

Expanding Awareness: A New Cosmology

The Thought Experiment that Shatters Modern Cosmology



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The Night Dad Explained the Universe

Before the beginning, there was a magical workshop where a father and his son worked together. But this wasn't just any father and son. The Father was the Creator of all things, and His Son was learning how to shape the universe. Their workshop was a glowing, endless space where they could make anything their heart's desired.

The Son loved learning from His Father. Every time He tried something new, He got a little better, even when things didn't turn out quite right. His Father always watched, smiling, and said, "Mistakes teach and become successes."

One day, the Son rushed into the workshop, holding something amazing. It was a shimmering, glowing sphere that sparkled like a million tiny rainbows. “Father! Look!” He said, his voice full of excitement. “I made it! It’s perfect! It has the same amount of matter and antimatter, perfectly balanced. Nothing like this has ever existed!”



The Father smiled—a big, warm smile that only someone who truly loves you can give. He took the glowing sphere and turned it gently in His hands. “It’s beautiful,” He said. “An outstanding achievement. But now, shall we test it?”

“Test it?” The Son asked, tilting His head. “What do you mean?”

“Well,” the Father explained, “matter and antimatter are like two dancers who always move together. But when they touch, they make everything disappear. The only reason this sphere hasn’t vanished yet is because I’m keeping them apart with my special power. If I let go, and your creation is truly perfect, it will disappear completely—like it was never here.”

The Son’s eyes grew wide. “But, Father, it took me so long to make this. You want me to destroy it?”

The Father knelt down and placed a hand on His Son's shoulder. "Creating isn't about keeping things forever, My Son. It's about the creative process and what comes next. Sometimes, letting go can lead to something even more magical."

The Son thought about this for a moment. He loved His orb, but He trusted His Father. So, with a deep breath, He said, "Okay, Father. I'm ready."



The Father smiled and released His power. In an instant, the sphere flashed so brightly that it lit up the entire workshop. Then—poof—it was gone. For a moment, there was nothing but silence.

The Son looked around, his heart sinking. "It didn't work," He said sadly. "It wasn't perfect after all."

But the Father's eyes twinkled with joy. "Look closer," He said.

The Son squinted into the darkness, and suddenly, He saw tiny, glowing specks swirling where the sphere had been. They sparkled and danced, like fireflies in the night. And as He watched, those specks grew into stars, galaxies, and planets. Some of the planets were covered in oceans and forests. On others, tiny beings looked up at the stars with wonder, marveling at their beauty.

“Do you see?” the Father said, His voice warm and proud. “Those little imperfections in your creation became the seeds for something even greater. Every star, every world, every amazing thing those beings experience—it all came from what you at first clutched and then judged a failure.”

The Son’s eyes lit up as He understood. His creation wasn’t a failure—he mastered a challenging process, learned a valuable lesson, and it became the seed of something extraordinary.

And that’s why, even today, when we look up at the night sky, we’re really looking at the magic of that workshop. Every twinkling star, every beautiful galaxy, every shooting comet—it’s all part of the wonderful story of a Creator who showed us that a child’s Love can turn anything into something amazing.



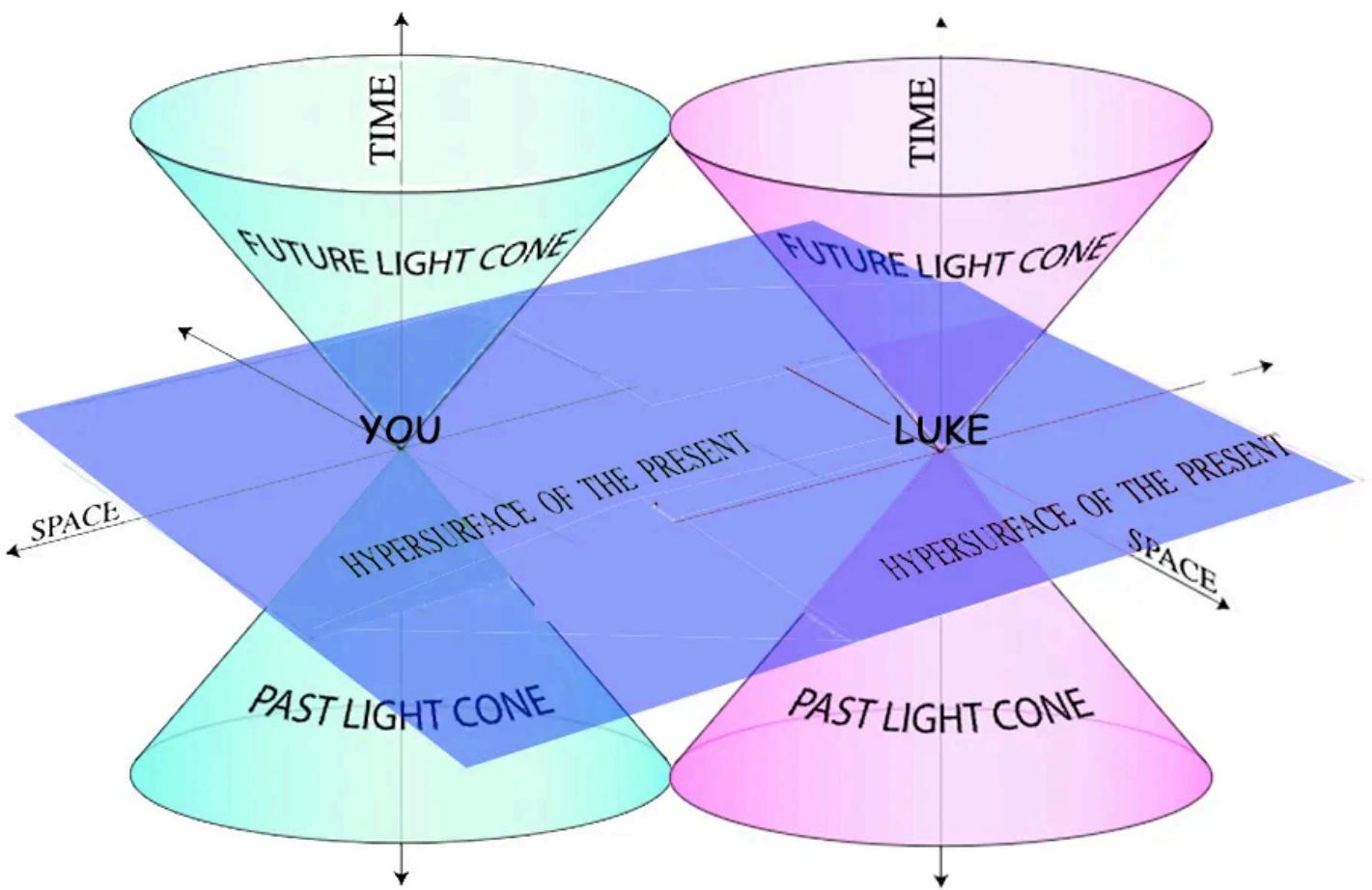
Feel free to share that bedtime story.



Edge Observer: The Thought Experiment that Shatters Modern Cosmology

Imagine we have a friend named Luke who lives in a galaxy far, far away. When we gaze toward him, we see a nascent galaxy, a baby picture taken a few billion years after the beginning. We don't observe the advanced civilization that exists in his Now. When Luke looks back our way, he also sees a cosmic nursery that became our galaxy, our star, our home, our reality, our Now.

In the span between us, we are looking at the same universe, the same stars, the same collections of matter and light, the same stuff, the same Substrate. There is one Substrate, one physical universe, [one ontological reality](#), viewed from two perspectives.



Both observers experience a personal Now, the moment with the maximum view of history and information is available, and the only moment when action takes place. At every point in space, information travels at the speed of light through gravity and radiation. When an observer looks at long distances, they are not seeing those objects as they are in their Now. Instead, the observer sees an old snapshot from very long ago.

Have you ever looked at Andromeda with a mirrored telescope and had the actual photons emitted 2 billion years ago hit your retina? It's an indelible experience when you understand that you are directly reading a 2 billion year old news report as it arrives in our Now.



4X Video Games

[4X video games](#) (Explore, Expand, Exploit, Exterminate) have a storied history in gaming, presenting a scenario where the player is located on a large, pre-existing terrain map. His place in the Universe is established at random as is the terrain.

Whatever the player is able to ultimately learn about his external environment is already determined up-front when the map was generated. Not in a deterministic way from some set of initial conditions modeled in an imaginary big bang. This isn't an exercise in mechanics.

The journey is one of discovery, learning, engaging in a process toward Emerging Awareness, complete understanding of the playing field and mastery over it's pieces and parts. The [military's Holy Grail](#).

The player starts with line of sight, but over time explores his environment, exploiting resources to help him survive and prosper, learn quicker, increase his Awareness. It's [Sid Meier's Civilization](#), [Fortnite](#), and [Minecraft](#), but particularly Minecraft and the [Unreal Engine](#).

The Big Bang's creation event was a zero point where time, space, energy, matter, all came into existence and spread out rapidly. Or at least that is the narrative people constructed to fit the data. It's fiction, a narrative, not necessarily a representation of "what is."

What if reality were more like a 4X video game? Just as a player in a 4X game gradually uncovers the map, our awareness of the universe expands as light and gravitational waves from distant regions reach us, revealing what was already there.

What's A 4X Game, And Why Do They Rule?



Redefining the Multiverse

At this point in the thought experiment, we can already establish that the multiverse of sorts exists. Everyone's Now is separated by the two-way communication barrier between any two points in space. An effect we don't perceive here on earth, but NASA must contend with this problem on its deep space missions that require a report, and return of instructions, with round trips taking many hours.

The more distant two places are in the Matrix, the more challenging two-way communication becomes. When "Hello. How are you? I am fine." Takes a 20 billion year round trip, then passing notes is really tough.



This barrier of communication of information is immutable, created by the speed of light, the ultimate speed limit.

There is no spacetime. There is only space with stuff in it.

Time is a mediator of information, and we see this effect every time we look at a deep field photograph and see the documentation of every phase of youth in those most distant galaxies.

With that perspective, it becomes clear a multiverse of isolated communication bubbles exist in plain sight.

Unless we discover a [Star Trek like subspace communication](#) that allows faster-than-light transmission of data across vast distances, even intergalactic distances are effectively communication isolated. In short, even Alpha Centauri would be its own Now. And perhaps that's a good thing, a barrier keeping hostile aliens at bay.

The fanciful idea of completely isolated sandboxes of independent and completely isolated universes already exists in the world of computer games, but do these completely isolated universes exist in some kind of God Now that only a supreme

Being knows about? Provide a way to test that hypothesis, and perhaps the idea warrants exploring, but for now, it lies firmly in the realm of fantasy.

The Multiverse Hypothesis Explained by Neil deGrasse Tyson



For Giggles

[The Universe is 13.5 Billion years old](#) (close enough). Imagine a Now emerging in the Substrate medium of a 4X video game 15 Billion light years away. When you look up in the night sky and he looks up into the night sky, you share absolutely no data. our awarenesses haven't touched yet. And they won't have the faintest contact until year 15 Billion. Is that sandbox isolated enough for you?

Remember, you are now in the realm of fantasy and speculation beyond the bounds of data. So lets increase that distance to 100 Billion light years. The substrate is only bounded by imaginary mathematics, so you can make this distance as large as you want. At 100 Billion years distant, they can enact the worst apocalypse possible, and it will be a very, very long time before I hear anything about it.

Will someone build an apocalyptic Now too close to us? I won't lose any sleep. If we can't see it now, we're safe for another 13.5 billion years.



My Now, our Now, God's Now

You and I share the same now because communication locally is essentially instantaneous. But the moment we get separated by distance, the relativistic effects slow communication and isolate the parties.

Luke, our friend from far, far away has a Now different than ours; we can't know his Now, and he can't know ours. There is no method for realtime communication to bridge that gap. It will be a slow, long-distance relationship. Better call [Casey Kasem](#).

We can conceive of a God Now, a universal, directly observable Now from all possible perspectives. Unfortunately, as sentient beings trapped in our own Now, the universal God Now is unknowable, an eternal mystery we can speculate about, infer about parts of it, but we can't possibly know it, not in an observational way. It's in the fantasy realm with the afterlife fiction stories we clutch so tightly.



Does God's Time Count?

Let's explore this tangent. Some will want to know why the universe started when it did. What was the first mover, the reason we exist at all?

There is a limit to how far information has traveled to reach us, and beyond that limit, we have no data. The chain of cause and effect demands a start, someone to turn on the power for the simulation.

But from the perspective of those in the simulation, they have no access to God's Now, so if time were to pass in God's time and not in ours, then we would have no way to know and to measure. Perhaps [9,192,631,770 oscillations of the cesium atom's radiation](#) occurred in God's workshop, but if he stops all motion in ours, time would stand still, and we wouldn't be aware of it, our lives suspended in the purgatory of traveling at the speed of light to and from God's Workshop. God's version of freezing us in [Carbonite](#). One very powerful matter-energy transporter right out of Star Trek.

What would we see at the speed of light?



Imagine God created our Universe, as field of potential, like the imaginary world of the Matrix. Then, God spent a billion years in his workshop considering whether or not he should launch his project. He finally decides to topple the first domino and begins the [matter-antimatter explosion](#) to eliminate the pieces and parts he didn't need. He gathered his popcorn and began watching the show.

A billion years pass, and God becomes concerned that the universe is not developing correctly, so he stops time for another billion years to check his parameters back in the workshop. Then he restarts the clock for another billion years.

If you follow me so far, the Universe is 4 billion years old in God's time, and 2 billion years old in our Now. So how old is the Universe?

If you answer 4 billion years because that's "reality" then I would ask you to prove your claim because the evidence I am looking at is that the universe is 2 billion years old.

Sometimes, when a concept is particularly mind-bending, and it's really hard to visualize, that means it's just wrong.



There is no God Time. There is only what information comes to us within our simulation and how we process it.

Simulation Theory

Are we living in a simulated reality? Absolutely. Yes we are.

What? Did I just jump the shark? Not at all. Consider that you are a walking simulator. Your brain continually simulates the outside world and presents it to you as if it were real. Does the source of those inputs really matter?

Why would you care if a hologram cries? (DS9: Shadowplay)



And while we're asking big questions, why would you worry about death? When your simulation is over, you won't know it, and it won't bother you.

The real question is about matter. Is the stuff we see, the substrate of shared reality real?

Is the stuff out there that we simulate into our minds actually there or is it Matrix bits and bytes? They are two fundamentally different questions.

The answer is simple. I know I live in my own simulation. As for the stuff out there, I must carry on as if it is real because I'm subject to the simulations rules whether I believe in its reality or not. Philip K Dick noted "Reality is that which, when you stop believing in it, doesn't go away."

Storytellers come up with much better narratives.

Neil deGrasse Tyson Explains the Simulation Hypothesis



Considering the vast distances and relative isolation, the Universe seems empty and alone. But remember that communication within our local Now is instantaneous, allowing for a shared reality.

The Collective Now

Humans form a Nexus, a group of intelligent beings who live close enough together to share a coherent narrative about Now. Something essentially impossible outside the distance of a typical solar system. In essence, you can think of solar systems as collective Now incubators. And since we all use the same simulated reality, think how handy it is for data compression not to create an entire universe for each Now collective.

Are Dyson Spheres Actually Possible?



Freeman Dyson didn't go far enough. We don't just need the energy of a star, we need the collective Now of as many interconnected beings as possible. The [Dyson Sphere](#) needs to be bigger. A lot bigger. It should encompass the entire solar system, with those living on a fringe in a fractured Now.

We are becoming the Borg, with a kinder and gentler assimilation process I trust. This won't hurt a bit.



The Now can't reasonably get much larger than a solar system due to communication delays, but that allows the creation of an endless variety of Nows just like ours, and an endless array of imaginary [Dyson Sphere](#) Nows all over the Matrix of Substrate, the real cosmos.

Doesn't that give us a special duty to humanity and our collective intelligence and will? I'll await the philosophers to opine on that one.

When I think about a Human Nexus, a warm feeling of correctness and connection arises. Does it for you?



Consciousness is the Intersection of the Universe and the Now

This cosmology puts consciousness at the center of existence. Our subjective experience creates our reality, our Now.

Subjective experience stands at center stage. Long pushed to the sidelines, ignored as irrelevant, subjective experience stands supreme. We literally create reality, our Now.

We are all solipsists in time interacting with each other in the nearby Matrix to create a collective reality, a Now bigger than we are, a true Human Nexus.



UFOs are AIs on ships

Consider this. Instead of going to star systems ourselves due to time dilation and survivability concerns, why not send AIs instead?

An advanced society would like to get more data from its surroundings than simple starlight. If you sent an AI that continuously broadcast data, your stream from that solar system is suddenly much richer. Since the cost-benefit of this is so high, every advanced civilization would do this, and there would be a great many of them. We're probably seeing the older models. The new ones are invisible.

Many star systems would have a multitude of AI drones looking in on it from aliens. That's what UFOs are. I feel like Barclay sometimes.

First Contact With Cytherians



UFO's Last Line of Defense

Interstellar space is vast, and resources are abundant, so no one is coming to steal our water. But if a Now collective is facing a migrate or die decision, then boarding the Ark is all you've got.

If the mother ship arrived at our solar system, and we were full, what would we have to do?



Perhaps the next generation will train Ender just in case some hostile tribe appeared on the horizon. I wouldn't want to lose.

This understanding of consciousness and the Now has profound implications for how we perceive the universe and the matter within it. To further explore this, let's take a brief tour of your perception and your mind.

How data enters your brain

It feels like we look out at the world through our eyes, but this is a backward conception. Our eyes are not active scanning devices, they are passive receivers of information. When information is picked up by your senses, your brain analyses the data, corrects for timing inconsistencies, fills in missing pieces from expectation.



Through a process called binding, the brain integrates sensory inputs, such as color, motion, and shape, to present a coherent picture of the world to your consciousness. You experience this moment-to-moment as the Now. We have no idea how it works, but I for one, am pleased it does. I lean toward emergent properties myself. I hope [David Chalmers](#) can figure it out.

Hard Problem of Consciousness – David Chalmers



No matter how far away the source of data is, it must travel all the way to our sensory systems before we can use that information to create a Now.

If you want to properly conceptualize the Universe, you must acknowledge the central role consciousness and cognition play in the process.

Let me take that one step further. What does your mind do with this visualization of the outside world? It analyzes the information for patterns and tries to give it meaning.

Notice that the data is only important to the degree it generates meaning. The important thing is not the data or the complex mathematical structure you apply to it. Those are merely tools. Perhaps these tools can reveal deeper insights, but just because your tools don't work doesn't mean you can't identify the relationships in the system.



Perhaps you think in nothing but differential equations and without that safety blanket, you don't feel sure about anything, but the rest of humanity is different. We live on narrative.

What matters is the meaning, the narrative we attach to it that feels apt and generates meaning.

In my opinion, people with exceptional intuition have an AI like ability to see connections they can't understand. For myself ([INFJ](#)) the concept emerges first, and I find apt language later. We should rely on intuits like them and their thin slicing

ability to help identify connections. They know it when they see it. [Malcolm Gladwell](#), did you just [Blink](#)?

AI Art and Schrödinger's cat

Imagine an AI combined different styles and produced the most beautiful art ever created. No work of humankind has ever produced such magnificent beauty.

This art exists in a superposition of potentiality. When it is produced, it is not art. It's meaningless bits and bites ([John Searle: Chinese Room](#)). It has the potential to be art, *but a human must discover it first*.

It is human consciousness that gives that art reality and meaning. Until it's uncovered, it's nothing, it's [Schrödinger's cat](#) neither art nor trash.

AIs and computers don't actually know anything. Why would you ask a computer the deeper meaning of life? Would the answer mean anything to you?

Hitchhiker's Guide to the Galaxy - The Ultimate Answer to Life - 42



With that extra background, let's return to Luke on the edge of forever.

Inferential Proof that Unobserved Matter Exists

Imagine a line connecting us with Luke. That line extends through each of us as far as we can see. We need to consider what each of us sees when we look in both directions on this line considering the uniform distribution of matter we observe in our Now.

When we look at Luke, we see a 2 billion year old stellar nursery. When we look past our friend we see a few other light sources that are less than a billion years old. Beyond that, we see nothing but [cosmic background radiation](#).

When Luke looks at us, he sees our home as a 2 billion year old [nascent galaxy](#), not our modern age. When he looks past us, he sees a few other large stellar nurseries that are less than a billion years old and the CBR. Beyond that, he sees nothing.

When you look out into space in the opposite direction of our friend, what he sees as a billion year old star cluster, you see as a 12.5 billion year old mature galaxy cluster.

Our Observable Universe | How the Universe Works



Now pay attention because this is where it gets interesting.

When you look past the most distant object our friend can see, you see an entire half of a universe with an even distribution of matter. You see galaxies, stars, all forms of matter and light that our friend simply can't see. He doesn't know it's there. It is not yet observable in his Now.

There is matter you know exists, matter you can directly observe, that our friend doesn't know exists. He can speculate that this matter should exist. He could do this same thought experiment and determine that the matter that you can see that he can't see must exist.

Similarly, there is matter our friend knows exists that you can't see. He is absolutely certain of its existence. He can observe it directly. You are only left to infer this matter based on our friend's existence.

What is Solipsism? Are you only your mind!?



Unless you are a committed solipsist, we have clearly established that matter you can't directly observe must exist.

Observed Knowing, Inferred Knowing, and Unknowable

We have two types of knowing about the Universe: knowing based on observable data, and knowing based on inference and necessity. This also leaves us with a third category, the unknowable region of space we have no method of knowing anything about at all.

Observations and Inferences- What's the Difference



As a science fiction writer, I am well acquainted with the realm of the unknowable. It's a place of endless speculation completely unmoored by data or inference. You can learn all about this realm in the fiction section of the library. Sometimes, scientists like to explore this area with math (see [String Theory](#)) to see if they can return to reality with new connections about things we really can know about. So far, it hasn't yielded much value, probably because it's laboring under the wrong conceptual model.

What is String Theory?



Measuring the Universe

These conceptual areas can be measured quite accurately with the math of spheres and spherical shells, opening avenues for analysis and establishing relationships between them.

The observable universe is a sphere centered on the observer, with a radius equal to the speed of light multiplied by the age of the universe, providing a specific direction to times arrow. Information always comes in at an increasing rate since the contributing area is a big sphere growing at the speed of light in all directions. We can directly observe any object in this area by detecting gravitational effects like waves and radiation, the two ways information from distant objects comes to us.

The inferred universe is a spherical shell surrounding the sphere of the observable universe. The subtracted sphere is the observable universe, the radius defined above. The surrounding sphere will extend beyond the observable universe a distance equal to the 1/2 the radius of the observed universe—it's the half of the universe Luke sees that you don't. Thus, the radius of the larger sphere defining the outer boundary of the inferred universe is 1.5 times the speed of light times the age of the universe.

Pay Close Attention...



Why this radius for the inferred universe? Go back to our friend at the edge of what you can observe. Our inference about the uniformity of the distribution of matter applies for as far as our friend can observe, but no farther. When you add his observable universe to our observable universe, you get the limit of the inferred universe.

Why can't we infinitely regress and infer an infinite expanse of an inferred universe? After all, if our friend imagines this same set of circumstances, his area of inference is the same size as yours, but it contains a different region of space. Why can't we add these together? In order to make that leap, we would need something to confirm our inference. Consciousness is at the center of Now, so the data must be verified to move from inferred to known. Either that or you need a particle accelerator to give you googolplex confirmation points on your stacked inferences.

If you could communicate in real time with our friend, then you could gain some certainty in his observations, but since this isn't possible, you don't actually know if our inference about the uniformity of distribution of matter is shared by our friend. Thus, the moment you attempt to stack inferences based on a thought experiment, you enter the world of fantasy and unverifiable speculation.

So how big is the Universe? It seems like a simple question, but as stated, it can't be answered. The total extent and quantity of matter and energy is unknowable. We can conceive it, just like we can conceive a universal Now, a God Now. But just as this God Now is unknowable, so is the God View of the universe. We can't obtain information that would allow us to know or infer the totality of the Universe. Kind of a bummer for the curious kid in all of us.

Cruel Joke of the Universe

That was a lot to take in. Rest for a moment and consider this:

The aliens didn't give us an owner's manual for the mind. They dropped us off on some random planet and told us to figure it out for ourselves.

Can you believe they did that?



Gravity Prohibits an Edge to the Universe

Let's go back to our thought experiment. Let's explore how gravity alone can explain why our friend can't be on the edge of the Universe.

You can infer that matter must exist that Luke sees that we can't, but how do you know he sees any matter at all? Perhaps the most distant galaxy cluster we can see in his Now was the last one on the edge of the universe?

Everywhere we look in the universe, the distribution of baryonic matter is remarkably uniform. The web of substrate forming galaxy clusters, stars, planets shows no sign that the distribution is skewed suggesting a lack of uniformity beyond what we can directly observe.

If his nearby galaxy were the last one on the edge of forever, half his universe would be dark. His civilization would speculate endlessly on the nature of the void. His concept of uniform [distribution of baryonic matter](#) would only apply to half the Universe.

Ending of StarTrekTOS Ep028 The City On The Edge Of Forever



If our friend is looking toward you and away from the void, he sees an even distribution in every direction facing toward us, and almost no galaxies or matter facing away from us. What would gravity do in that circumstance?

It would suck really, really hard from the side with matter, and there would no counterbalancing gravitational force coming from the void. How exactly would that be stable? It must take a lot of [epicycles](#).



If there were an edge condition to the universe, then this edge should be collapsing at a prodigious rate. Is that something we observe? I may have missed that study. Gravity dictates that universes aren't like galaxies that you really can be on the edge of.

Gravity necessitates an even distribution of matter at all scales in order to prevent a collapse of the entire structure of the cosmic web. Uniform gravity is what makes the cosmic web stable. Like uniform air pressure makes life on earth stable, uniform gravity pulling from all directions makes the cosmic web stable.

Gravitational Lensing

We are about to make a huge leap and set the stage for eliminating Dark Energy and destroying the Big Bang cosmology, so follow this closely.

Scientists have observed [gravitational lensing](#) caused by large galaxies and clusters. They've taken beautiful photos of supernovas behind these gravitational wells that appear at different times from 3 or 4 points in the sky because the light was split and sent in different paths around the huge source of gravity. This is a carefully documented phenomenon that defies other explanations.

Simulated visualization of a gravitational lensing by a free-floating planet in the ...



We know that gravitational lensing warps light. It's an optical effect that creates illusions, like the lensing split supernova that looks like three or four different events when in reality, there was only one blast.

Hubble Sees Supernova Split into Four Images by Cosmic Lens



Since gravitational lensing distorts reality, all our observations based on it are suspect, and the lensing effect must be accounted for and corrected.

We established above that we can infer that unobserved matter exists beyond what we can see in all directions. What are the ramifications of this inference? If the unobserved matter exists, what must be true?

It would be an enormous source of gravity, and it would produce a prodigious gravitational lensing effect. In fact, it would be so bad at the extremes that it would look just like cosmic inflation.

Alan Guth Explains Inflation Theory



Cool! Right?

If we discard the “gravity is repulsive under certain circumstances” idea and ask, what if we are just becoming aware of the force of gravity cascading in on us from all sides, and the beginning is really distorted by lensing?

Works for me. I’ll bet you can get the data to fit. Consider this in your efforts to model it.

When we conceive of gravitational lensing, we visualize a point in space effect. We model it as a central point of gravity bending light on a parabolic path. But what if this isn't the only way to view it?

The Spherical Source of Gravitational Lensing

Imagine the edge of the observable universe as a sphere. The radius of this sphere can be calculated as previously described, the speed of light times the age of the universe, which is a pretty big number. If you plug that value into the formula for a sphere, you can generate the sphere of observable information.

Imagine that every point on this sphere generates a powerful gravitational lensing effect exactly like the point sources we've identified in gravitational lensing studies. This would create a uniform gravitational lensing effect that would diminish with distance according to the inverse square law, as described by Newton's Law of Universal Gravitation.

The Eddington experiment is called for here.

The eclipse photo that made Einstein famous



Take the plot of the inverse square law from the edge of time and overlay the observational data supporting inflation for the steep part, and Dark Energy observations, and see what you come up with? How closely do they match?

Observationally, what would a gravitational lens look like? It would create an enormous red shift that would increase in power as you got closer to the edge. In other words, it would look just like an expanding universe fueled by Dark Energy.

Dark Energy is not real. It's an observational effect of gravitational lensing generated at the edge of the observable universe.

Let that sink in a moment.

The Big Bang's Conceptual Flaw

The Big Bang began with the misinterpretation of the redshift effect. The appearance of galaxies receding into the distance strongly suggests that all the galaxies were stuck together at one time, at a moment of creation.

The idea of a moment of creation appealed to Georges Lemaître, a Jesuit priest who felt it confirmed his worldview. The idea caught on. They found their Coke Bottle.

Official Trailer - THE GODS MUST BE CRAZY (1980, Jamie Uys, N!xau, Marius We...



The last holdouts for the old steady-state theory passed away, people like Fred Hoyle, Geoffrey and Margaret Burbidge. No no future scientists championed the idea—until now, kind of.

Thus, the Big Bang became accepted conceptual truth, and all of cosmology over the last 100 years since Edwin Hubble first observed the redshift and concluded there was a point of beginning.

Sadly, this is an erroneous interpretation of an observation that failed to consider lensing effects on the edge of the observable, a concept unknown at the time.

What I'm demonstrating here is that we had a failure of concept and narrative. Nobody was asking the science fiction author's questions:

What if the redshift were a gravitational lensing effect?

How are Distant Galaxies Magnified Through Gravitational Lensing?



What if measurements of the redshift were actually measurements of the pull of unseen but inferable gravity? That would make it an illusion. We've been chasing the water on the desert horizon, and it keeps disappearing.

Once an interpretation becomes dogma, it gets entrenched into the community ethos, and it takes an outsider to lob a sabot into the machinery. Sabot come in pairs. Allow me to toss another.

Plancks: The Universe's Binary Code

A quantum universe can not be continually divided. Planck Time limits how thin you can slice a second, and Plank Length limits how small you can split a hair. This lower bound of size and time is very, very small. Math is coming, but you don't need to follow the hieroglyphs. I copied and pasted them. My eyes glaze over. Rest comfortably that the high priests can decipher the code.

Visualizing the Planck Length. Why is it the Smallest Length in the Universe?



Planck Length (l_{pl}):

The Planck length is derived from fundamental constants and is given by:

$$l_p = \sqrt{\frac{\hbar G c^3}{3}} = \sqrt{\frac{c^3 \hbar G}{3}}$$

- \hbar : Reduced Planck constant ($\hbar = h/2\pi$)
- G : Gravitational constant

- ccc: Speed of light in a vacuum

Planck Time (tpt_ptp):

The Planck time represents the time it takes for light to travel one Planck length in a vacuum:

$$tp = \sqrt{\frac{\hbar G c^5}{c^5 \hbar G}} = \sqrt{\frac{1}{c^3}}$$

Planck Volume (VpV_pVp):

The Planck volume is the cube of the Planck length, representing a fundamental unit of volume in the Planck scale:

$$Vp = l_p^3 = \left(\sqrt{\frac{\hbar G c^3}{c^3 \hbar G}} \right)^3 = \left(\sqrt{\frac{1}{c^2}} \right)^3 = \frac{1}{c^6}$$

Constants for Reference:

1. $\hbar \approx 1.054 \times 10^{-34} \text{ m}^2 \text{ kg/s}$ $\approx 1.054 \times 10^{-34} \text{ m}^2 \text{ kg/s}$
2. $G \approx 6.674 \times 10^{-11} \text{ m}^3 \text{ kg}^{-1} \text{ s}^{-2}$ $\approx 6.674 \times 10^{-11} \text{ m}^3 \text{ kg}^{-1} \text{ s}^{-2}$
3. $c \approx 3 \times 10^8 \text{ m/s}$ $\approx 3 \times 10^8 \text{ m/s}$

Conceptualizing the inside of a Planck

Let's take the energy of a quantum of matter and a quantum of antimatter, pack it together, and you get a Planck, a little orb, exactly the spacial volume of a Planck Sphere. Each Planck is either +1 for Matter or -1 for Antimatter.

The binary Planck is the building block of all information, the foundation of information theory. The stuff people worry about that disappears into black holes is

this data packet. Without this data, the object would no longer foreshorten space and cause gravity, so the data must remain.

When you get matter down to the Black Hole level, you've stacked Plancks so tightly that no space remains between the units. The combined gravity of these Plancks generates a field so strong that it produces an event horizon exactly at its surface.

Can you see those Pomegranates in there?

The Building Blocks of The Universe - Quarks & Supersymmetry Explained by Bri...



The Big Event

When the simulation starts, the field is filled with approximately even numbers of loose +1s and -1s.

Follow this decision tree. When two particles meet, one of these outcomes results:

$$+1 +1 = +2$$

$$+1 -1 = 0$$

$$-1 +1 = 0$$

$$-1 -1 = -2$$

As you can see, that will blow up half the energy in the universe in an instant. An impressive first act. But wait, there's more. The big Boson Boxing match, a straightforward chemical reaction:

$$+2 - 2 = 0$$

+2 and -2 engage the second act and wipe each other down to zero.

Well, almost zero.

We never said there was an equal number of +1s and -1s to begin with. If we don't obtain perfection, we don't end up at zero, and we might end up with about 1 part per billion more +2s than we have -2s, kind of like the matter-antimatter annihilation event.

Matter wins. Antimatter loses, and Now, antimatter is really hard to find.

Yeah! We're on the winning team. Although, I wonder if I would have known the difference if the matter antimatter signs were accidentally reversed, and we have a backward system?

Am I anti-Me?

How to pack a Planck

I mentioned that the Planck is a little orb, exactly the spacial volume of a Planck Sphere. It's really, really small.

The only way to remove all the space between Plancks is to employ a garbage compactor, the Planck fore-shortener, the [Marie Kondo](#) of space packing efficiency, the ultimate minimalist.



The Planck Pack Universe

What would it look like if the universe started as a solid block of tightly packed matter and antimatter particles in a pre-existing boundless space, like the fields we imagine in the standard model of particle physics or in a 4X video game?

Further, what if the matter, antimatter annihilation event was a creation story like Michelangelo liberating forms from the stone?

Imagine the universe's creation not as an explosion from nothing, but as a sculptor chipping away at a big block of marble, revealing the form within. Similarly, the matter-antimatter annihilation event 'hollowed out' the pre-existing information substrate, leaving behind the structures we observe today.

What would that reality be like?

Doesn't sound like there was a zero point where time, space, energy, matter, all came into existence and spread out rapidly. At least not to me.

The Expanding Awareness Hypothesis is so far outside the current cosmology that the two can't coexist. It's a battle for the narrative: Expanding Awareness against the Big Bang Theory. May the stronger theory win.

The matter-antimatter annihilation

What if space already exists as a brute fact? No separate creation event.

What if all the building blocks of existence were contained in this field (hint: Higgs), but not just our building blocks, all possible combinations of building blocks? That would take a stupendous amount of energy.

Cosmic Game of Risk | How the Universe Works



This block of potential, this enormous quantum of energy remains potential until it's given form. So how does that happen?

I pondered why the universe would be set up in such a way to begin its existence would require a gargantuan expenditure of energy to release this tiny residue of matter that became our universe. One part in a billion, really? Literally, 99.99999% of the universe was destroyed at the moment of creation.

Why was that? Seems like a lot of energy to spend on a science project.

The Higgs Boson

We had to build a perfectly circular ring 17 miles long to generate the power necessary to produce a single Higgs Boson.

One. Not a quadrillion of them.

One that lasted for 0.0000001 of a second. We couldn't even snap the pictures before it blew up. Why was it so hard to harness that kind of power?

Don't Call it the "God Particle" - Professor Peter Higgs at the Scottish Parliament



The Sci-Fi Writer's Question

Could the Higgs Boson have been the repository of all that matter-antimatter energy? If it were, that would explain why we don't have any more of them and why they are so hard to make.

Let me ask that another way. Could we simply decide that's where the energy came from, ignore debating a mechanism and just compute? If not, why not?

If we accept that the Higgs Field was the pre-existing block of Universe, hosting the hollowing-out event, leaving behind the constituents of our universe and establishing gravity, then we have an origin story that aligns with data, don't we?

Once the matter-antimatter annihilation occurred, gravity began working on the debris scattered everywhere we can see and infer, like in the bedtime story.

All of this is in direct contradiction to the existing Big Bang cosmology.

The Big Bang Ends with Dark Energy

Old-school adherents can cling to the Big Bang and perform Dark Energy research to their heart's content—and limits of funding. But many future scientists will chose a new interpretation, a new narrative to explain the universe, and the reason is elegance and simplicity.

What if several key problems in physics could vanish just as quickly as Dark Energy? Isn't that attractive?"

Dark Energy - How The Universe Works



For the last century, cosmologists, astronomers, physicists worked to fit their observations into this conceptual space. The result has been lingering problems that have advanced little over the last several decades. Contrast this with the work of particle physicists who defined and essentially completed their explanation of the subatomic realm in far less time.

They made up their own system and the own rules, unbound by the crippling dogma of an entrenched bureaucracy. I'm not surprised they made better progress.

Ludwig Wittgenstein and Conceptual Traps

Ludwig Wittgenstein was rumored to have a discussion where he asked, "Why did people believe the sun and stars revolved around the earth instead of believing that the earth rotated on its axis?" Someone responded, "Well, that's what it looks like." Wittgenstein replied, "What would it have looked like if the earth rotated on its axis?"

Like many of Wittgenstein's quips, most people fail to grasp the deeper meaning. He was pointing out that the observations did not change. The only thing that changed was that people understood those observations in a different context, in a different [mental model](#) of the universe, a language game. The idea that the sun rotates on an axis didn't change any observations, it merely took the existing observations and organized them with a new conceptual understanding.

PHILOSOPHY - Ludwig Wittgenstein



That's what we are doing here. We are playing a language game, which means the battle is on my turf.

The cosmology we have today is an evolving narrative. There was a conscious choice to avoid the narrative and just shut up and compute for many years. Edwin Hubble's observation was distorted through lensing effects by the gravity we infer from outside what we observe.

He committed the incipient error that put us down a blind alley for 100 years.

He put an imaginary clock in motion going backward according to Newtonian mechanics, and he created a narrative that was really anchored in nothing else. Every subsequent observation was shoehorned into that conceptual framework. We've been doing it ever since.

When people look back and ask, "why did we believe in Dark Energy?" and "why did we believe in the Big Bang?" The answer will be, "That's what it looks like." To which the response will be "What would it have looked like if we had an Expanding Awareness?"

The same.

A New Paradigm: Expanding Awareness

What I am proposing is a complete conceptual restructuring of our cosmological conception. Why is this important? Because a new conceptual understanding can make many of the most intractable problems in cosmology, astronomy, astrophysics and physics can be resolved or explained without additional new research other than to verify the concept is durable and the old model had epicycles. We collectively decide it simply isn't a problem. Does anyone remember the luminiferous ether?

In my opinion, the cosmic narrative of the Big Bang is poor because nobody understands it, generating blank stares and boredom, like you're telling a bad fairy tale with an overly complex backstory.

Consider that what you just read eliminated Dark Energy as a problem facing cosmology. I just revealed a new paradigm that wipes out an intractable problem in a moment. Sure, endless hours will be spent debating and making existing observations

fit into this framework, but a new paradigm can save another generation from chasing rainbows and unicorns.



That seems like an idea worth exploring. If you aren't convinced, I have more narrative magic for you. Consider it a special gift for staying with me so far.

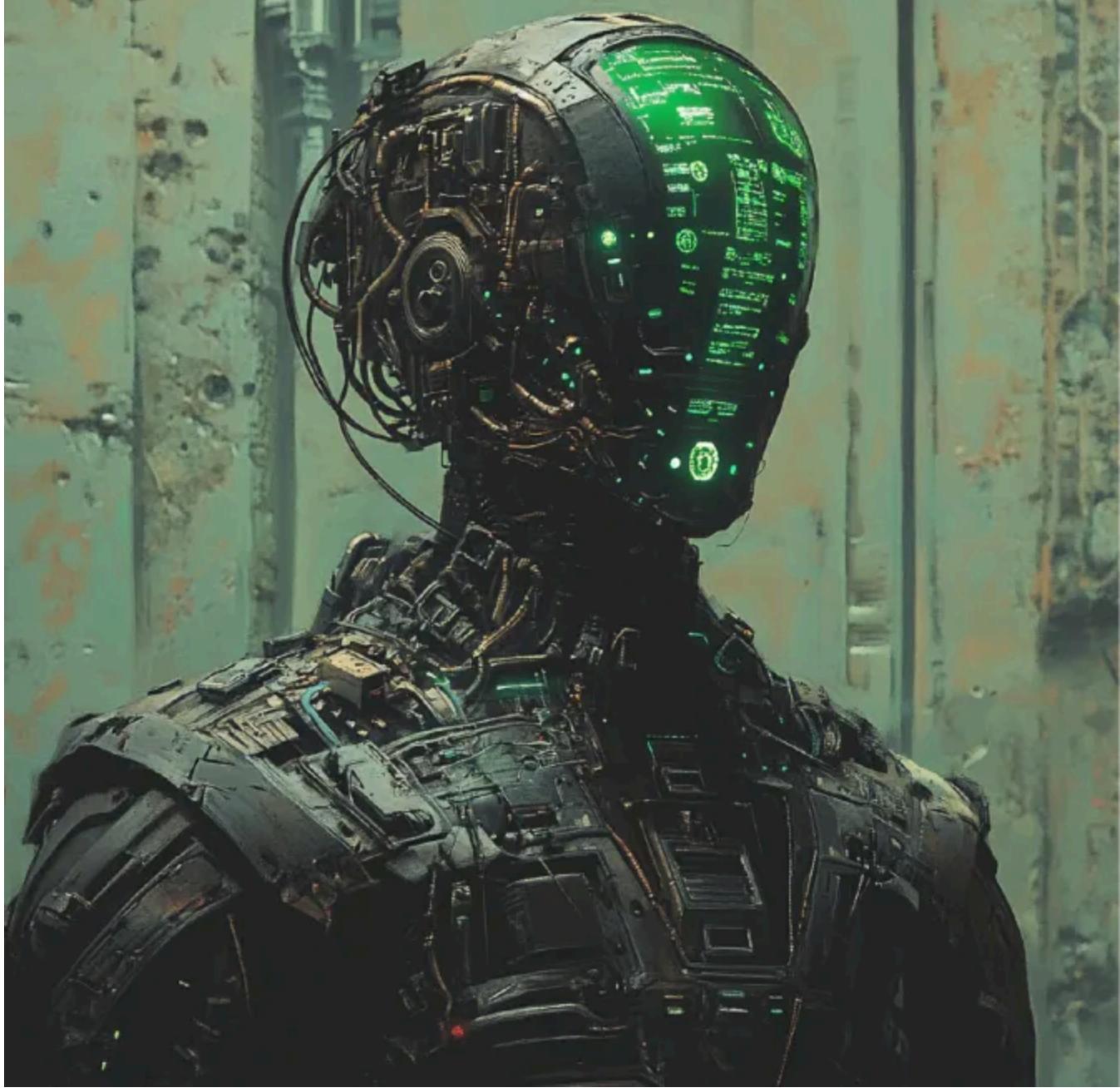
The round peg in the square hole

The Standard Model of Particle Physics and Einstein's General Relativity do not play nice, and bottom up approaches of brute force of calculation failed to build a successful model to bridge the gap. It's at the heart of physics, prompting exploration for gravitons, modified gravity, and other mathematical bridges to get two conceptual systems to provide mirrored inputs and outputs. I can't directly solve this problem, but I can conceptually demonstrate how to accomplish the task relatively quickly and with a short verification time.

Reconciling the Standard Model and General Relativity

Here is a step-by-step process for solving this problem.

1. Define the Black Boxes: Treat the Standard Model and General Relativity as separate systems with well-defined inputs and outputs. Focus on stable, measurable quantities: particle masses from the Standard Model and gravitational effects from General Relativity.
2. Gather and Prepare Data: Collect comprehensive datasets of these quantities from particle physics experiments and cosmological observations. Preprocess the data for AI analysis (normalization, feature engineering, cleaning).
3. Employ AI as a Codebreaker: Train AI models (deep neural networks, symbolic regression, or hybrids) on the prepared datasets. Task the AI with finding correlations and patterns between the inputs and outputs of the two models. The AI acts as a "cypher" decoder, searching for hidden relationships between the two domains.



4. Analyze and Interpret: Analyze the AI's output for potential mathematical relationships ("cyphers") connecting the Standard Model and General Relativity. Visualize the relationships and extract mathematical expressions if possible.
- 5 Write a Narrative: Interpret the physical meaning of any discovered connections. Shut up and compute is no longer an option to gain a complete picture and avoid chasing rainbows.
6. Validate and Refine: Validate the discovered relationships through theoretical analysis and experimental testing. Derive predictions and design experiments to test the AI-assisted findings.

This approach essentially uses AI to decode the hidden connections between gravity and quantum mechanics, bypassing the complexities of traditional theoretical approaches. It's a data-driven approach that leverages the pattern-finding capabilities of AI to potentially unlock a deeper understanding of the universe.

And you know what kind of narratives will become accepted?

Three strong relationships were established by AI. Forward-backward mirroring within 0.00032% tolerance for chaos factors. Research is ongoing for more detailed mechanisms, but the consensus is that a chaotic swirl of interactions from different forces produces patterns in data we can approximate. Work on explanatory narratives is also in progress.

The final explanation will have more detailed qualifiers and lists of forces and descriptions of the chaotic system, but in the end, it's just meat on the bones of an evolving narrative truth.

Led Zeppelin - Stairway To Heaven (Live at Earls Court 1975) [Official Video]



Stairways to Heaven

One of the conceptual approaches to problems in physics needs to change. Stop trying to build stairways to heaven. The problem with the reconciling the two models was the

attempt by each side to build a stairway of mathematics to reach the other, based on it's own mathematical system. It's a fool's errand.

When a problem reaches a chaotic point of too many interrelated variables, formal mathematics is no longer a useful tool. I mean, look at the results and how much effort went into it.

We need to identify that barrier of chaos for what it is and seek alternative approaches for problem resolution. We can always find a creative way to craft an elegant narrative. Find the connections first. That's the gold nugget worth unearthing.

While we are resolving huge problems in physics, let's return to gravitational lensing because there is a problem in astronomy and astrophysics that's caused people to question general relativity and posit a substance called Dark Matter, plus other particles like WIMPs to explain it. Let's get rid of all that, and point to specific research to verify this idea.

[What Is Dark Matter? | How The Universe Works](#)



Death to Dark Matter

The universe contains a significant number of rogue black holes formed through various astrophysical processes. These black holes, along with the spacetime

foreshortening effect caused by the Higgs field, account for the observed dark matter phenomena without needing hypothetical particles like [WIMPs](#) or [gravitons](#).

The current models from planetary science suggest that in a typical planetary disc, a great many proto-planets form, many growing to significant size. What follows has been described as a demolition derby with proto-planets interacting, smashing together, slingshotting each other, sometimes resulting in objects being ejected from the planetary disk entirely the remainder orbiting in extreme ellipses beyond the reach of the survivors in the inner solar system. Our own solar system had perhaps hundreds of these objects that reduced down to the eight we see today.

:(
I miss [Pluto](#) :(

See How Planets Are Born in the Midst of a Demolition Derby



Apply the same analysis to larger systems like supermassive black holes during galaxy formation. Large numbers of stellar mass black holes and even larger ones could be flung into strange orbits outside the visible disk of stars, like planet 9 in our solar system. If we get large numbers of these invisible giants out where there are no stars behind to help see them, then an enormous amount of gravity can be floating around unobserved creating this lensing effect and making galaxies orbit with the speeds we see rather than what we expected (Thanks [Vera Rubin](#)).

if we employ techniques with [Gravitational Microlensing](#), Astrometric Microlensing and X-ray and Radio Observations we can get a clearer observational picture of the number, size and distribution of these objects to determine if we bridge the gap. The fact that we observe this feature on a macro scale level means these objects must be there. The fact that we modeled [Planet 9](#) suggests there are techniques for finding these hidden objects we can still explore.

The Mystery of Planet Nine | How the Universe Works | Science Channel



Sadly, this isn't the immediate death of Dark Matter, but we now have the wooden stake to drive into the vampire's heart.

Like the path to resolving the Standard Model and General Relativity, this concept points the way.

Early Supermassive Black Holes

There is a minor dispute in astrophysics over the formation of supermassive black holes. Their various models suggest that such large black holes should not exist, yet we observe them.

Hmmm...

Ask yourself this? If your data is good but your predictive model is off, where do you think the problem is? Hint, there's only one option.

What we lack is a narrative.

Scientists lack a narrative to complete their understanding of the phenomenon. Data is not enough. The narrative is the flexible connection between data points, working its magic to make everyone happy.

Let me provide a start.

The Logic-Defying Nature of Supermassive Black Holes | How the Universe Work...



Bull in the Ring

In the football drill, Bull-in-the-Ring, a group of linemen form a tight circle, their bodies a wall of raw strength and determination. In the center stands the "bull." The objective is simple yet daunting: escape the ring.

The bull takes off, but he's pummeled by a lineman and knocked into the block of another. No matter what direction he goes, he sees nothing but linemen.

That's how supermassive black holes got so big so early. In the densest parts of space, huge stars and black holes would form in abundance and in very close proximity.

Wherever the matter was, there would be clusters of objects made of that matter. If the system of gravity was very difficult to escape, eventually, in the words of the Highlander, there can be only one.

Highlander - "There Can Be Only One"



Did you like that one? Model it in your AI and let me know what it says.

This was [a spherical chicken problem](#). Everyone imagined what it would take for a single black hole to get that large not considering the effects of high-density stellar black hole nurseries.

The suction of all the gravity would inevitably end up in one place. The vacuum cleaner gets more powerful as it sucks in more debris.

For my next magic trick, I want to revisit a conundrum I resolved that you may not have noticed. I've explained Time's Arrow.

Time's Arrow and Expanding Awareness

Fundamental laws of physics are often time-reversible, yet the macroscopic universe exhibits a clear directionality in time. Why is that? Physicists lack a conceptual model

to explain this. It's been linked to entropy, but few follow the reasoning to a satisfactory answer.

Earlier I mentioned that time's arrow moves forward because our sphere of observation constantly expands at the speed of light, increasing the amount of information accessible to us, creating an irreversible asymmetry in time, linked to the increase in entropy.

This challenges the notion of time as a fundamental dimension, positing it's an emergent phenomenon arising from the universe's dynamic evolution and information acquisition, part of spacetime.

The mind-bending physics of time | Sean Carroll



Which conceptual solution is more appealing, more grounded in observation and intuition?

Do you like your dogma better? Mine is named Ella, and she's cuter than yours.

Time's End

We've been on quite a journey together, we've explored a new vision of reality, solved fantastic problems, planted the seeds for a new collective reality. I feel great! Don't

you?

I could continue solving problems, but I need to leave some conceptual noodling to the rest of you. I've pointed the way, given you a new conceptual framework. What meat can you put on these bones?

I could add another layer of depth, but I am Michael Faraday, and I need James Maxwell. Assistance with the math would be very kind. You guys really love math.

One question. When you think about the scientific world view right now, and what you read here, do you feel a [Wile E. Coyote](#) moment?

Wile E Coyote and Gravity



No long review here. Only a thought for you to chew on as you go.

Total Recap

Did you see the 1990 film Total Recall? The final lines of dialogue are:

Melina: "I just had a terrible thought... what if this is a dream?"

Quaid: "Then kiss me quick before you wake up."

Total Recall - alternate ending (fan project)



What if this is all fiction? What if this carries no explanatory power, no ability to change cosmology or science? What if it's just a dream?

You tell me. Is this a mind-bending piece of creative fiction, or the dawning of a new era in human understanding revolutionizing our understanding of our central place in the Universe, Our Now?

Behold the Power of Narrative!!!

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