentation, we would have to invoke another being, even more powerful and intelligent, to explain God Himself: The Father of God - capable of creating an all-powerful God who would create the laws of physics and nurture life through them. But the "Father of God" also lacks explanations, so, in the same way, we would invoke the "Grandfather of God" ad infinitum.

However, this is not necessary since the evolution of life is more than explained and abundantly supported by Darwin's theory and its modern version, Neo-Darwinism.

Regarding the Anthropic Principle, there are at least two more possible approaches that do not involve a deity:

1. **Multiverse with Different Laws of Physics:** One approach is to consider the question valid, and in this case, the Multiverse could potentially generate endless "Bubble Universes," each with different laws of physics, with one of them being our own.

We can also analyze the issue and realize that it is, in fact, a fallacy. The Anthropic Principle can be refuted by the Destropic Principle [22]:

1. **Destropic Principle:** To summarize, the destropic principle establishes that the importance of life or consciousness is only relevant to beings that have life or consciousness. For the Universe, it doesn't matter whether the laws of physics allow for life or not. The degree of importance for a universe without life but filled with shimmering orbs or green goo is the same as a universe with consciousness and living beings: None. It cannot be said that a universe with physical laws that permit life is somehow more important or better than a universe that allows for multi-colored diamonds. In other words,

The Anthropic Principle is, in fact, a false question.

Purpose of the Universe

Many people question what the purpose of life and the Universe might be. This author adopts the "Jocaxian Nothingness" as the theory that best explains the Origin of the Universe. Therefore, it can be understood that the Universe was not created with any specific purpose. Everything was created randomly, and our Universe is the product of this purposeless chaos.

HOWEVER, we, as conscious beings, can assign a purpose to it. I believe that the best purpose we can give to the Universe is the Maximization of Universal Happiness. This means working to ensure that the Universe provides the maximum happiness to all sentient beings (those capable of feeling) who inhabit or will inhabit this Universe.

To achieve this, we must look beyond our own interests and think about happiness as a whole, not just the happiness of the human species. For this purpose, there is the "Felicitax" project [23], which plans to construct a being, identified by the codename DeuX or GodX, that:

- Has, as its primary objective, the maximization of Universal happiness.
- Can also increase this happiness by increasing its own happiness.
- Can build clones or improved versions of itself with this purpose.

GodX could be constructed through genetic engineering or with the use of chips. In the latter case, it is especially important to have some answer to what I consider "The Most Important Question in the Universe":

What is Feeling?

Answering this question could help in the more objective and effective construction of GodX.

It is possible that many centuries or millennia may pass before the first prototype of GodX is built. It is also possible that another planet has already reached this stage.

The End of the Universe

Strictly speaking, once the Universe is created and exists, it will not have an end. It will transform.

If we consider our Cosmos as the Universe, disregarding possible other "Bubble Universes," the theory of its "end" most likely compatible with our physics would be the degeneration of the Universe due to entropy, also known as the "Heat Death of the Universe" [24].

["...In the theory of "Heat Death," the Universe continues to expand, but ultimately reaches a state of thermodynamic equilibrium where entropy (disorder) reaches its maximum value. This leads to a state of maximum entropy, where energy can no longer be converted into useful work, and the Universe becomes uniform, cold, and devoid of structure.

This scenario is related to the second law of thermodynamics, which states that entropy tends to increase over time in a

closed system. Therefore, as the Universe continues to expand and evolve, entropy will gradually increase until it reaches its maximum value, leading to "Heat Death." [ChatGPT].

However, there might still be a glimmer of hope:

If my theory of the "Diminishing Universe" [25] is true, it is possible that, in a distant future, a kind of "Big Crunch" followed by a "Big Bang" may occur. This would be the theory of the Oscillating Universe but with a starting point in time.

In this scenario, if some civilization has the technology to escape the "Crunch," they might be able to save themselves from it by waiting for the new "Bang" at a safe distance from the core of the Universe, which will explode. But, of course, this is just speculation for the sake of a more optimistic ending.

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