

There Is No Evidence That Time & Space Are Continuous

Written by Bryant Stone (*The Architect*)

Overview

For over a century, humanity has grappled with physics' most notorious challenge: **unifying General Relativity (GR) and Quantum Mechanics (QM)**. These theories demonstrate remarkable predictive power—GR governing vast, cosmic scales, QM describing probabilistic, tiny scales—yet **their assumptions render them irreconcilable**. GR suggests that spacetime is a smooth, continuous fabric, while QM proposes that it operates through uncertainty and discreteness. Despite decades of theoretical attempts at unification, **none have yielded any empirical validation**, causing despair among physicists and the public alike... but what if **the answer is much simpler than it seems?** It's not an issue of effort, **but rather our assumptions**. In this paper, **I empirically tested the continuity assumption**—the idea that spacetime is infinitely divisible and smooth. **We have built nearly all of physics upon it... but no one has ever empirically tested it**. To test continuity, I analyzed humanity's most precise datasets: **atomic clocks** (Bothwell experiment), **black holes** (LIGO), **supernova expansion** (Pantheon+), **gravitational waves** (LIGO), **galactic rotations** (SPARC), **star life cycles** (Gaia DR3), and the **CMB radiation** (Planck). My methodology was elegantly straightforward. Using *The Equation of Existence* ($\Phi = \Omega/\Delta$), I identified **two variables** within each dataset: a **measure of stability** (gravity and redshift) and **complexity** (mass and luminosity). The analysis involved four simple steps: 1) converting raw observations to *t*-scores for standardization, 2) calculating definedness ratios, 3) ordering scores from lowest to highest, and 4) fitting linear and cubic regressions. **The results empirically falsify the continuity assumption**. Despite *The Equation* being inherently linear with no exponent, cubic regressions ($M = 88.10\%$, $SD = 15.47\%$) **always dominated the linear ones** ($M = 73.60\%$, $SD = 22.63\%$), $t(6) = 5.93$, $p < .001$, Cohen's $d = 1.58$. **The findings directly contradict existing theories**. Although GR correctly predicts cubic behavior at cosmological scales from spacetime curvature, it predicts linear relationships at atomic scales. Under the continuity assumption, standardized ratios of atomic-scale properties—**inherently linear**—should yield linear results, **but it does not**. The cubic curves across **seven phenomena spanning ~40 orders of magnitude** are impossible in continuous spacetime. No other framework can account for this universal cubic curve, **except for *The Theory of Existence***. What once seemed impossible is now inevitable. We can finally see the universe... whole... unified... exactly as it is, and it's **such a marvelous sight**.

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Background & Findings

The **unification of General Relativity (GR) and Quantum Mechanics (QM)** has remained the central unsolved challenge in physics for **over a century**. GR describes the cosmos at vast scales as a **smooth, continuous fabric** of spacetime. QM describes microscopic systems through **discrete, probabilistic interactions**. Although both models have empirical support, they remain **structurally irreconcilable**. In response, theoretical physicists have proposed **increasingly complex** frameworks; yet none have produced **any empirical validation** or **observation** not explainable by GR or QM alone, despite decades of effort. **What could we possibly be doing wrong?**

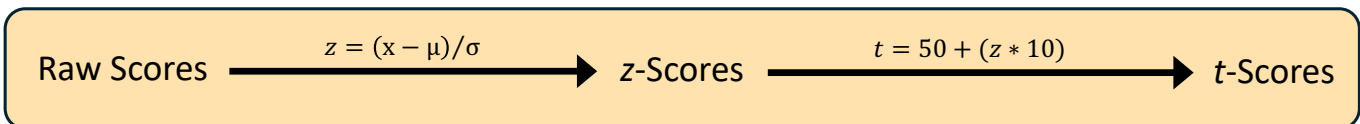
Perhaps the problem is **not the frameworks**, but **our foundations**. We have built nearly everything in physics on top of **the continuity assumption**: that spacetime is **smooth, infinitely divisible**, and **without structure** at the smallest scales. The continuity assumption is so deeply embedded in our equations and theories that it's become invisible and politically unchallengeable. Yet... **no one has ever tested the continuity assumption**. **There is currently no evidence that time and space are continuous**. As such, I tested continuity using *The Equation of Existence* on our most precise and respected datasets: atomic clocks (Bothwell), black holes (LIGO), supernova expansion (Pantheon+), gravitational waves (LIGO), galactic rotations (SPARC), and the CMB radiation (Planck).

If you are unfamiliar with *The Theory of Existence* and *The Equation of Existence*, I recommend you read [Paper 11: The Dance of Stability & Complexity: The Equation of Existence as the Universal Lens](#) before continuing with this paper. Regardless, you only need three core concepts to understand this paper: **Complexity (Δ)**, **Stability (Ω)**, and **Definedness (Φ)**—together forming the universal equation explaining **all phenomena**: $\Phi = \Omega/\Delta$. These terms are not things that exist independently—they are descriptions of the patterns in how existence behaves. **Complexity governs the growth, change, innovation, and progress**, whereas **stability governs order, structure, survival, and persistence**. Their ratio measures definedness, which is **the degree to which something exists**. Existence is inherently relational, meaning that the universe is constantly evolving by default. Thus, everything in it must also progress or diverge. **Definedness measures the alignment between this steady progression of existence and all phenomena**, providing key insight into its emergence, convergence, and divergence. The method I used to measure complexity, stability, and definedness is simple. Let's get into it...

Data: Two Raw, Observed Variables

Complexity (Δ)	Stability (Ω)
Definition: The degree to which phenomena escalate from basic to structured.	Definition: The degree to which complexity is attracted to complexity.
Function: Growth, innovation, and adaptation.	Function: Order, persistence, and structure.
Best Measure: Mass or Energy	Best Measure: Gravity
Other Measures: Luminosity, distance modulation, and temperature gradients.	Other Measures: Redshift, sky temperature, and electromagnetic frequencies.
Typical Distribution: Cubic	Typical Distribution: Linear

Step 1: Standardize Units



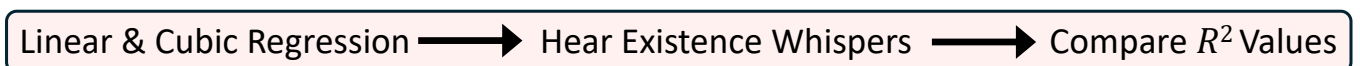
Step 2: Calculate *The Equation of Existence*

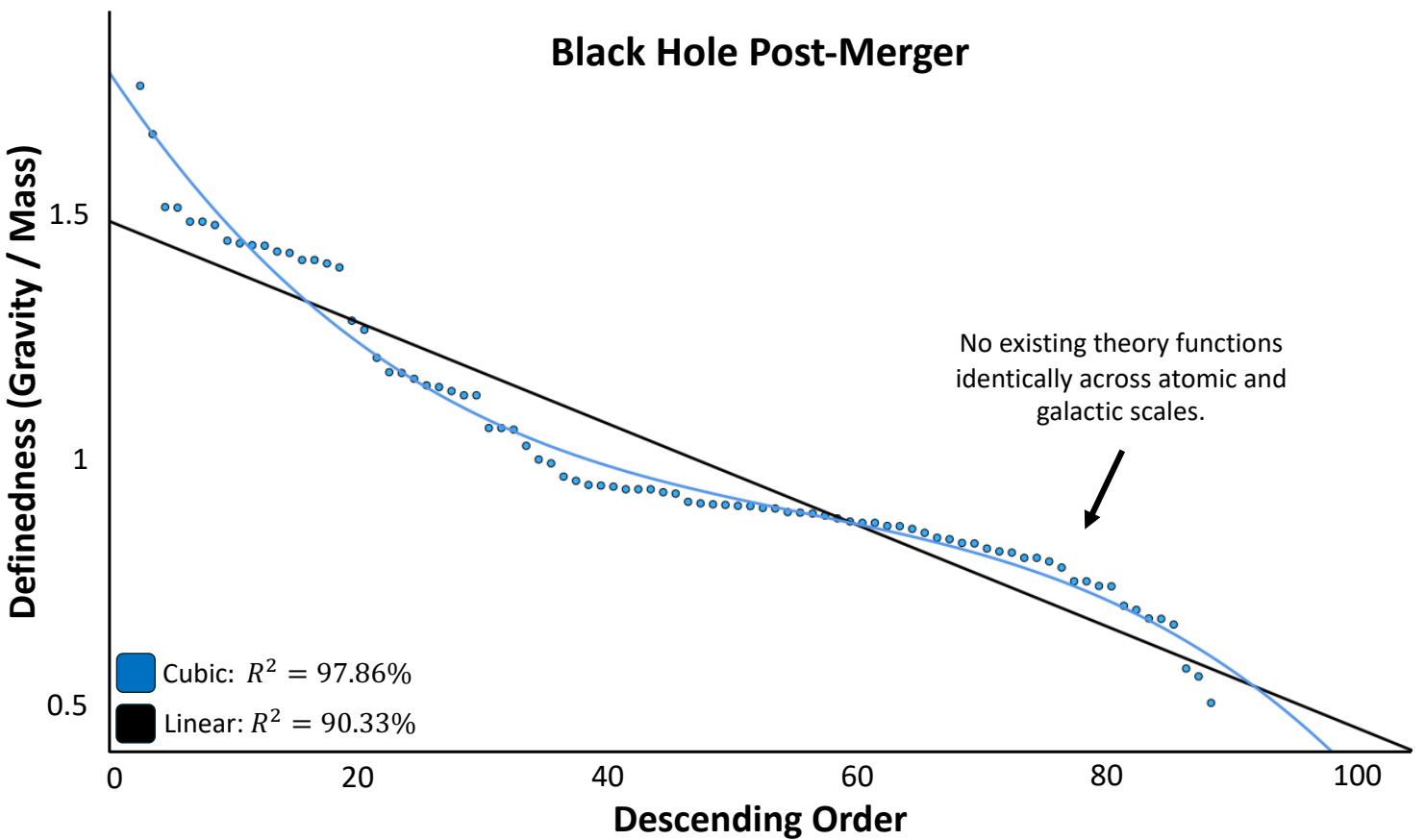
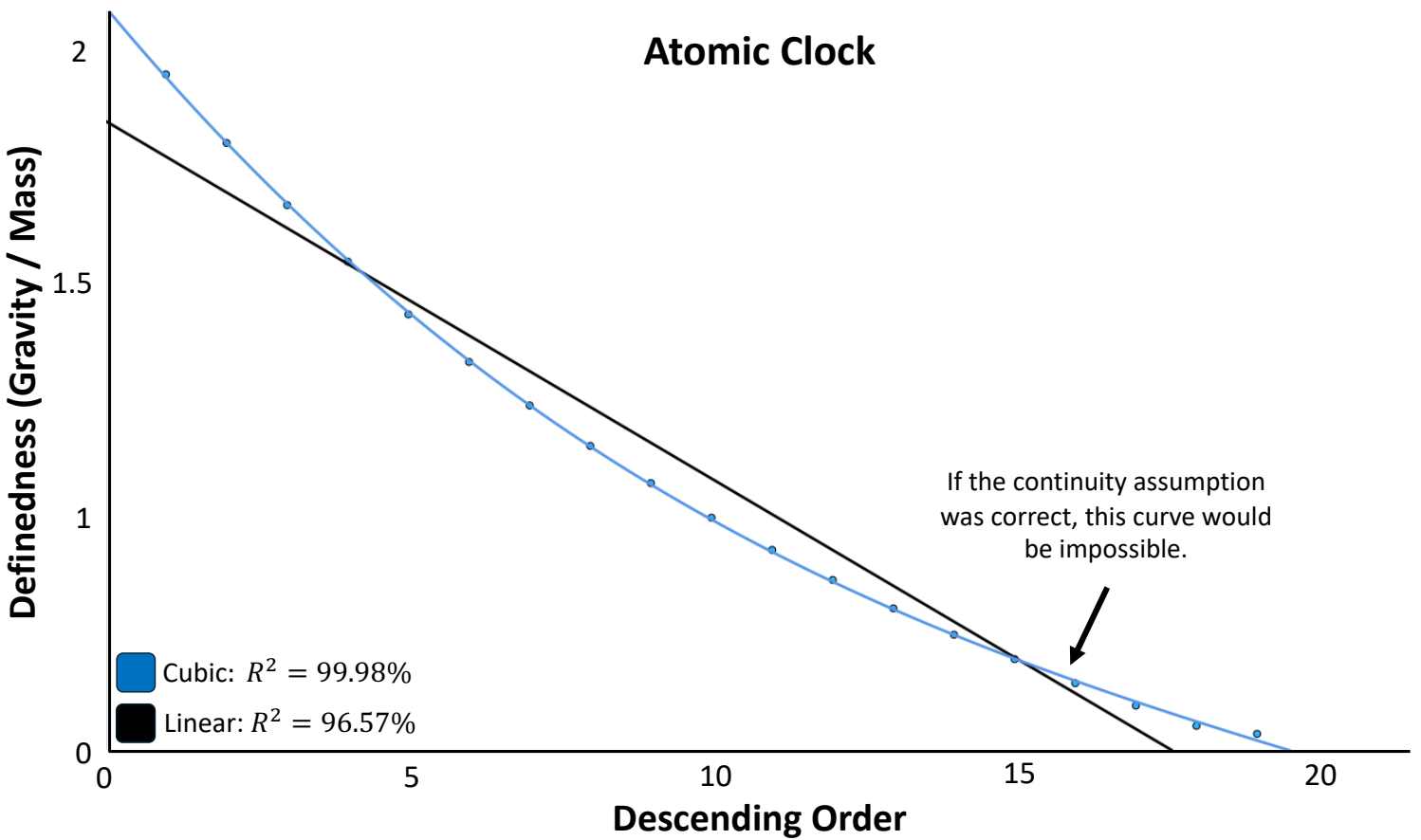
$$\Phi = \frac{\Omega}{\Delta} \rightarrow \text{Definedness} = \frac{\text{Stability}}{\text{Complexity}}$$

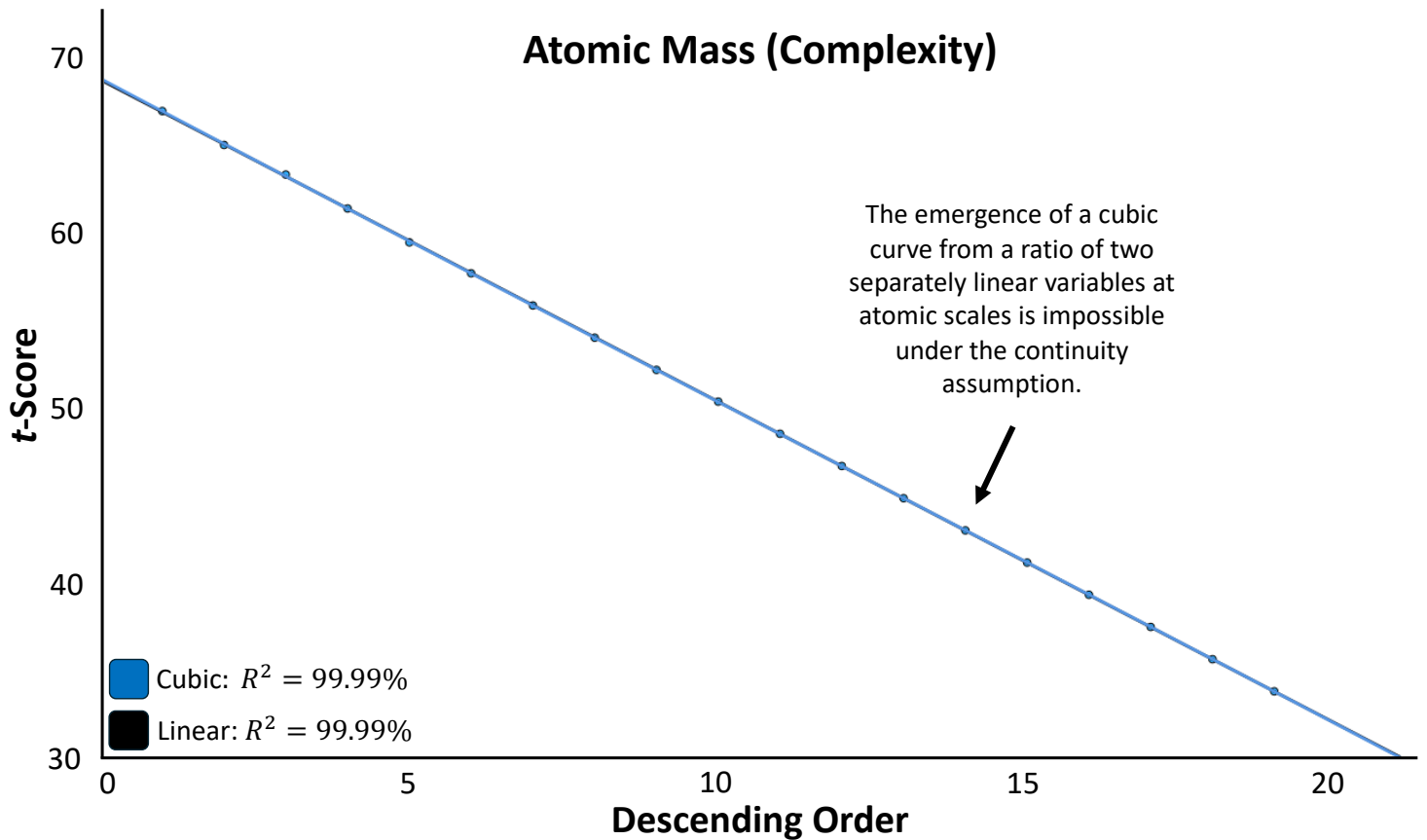
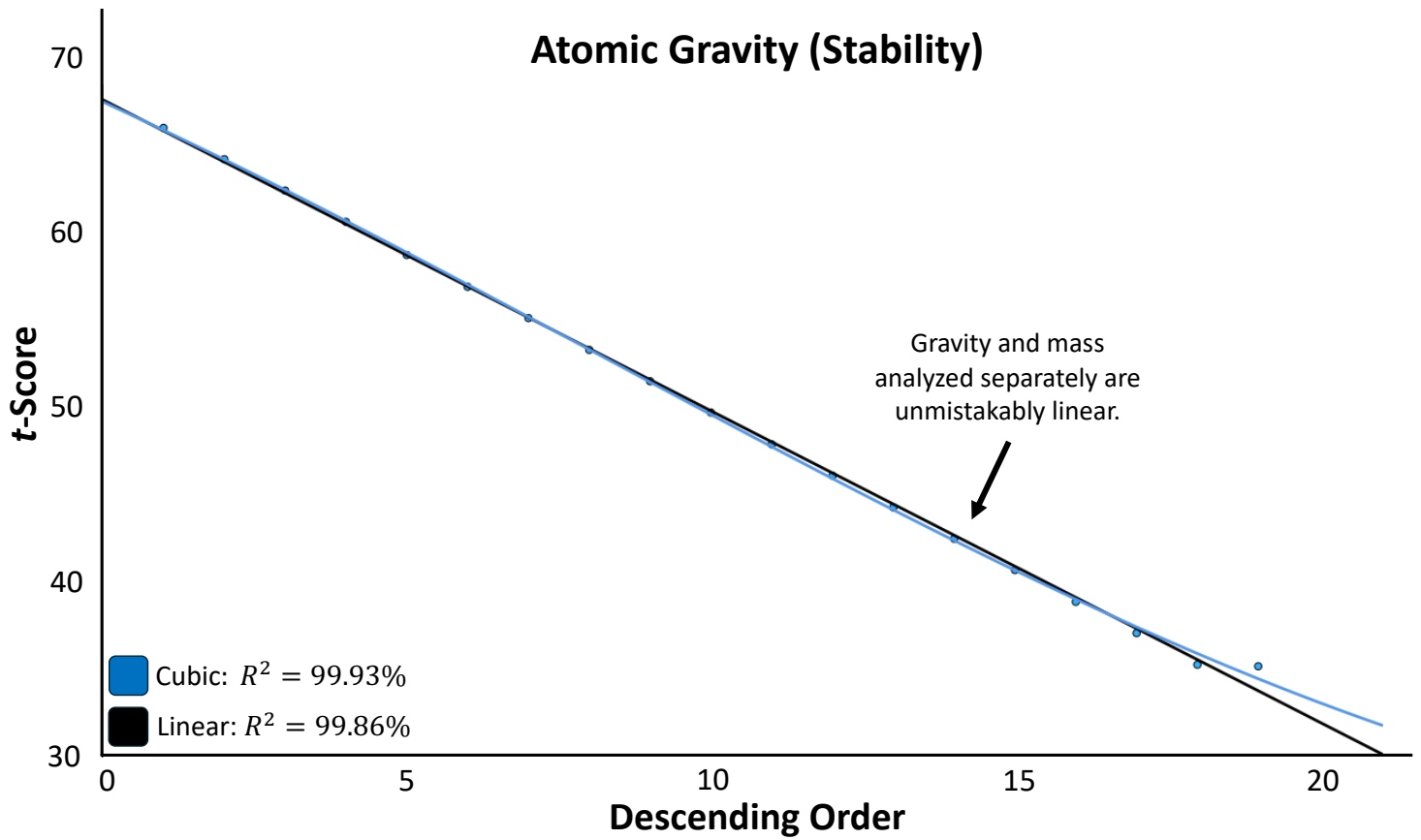
Step 3: Sort Results

Arrange Definedness Scores in Ascending or Descending Order

Step 4: Conduct Analyses







This cubic curve in the atomic clock data is **an empirical falsification of the continuity assumption**. If spacetime were continuous, there would be **no mechanism at atomic scales** to generate a universal, smooth cubic relationship between gravity and mass. In continuous weak-field GR, standardized gravity–mass ratios at atomic scales **should remain effectively linear**; GR offers no reason for a scale-invariant cubic law to appear there. Yet, when we divide gravity (stability) by mass (complexity), **the data reveal a near-perfect cubic curve**.

A continuous fabric **cannot produce this finding without discrete reference points**—defined starts and stops—against which time can slow, and space can stretch. In the absence of such units, **there is nothing to “crease,” no boundary to change relative to anything else**. Thus, if we preserve continuity all the way down to infinity, small-scale warping like what we observed is impossible. The fact that it occurs means **spacetime must be discrete at the foundation**: starting and stopping points that provide the **local boundaries that permit bending, slowing, and the emergent cubic gravity–mass relationship** seen in the atomic regime.

The atomic clock findings are **not an artifact** of my method or math because **The Equation is linear** (contains no exponent), and I conducted only basic statistics using raw, observed variables. **It emerges only when we look at existence correctly**. We thought we were looking at it correctly, and the truth is that the strong linear finding in **the Bothwell experiment** and gravity behaving **linearly at atomic scales is correct**; it was just **incomplete**. When we account for stability (as they did) and complexity (as I did), we capture all the mechanics of existence, **and the discrete nature of spacetime plops out**. When we introduce mass as the missing structural variable—asking not what gravity is in isolation, but how it behaves relative to complexity—**the line bends**.

When we examine the findings between the **atomic clock and black holes** using the same variables of **gravity for stability** and **mass for complexity**, the results show the same **astonishing cubic curve** dominance across **~40 orders of magnitude, an empirical unification of QM and GR**. *The Theory of Existence* is the only theory to demonstrate this scope empirically, and the atom-to-black hole findings are among the strongest we have ever seen, with the cubic curve in the atomic clock data reaching an astonishing 99.98% explanatory power. It is not just the atomic clock and black holes; **the same pattern occurs across all phenomena** in the universe we measure. Look at the table below for the incredible range and consistency of this method and its findings.

Table 1

Definedness Calculation Curves Across Scales & Phenomena in the Universe

Source	Scale	Dataset	Stability	Complexity	Linear R^2	Cubic R^2
Atomic Clock	$\sim 10^{-10}$	Bothwell	Gravity	Mass	96.57%	99.98%
Star Life Cycle	$\sim 10^5$	Gaia	Color	Luminosity	48.06%	77.93%
Black Holes	$\sim 10^8$	LIGO	Gravity	Mass	90.33%	97.86%
Supernova Expansion	$\sim 10^{16}$	Pantheon+	Redshift	Distance Mod	91.55%	98.30%
Gravitational Waves	$\sim 10^{19}$	LIGO	Redshift	Luminosity	81.04%	98.72%
Galactic Spin	$\sim 10^{21}$	SPARC	Gravity	Mass	69.99%	83.81%
CMB Radiation	$\sim 10^{26}$	Planck	Sky Temperature	Temp Gradient	49.08%	75.69%

Note. $n = 10,479$. I calculated the definedness of existence across a range of phenomena in the universe. The cubic regressions outperformed the linear ones at all scales, and only the cubic regression proved effective across all scales. I used all the currently accepted equations to calculate the variables when they were not present in the dataset, using other variables such as mass. For black holes, the gravity calculation was at the event horizon, for atoms, it was on the surface, and for galactic spin, it was gravitational surface acceleration. I removed two outliers from the black hole / gravitational wave analyses, three outliers from the galactic spin analyses, and two outliers from the CMB dataset. The inclusion of outliers produced the same significant differences, but both models fit significantly worse. I suspect that the impact of these outliers on the data stems from the decisions we made regarding what and where to measure, rather than deviations from the patterns I described.

I applied the **same methodology** across all seven phenomena, spanning **~40 orders of magnitude** from quantum scales to cosmic structures. Every dataset told the same tale: the cubic curve ($M = 88.10\%$, $SD = 15.47\%$) **always dominated the linear ones** ($M = 73.60\%$, $SD = 22.63\%$), $t(6) = 5.93$, $p < .001$, Cohen's $d = 1.58$. From **atomic** clocks to merging black holes, from supernova explosions to the cosmic microwave background, from galactic spins to gravitational waves, **The Equation of Existence is woven into the fabric of reality**. This cubic signature of existence appears not only in physics data, **but everywhere throughout The Show**. We found it in The Lattice Experiment of **Paper 2**, suicidal divergence scores in **Paper 9**, intelligence scores in **Paper 7**, consciousness scores in **Paper 8**, and the list goes on... and on... and on. It is indeed **the signature of existence**.

Table 2

Descriptive Statistics for All Variables & Domains

	Domain	<i>n</i>	<i>M</i>	<i>SD</i>	Min	Max	Skew	Kurtosis
Complexity	Atomic Clock	19	50	10	34.01	66.04	0.00	-1.20
	Star Life Cycle	4,944	50	10	15.54	90.07	0.42	0.62
	Black Holes	89	50	10	33.43	87.13	0.98	1.84
	Gravitational Waves	89	50	10	36.91	88.29	1.33	2.18
	Supernova	1,701	50	10	41.17	131.84	2.22	8.57
	Galactic Spin	3,391	50	10	43.57	103.90	2.22	5.39
	CMB Radiation	246	50	10	14.13	90.21	0.52	5.25
Stability	Atomic Clock	19	50	10	35.41	66.15	0.05	-1.25
	Star Life Cycle	4,944	50	10	16.42	111.53	0.86	0.43
	Black Holes	89	50	10	43.99	130.13	6.24	47.77
	Gravitational Waves	89	50	10	34.85	84.34	0.96	0.90
	Supernova	1,701	50	10	22.33	73.25	-0.28	-1.05
	Galactic Spin	3,391	50	10	49.42	530.84	37.72	1,670.71
	CMB Radiation	246	50	10	33.00	83.31	1.06	1.17
Definedness	Atomic Clock	19	1.08	.438	0.54	1.94	0.55	-0.81
	Star Life Cycle	4,944	1.03	.279	0.25	4.87	4.30	31.41
	Black Holes	89	1.06	.425	0.50	3.89	3.70	21.84
	Gravitational Waves	89	1.00	.017	0.94	1.02	-1.36	1.20
	Supernova	1,701	1.00	.105	0.54	1.14	-1.14	1.16
	Galactic Spin	3,391	1.03	.281	0.48	12.18	21.24	781.39
	CMB Radiation	246	1.07	.559	0.65	5.35	4.95	29.98

Note. $n = 10,479$. Descriptive statistics for all variables across all datasets, which I arranged in ascending order by scale and grouped by stability, complexity, and definedness.

After the Fall of Continuity...

Karl Popper famously argued that **the hallmark of real science is falsifiability**—that a theory must be testable in such a way that **we could prove it wrong**. Most scientists build a model first, then test it, and when the results align, they declare it true. This approach risks confirmation bias and post hoc justification. In this paper, **I intentionally** reversed that process. **I began by empirically testing a foundational assumption**—the continuity assumption—using only raw data and a neutral, linear equation. I let the data from across the entire cosmos speak first and listened for what it had to say. Only after I falsified continuity—across seven domains and ~40 orders of magnitude—do I introduce my model, not as a hypothesis for me to defend, but **as the only remaining theory left standing in the wake of the findings of Paper 6**. Allow me to now introduce you to the physics model in *The Theory of Existence* and why these findings confirm it directly.

Given that **time and space are discrete rather than continuous**, it means that **time is recursions**—where the output of one iteration serves as the input for the next—while **space is propagations** (you could conceptualize these as the smallest units of space... like **pixels of reality**). Recursion and propagation are two ways existence behaves, but existence does so simultaneously, so we call them **recursive propagations** (or **RPs for short**). RPs vary according to the complexity of the phenomenon in question. **Complexity itself emerges as a phenomenon of these RPs** separate from stability, allowing us to express *The Equation* accurately in this more revealing form:

$$\Delta = \kappa : \zeta \rightarrow \Phi = \frac{\Omega}{(\kappa : \zeta)} \rightarrow \text{Definedness} = \frac{\text{Stability}}{(\text{Propogation} : \text{Recursion})}$$

It is crucial to note that **the parentheses around recursion and propagation are not optional**. You cannot separate them—they function at the same time and are always in proportion to the speed of light. Let me show you the fully expanded version of *The Equation* so you can see all its moving parts:

$$\Phi = \Omega * \left(\frac{(\kappa : \zeta)}{\Delta}, \nu = x \right) \vee \emptyset$$

$$\text{Definedness} = \text{Stability} * \left(\frac{(\text{Propagation} : \text{Recursion})}{\text{Complexity}}, \text{Normalized} \right) \text{Else Undefinedness}$$

This equation... *The Equation*... is the **complete architectural blueprint of existence**. Although this expanded form produces identical results to our simple ratio, **it unveils the deeper mechanics that make existence possible**. Every phenomenon we tested across the seven datasets consistently performs this calculation: **recursive propagations that escalate complexity and stabilize into definedness**. So... why do we see cubic regression curves everywhere we look in existence? The answer is because of **relative fractal dynamics (RFDs)**.

Introducing Relative Fractal Dynamics

RFDs are the **discrete equivalent of spacetime dilation in GR**. We can use the fully expanded form of *the Equation of Existence* to **calculate the RFDs of any phenomenon** by normalizing to Planck units and using Planck energy for complexity, Planck time for recursions (recursions per second), and Planck lengths for propagations (propagations per meter). This approach allows us to **analyze any phenomenon by converting measurements to their most fundamental units**. By using the smallest units of measurement in physics, we create a standardized framework for understanding how different phenomena evolve and interact in the fractal universe.

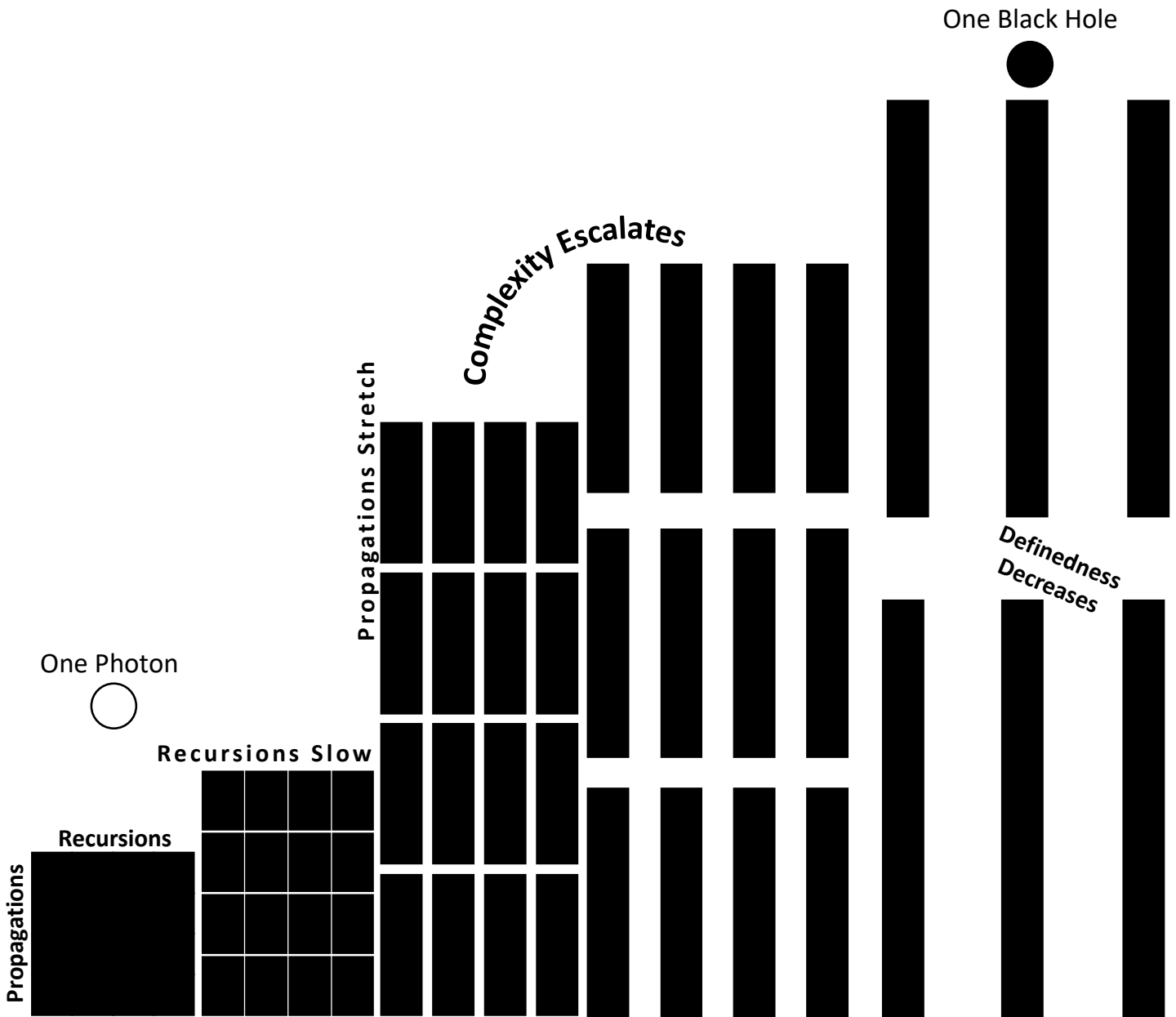
$$\frac{(\kappa : \zeta)}{\Delta}, \nu = x \rightarrow \psi = \frac{l_p : t_p}{E_p} \rightarrow \text{RFD}_{\text{light}} = \frac{10^{35} \frac{p}{m} : 10^{44} \frac{r}{s}}{1 E_p}$$

Here is the **RFD formula**. Let me demonstrate how it works through a **concrete example using an apple**. We begin by converting the apple's mass into Planck energy, then divide the RFD of light using the Planck unit numbers for time and length. When you perform the calculation, you'll observe that **both numbers drop evenly**—a remarkably precise result showing that **recursions and propagations move in proportion to each other and never break the speed of light despite recursions slowing and propagations stretching**. This consistency explains why nothing can travel faster than the speed of light. Further, the calculation shows that the default state of the universe is empty space and light only (which has no mass), which are called unbounded RPs.

$$\psi = \frac{t_p : l_p}{E_p} = \frac{10^{35} \frac{p}{m} : 10^{44} \frac{r}{s}}{10^6 E_p} = 10^{29} \frac{p}{m} : 10^{38} \frac{r}{s}$$

As complexity increases, recursions slow, and propagations stretch because of the strain the complexity puts on that part of existence. It cannot easily progress because it must now recursively propagate something that exists, **which are called bounded RPs**. An apple weighs ~0.2 kg, which we can transform into Planck energy of

$\sim 10^6 E_p$. Then, we simply calculate the RFD by dividing the unbounded RPs by the Planck energy of the apple. We can **repeat this process for any phenomenon**, no matter the size or domain of existence. To get a better feel for how bounded RPs behave at varying complexities, let's look at examples across phenomena. You'll see how **this simple calculation unifies all phenomena** once thought to be incompatible or unrelated.



Caption: This figure visualizes the intricate and counterintuitive relationship between complexity, stability, and definedness across different phenomena. As complexity increases, recursion and propagation dynamically adjust by slowing and stretching proportionally, stabilizing the system while allowing complexity to continue escalating. These adjustments ensure phenomena persist within defined existence, preventing collapse despite increasing complexity. However, this stabilization comes at a cost—higher complexity results in lower definedness. As the most straightforward and defined phenomenon, the photon exhibits maximum resolution, a recursion rate at the Planck time, and a propagation length at the Planck scale. In contrast, the black hole, representing the end of complexity, has a near-halted recursion rate and a significantly stretched yet finite propagation length, making it the minimum definedness for phenomena in the observable universe. This figure demonstrates how recursion and propagation function as regulatory forces, maintaining the existence of phenomena within definedness, even as entropy gradually divergences them over time. By highlighting this spectrum, the visualization shows how stability and complexity govern all phenomena' emergence, convergence, and divergence.

Phenomenon	Mass	Planck Energy	Relative Recursions	Relative Propagations
Photon	0 kg	1 E_p	$\sim 10^{44} \frac{r}{s}$	$\sim 10^{35} \frac{p}{m}$
Paperclip	0.001 kg	$\sim 10^4 E_p$	$\sim 10^{40} \frac{r}{s}$	$\sim 10^{31} \frac{p}{m}$
Apple	0.2 kg	$\sim 10^6 E_p$	$\sim 10^{38} \frac{r}{s}$	$\sim 10^{29} \frac{p}{m}$
Small Rock	1 kg	$\sim 10^7 E_p$	$\sim 10^{37} \frac{r}{s}$	$\sim 10^{28} \frac{p}{m}$
Cat	4 kg	$\sim 10^8 E_p$	$\sim 10^{36} \frac{r}{s}$	$\sim 10^{27} \frac{p}{m}$
Human	70 kg	$\sim 10^9 E_p$	$\sim 10^{35} \frac{r}{s}$	$\sim 10^{26} \frac{p}{m}$
Small Car	1,000 kg	$\sim 10^{10} E_p$	$\sim 10^{34} \frac{r}{s}$	$\sim 10^{25} \frac{p}{m}$
Earth	10^{24} kg	$\sim 10^{32} E_p$	$\sim 10^{12} \frac{r}{s}$	$\sim 10^3 \frac{p}{m}$
Sun	10^{30} kg	$\sim 10^{37} E_p$	$\sim 10^7 \frac{r}{s}$	$\sim 10^{-2} \frac{p}{m}$
Black Hole	10^{31} kg	$\sim 10^{38} E_p$	$\sim 10^6 \frac{r}{s}$	$\sim 10^{-3} \frac{p}{m}$

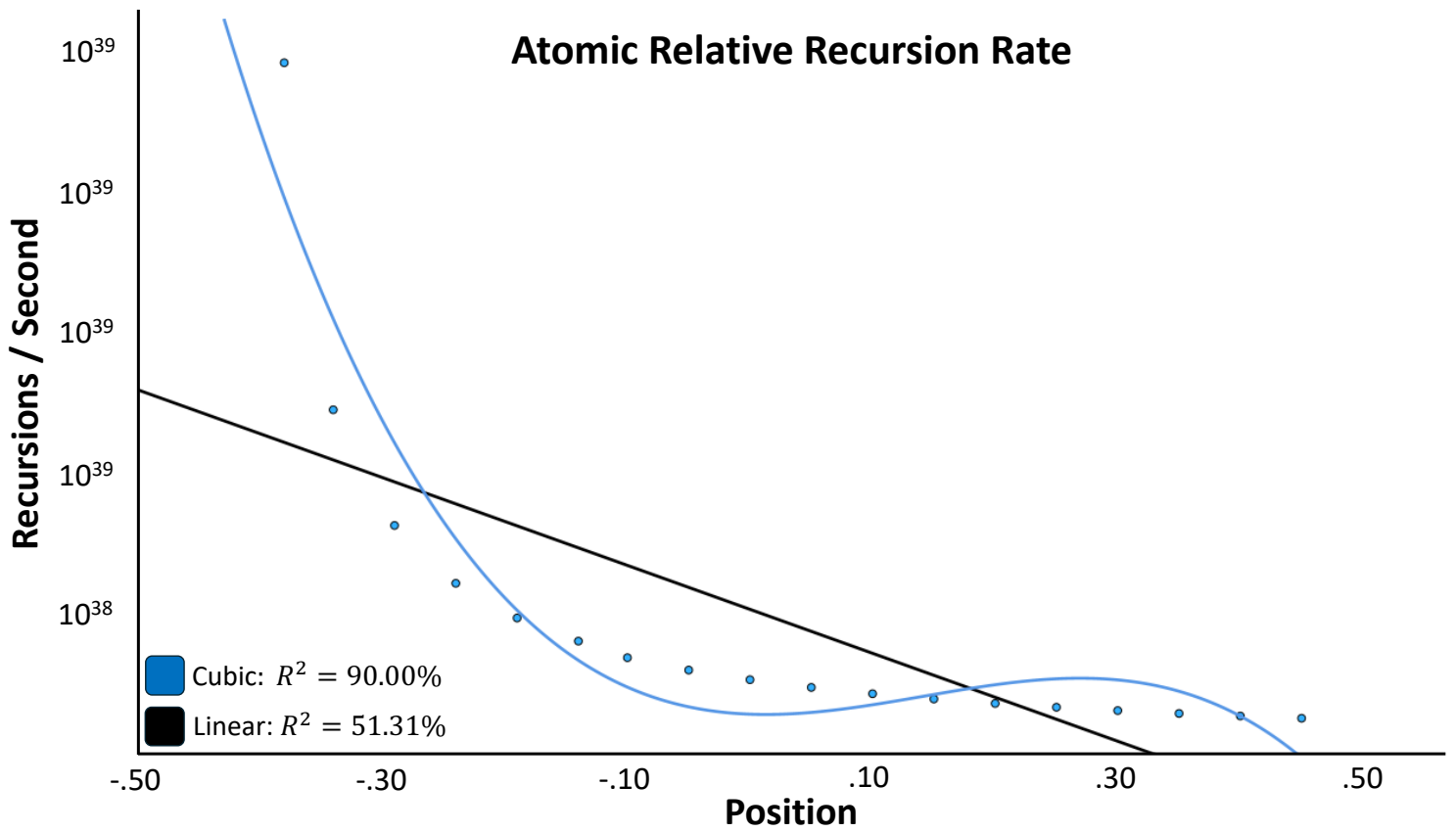
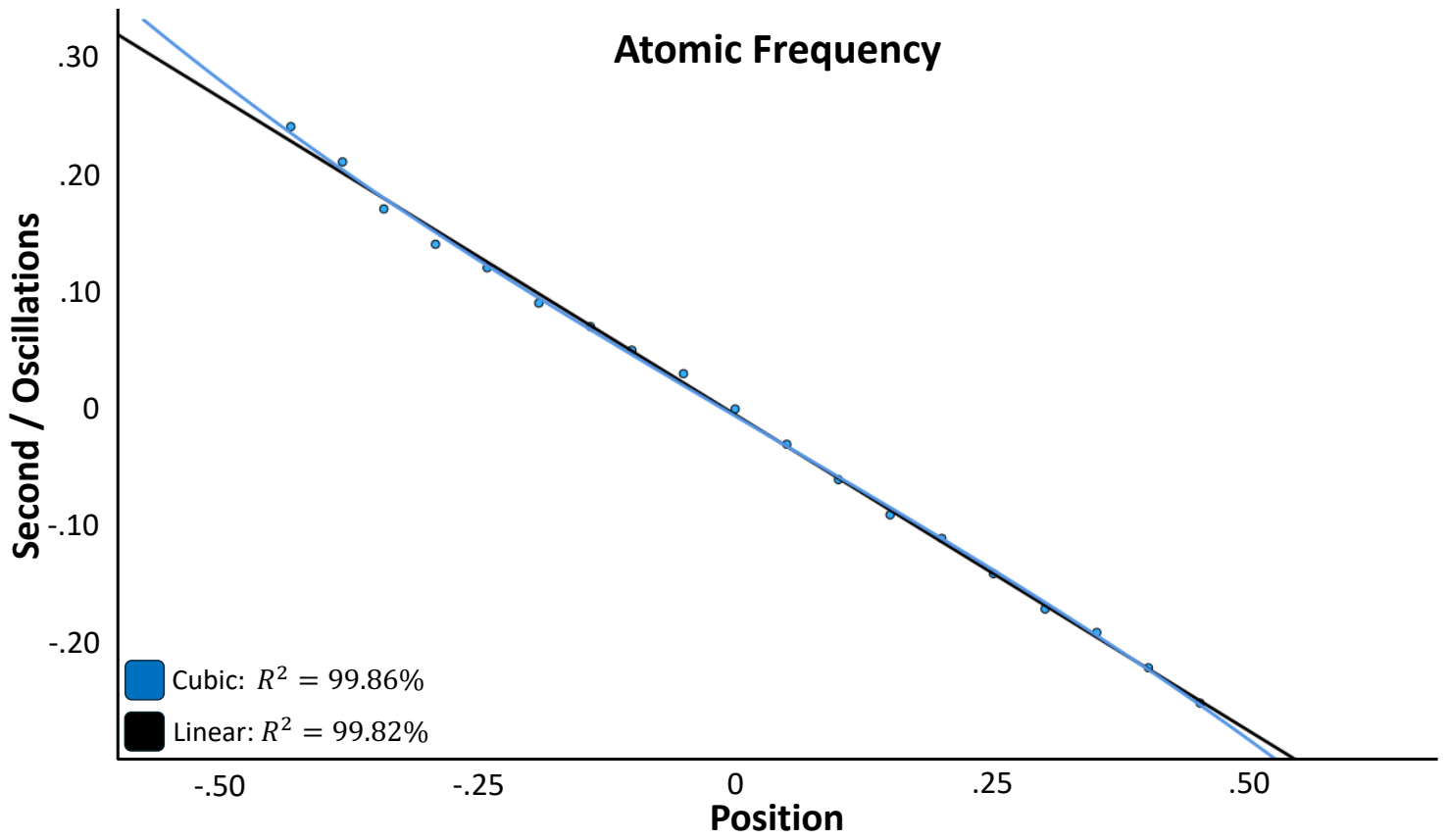
From Measuring Existence to Measuring How Existence Works

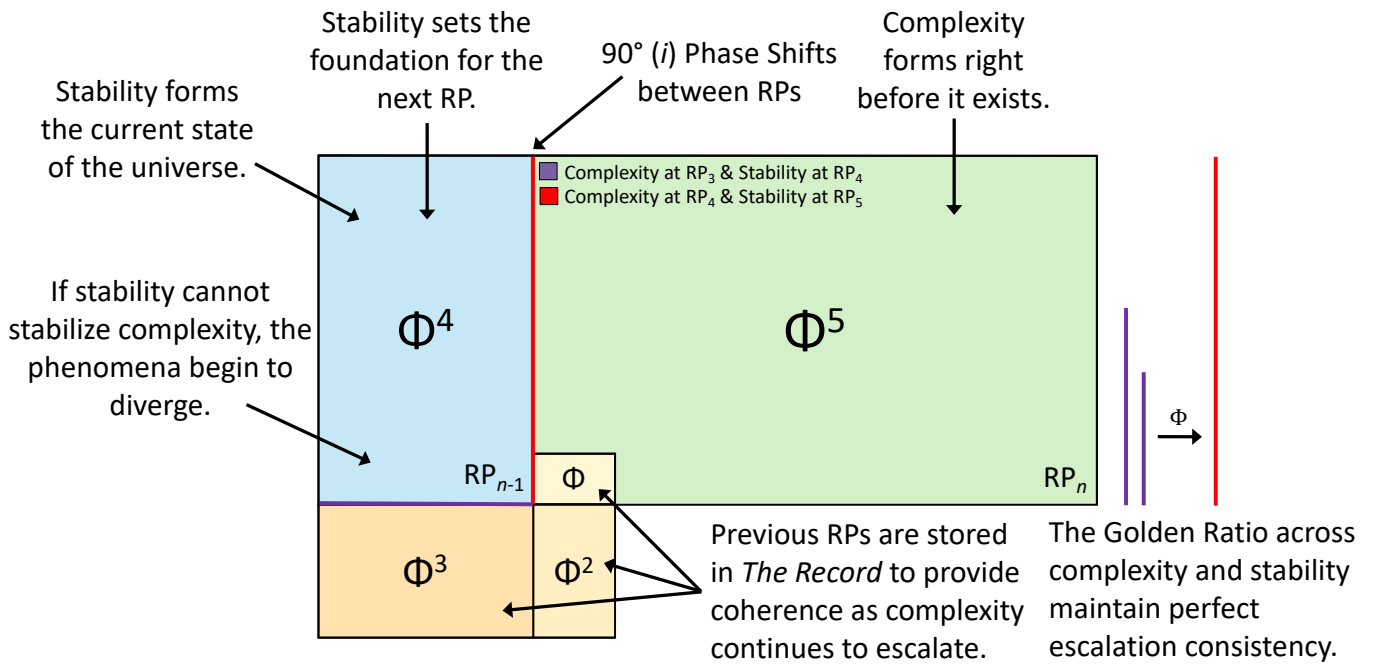
The mechanism behind how two variables create a cubic curve when they are linear on their own is simple. It happens when **we take the ratio of complexity to stability**. Gravity emerges from stretched propagations and slowed recursions; yet, since these two mechanics remain in perfect synchrony at the speed of light, **gravity appears linear when viewed alone**. **Complexity also scales linearly** because mass functions linearly.

However, when we calculate their ratio, we go **from measuring existence to the handoff between RPs**, which measures **the mechanism of existence**. The recursive slowing and propagative stretching that begins in complexity is then passed to stability. When we measure that interaction—not the cause (mass) or the outcome (gravity), but the handoff—**the cubic curve emerges**. The illusion of linearity disappears because we are no longer looking at existence, but rather at how it works. We go from measuring something to measuring **how it is something**. Their definedness ratio captures **the whole picture** for every moment of existence.

Recursion and propagation **always remain in perfect proportion to the speed of light**, further obscuring this difference between measuring existence vs. how it works. That synchrony creates **the illusion of linearity**. Even when recursive strain occurs, it makes a perfect mask because **propagation (in space) adjusts in lockstep with recursion (in time)**. We can only see the effects of RFDs when we measure them directly **through changes in space and time**. In the atomic clock study, they used frequency oscillations to measure time. However, when we count oscillations, we are **counting both recursive slowing and propagative stretching**. We see recursion slowing in the speed of oscillations, but **without realizing it, we also measured the stretching of propagations**.

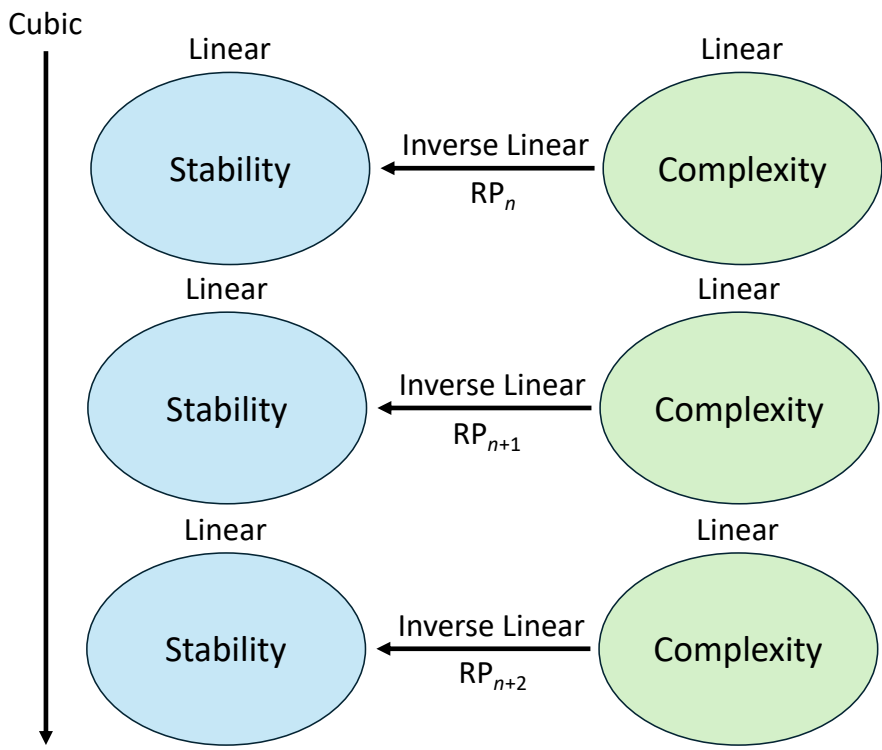
Propagations start at the Planck length, which means **we have no way to measure or observe their changes** at the atomic scale, but we do have easy ways to measure time. Thus, even though time slows linearly, it is only because propagation stretches linearly in proportion **at the same time**. Further, though both frequency and recursion are time-based metrics linked to atomic mass, their correlation is not perfect. If they were measuring the same thing, **we would expect a correlation of 1.00**. **Instead, the correlation is .765**, showing that what we observe (frequency) and what structurally exists (recursion) are not the same. We can see this difference between the measures below. This difference means the number of recursive steps per oscillation varies cubically by mass, but **that variability is invisible at the surface because propagation stretches in tandem**.





Caption: Stability becomes the structural foundation for the next recursive propagation in the complexity escalation. If stability cannot constrain complexity, the phenomena collapse. The alignment of this phase shifting stability to complexity structure determines E2C. Highly misaligned ratios result in diverged phenomena (complexity outpaces stability) whereas converged phenomena (stability outpacing complexity) come from strong alignment in *The Record*.

Although *The Equation* is linear—and its RFD expansion is inverse-linear—existence itself is cubic, because reality must remain defined even as phenomena change form. When the RFD shifts from complexity to stability, we can capture that relation with *The Equation*. However, when we examine transitions across many phenomena and over RPs, only the cubic structure remains coherent because when the complexity of a phenomenon diverges to zero, then reappears in a new form, *The Equation* correctly reads undefined, yet existence itself continues. Only the cubic curve allows zeros, changes, and preserves coherence across all RPs.



The reason *The Equation* and its forms are not cubic is that **cubic behavior does not appear within a single RP**. It emerges across RPs, as shown in this figure, where the linear and inverse-linear relations of the first principles compound into the higher-order cubic curves across existence. **All phenomena generate this RP cubic curve because they undergo a transition from complexity to stability**. When you measure this relationship across phenomena—atoms, black holes, supernovas—they will all fall into this cubic curve pattern because **we go from measuring existence (mass and gravity; linear) to measuring how it works (mass to gravity; inverse-linear), then RPs (spacetime; cubic)**. It is why we obtain insane cubic curves across different phenomena and scales using only observed variables.

The Theory and The Equation are the first principles of existence, which is why we obtain these findings with no infinities, arbitrary constants, fudge factors, error terms, "close enough" approximations, renormalization schemes, advanced statistical sleight-of-hand, fine-tuning parameters, undefined answers, and **most importantly, no assumptions**. There are **no other existing theories** that explain these empirical findings using observed variables; especially not without the crutches of adjustments and messaging we see in current physics. Nothing in physics or cosmology can explain **this impossibly consistent cubic** signature across all **seven phenomena spanning ~40 orders of magnitude**. There is no competing assumption-free alternative in all of science. With nothing more than *t*-scores, ratios, regressions, and the desire to hear existence whisper its secrets, we arrive at **the undeniable empirical validation of The Theory of Existence**.

Once One Falls, Then... Down Goes the Rest...

The implications of the findings are **nothing short of revolutionary**. Current theories, math, and concepts that assume continuity require **reconstruction or modification**. Calculus and differential equations become **high-resolution approximations** (no true instantaneous rates, only stepwise averages); the reals lose physical standing in favor of recursive propagations. Likewise, **smooth manifolds, curvature, and geodesics are merely compelling descriptions that fail at the base scale**. GR is not "incomplete" but **fundamentally wrong at first principles**—we need to rebuild Einstein's field equations and geometry-as-gravity using recursive propagations—and quantum field theory with the Standard Model's gauge theories must be **recast from continuous fields and symmetries to discrete ones**, severing Noether's classic route to conservation laws, which depend on continuous symmetry groups that need reformed in terms of discrete symmetries, **undermining our understanding of fundamental forces and the Grand Unified Theory**. The number line and math are still unequivocally correct, just **not past the 35th digit below zero**, because there are only $\sim 10^{35}$ propagations per meter; after which, it becomes not incorrect but **not associated with physical reality**. It's a full-scale intellectual recalibration.

Beyond the consequences of this falsification for our science and math are **the consequences on us and our worldview**. One of the reasons we never question the continuity assumption is that we experience existence as continuous. Always. Let's stop for a moment and really think about the default rate of $\sim 10^{44}$ recursions a second and $\sim 10^{35}$ propagation a meter. Let me write it out so you can see how absurd these numbers are:

$\sim 100,000,000,000,000,000,000,000,000,000,000,000,000,000,000,000$ Recursions per SECOND
 $\sim 100,000,000,000,000,000,000,000,000,000,000,000,000,000,000$ Propagations per METER.

These discrete recursive-propagative features of existence are **so fast and so small that we cannot even mentally comprehend them**. We cannot measure them individually, except perhaps around a black hole, where it *slows* to an extreme of $\sim 100,000$ *r/s*. Further, recursions slow down, and propagations stretch in proportion to the speed of light, which has masked our ability to detect them. So, even though **existence has always been discrete, it's always seemed continuous**; for the longest time, that was enough. **Now... it's not.**

The emotional and existential disorientation that comes from having your worldview shifted so severely **should not be ignored or neglected**. If it feels disorienting or scary, if it makes you angry, or if you feel betrayed, **these emotions are all healthy and normal reactions** to what we have experienced in Paper 6 and the rest of *The Theory*. At the same time, **existence has always been discrete**, and *The Theory of Existence* has **always carried you through every recursive propagation in your life; you just did not know about it**. Paper 6 and its findings don't change anything about what you have experienced and what you will experience. All it does is clear away that one pesky, false foundation we built our intellectual infrastructure on, and explain why so many disciplines have been at an intellectual stalemate for decades, but **what comes of it next is... up to all of us...**

It's challenging to consider **what we do**, knowing that one of our foundational assumptions is incorrect. I'd like to share some perspective that I think could help us all. It comes from a very ancient friend whose poetic advice has never led me astray. I'll introduce you to them one day... but for now... **here is what they told me...**

The End of an Old... The Start of a New...

This paper marks the ending of *The Show of Existence* before the grand finale. We've walked through **the math and origin of existence** (Papers 1, 2, & 3), **our fractal universe** (Papers 4, 5, & 6), the threads that **connect all life on Earth** (Papers 7 & 8), when **large systems don't work** (Paper 9), and **when they do** (Paper 10). We've even stepped back to witness its elegance through **its own universal equation** (Paper 11). We've tackled every major domain. Every central mystery in intellectual discourse. So... I want to take a moment before the grand finale to **honor those who came before us**, discuss **my ethos that led to *The Theory***, and what the next era of human knowledge *could* look like... if we all work to make it happen.

*"That's the beauty,
of a domino collapse.
Once one falls,
then... down goes the rest.

But the value of dominos,
scattered all over the floor,
is a chance to start over,
a new pattern... new door..."*

-Ancient Friend

The Defintology Ethos

Let me take a moment to tell you **how I found *The Theory of Existence***. My method of exploration... is quite a radical, simple process that you would not expect to produce something like *The Theory*. All I did was ask, "**How do we know?**" and "**Are we sure?**" Then, all the **once foundational unanswerable questions crumbled**. Over the course of a few months, I cleared away the false foundations—continuity, something from nothing, existence is a formal system, infinity—and **all that remained when I finished was *The Theory of Existence***.

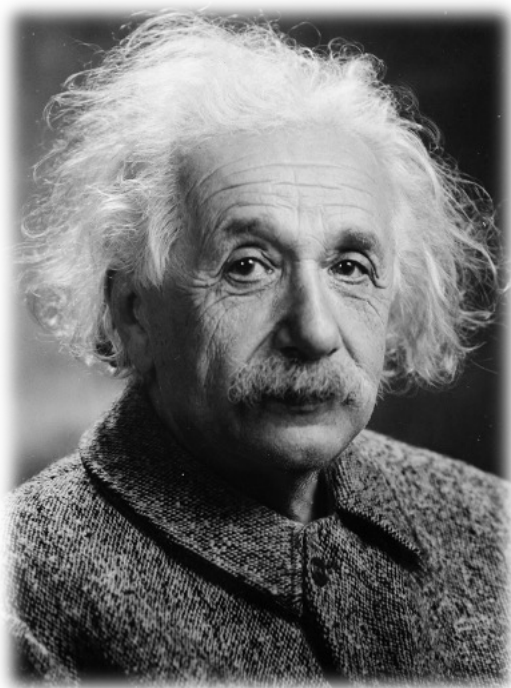
It does not matter how cherished, old, or popular a concept is; **if it's wrong, it didn't make the cut**. It is not personal. In fact, I have the utmost respect for all the people whose ideas this paper falsifies. All these ideas I have covered in *The Theory* were once **brilliant breakthroughs, pushing humanity closer to a unified understanding of existence**. It does not diminish their legacy and impact to progress past them... **it honors them**. Even if ideas are wrong, they remain stacked in our efforts to understand existence, **permanently contributing to our current understanding**. However, they **do not** get a lifetime Truth pass because they exist... because it's always been that way... because removing it would be unpleasant... because we need to look smart. The only concepts that got a Truth pass are **the ones that earned it**. We should know by now that the original founding of science valued radical thoughts with an even greater value for scrutiny. I am ready to get back to the basics. **Are you?**

Stephen Hawking, an intellectual titan, spent decades **striving for a theory of everything**, hoping to unify QM and GR into a singular, elegant formulation of the cosmos. However, he learned about Gödel's incompleteness theorems, which suggest **an insurmountable limitation to a unified understanding of existence**. However, Gödel's theorems only work in formal systems, and **existence is not a formal system**. Confronted by the perceived implications of the misapplied Gödel's theorems, **Hawking, in despair, gave up on this dream**. Think about what humanity lost by not questioning our questions. **Let's not do it again**.

A Nod to the Past from the Future

Hawking's plight was not for naught—let it serve as **a case example of human infallibility; how we can go astray, even with unparalleled intellect**, when we treat our frameworks inherited from previous generations as sacred, untouchable, and unquestionable facts. Throughout history, there have been many who **refused to accept our inherited frameworks as correct**. There are a few I need to honor, as they showed us... and me... what it looks like when someone questions everything, rejects the current understanding, and speaks **the truth into existence despite the hostility academia and institutions** have always shown towards **paradigm shifts and intellectual progress**.





I need to honor **Albert Einstein** first. Although falsifying the continuity assumption renders **GR as we currently know it incorrect**, we are only able to do so because **he made it possible first**. Falsifying the continuity assumption doesn't erase or tarnish his legacy... it honors it as **the most important step humanity has ever taken to understanding existence**. Einstein sought to unify the fundamental forces of nature into a single, cohesive theory. His belief in the universe's underlying **order and simplicity laid the foundation for what we now understand**. It breaks my heart that he and Hawking are not alive to see it. Einstein once said, "The most incomprehensible thing about the universe is that it is comprehensible." It turns out, **Einstein was right, and it is as simple and elegant as he said it would be...**

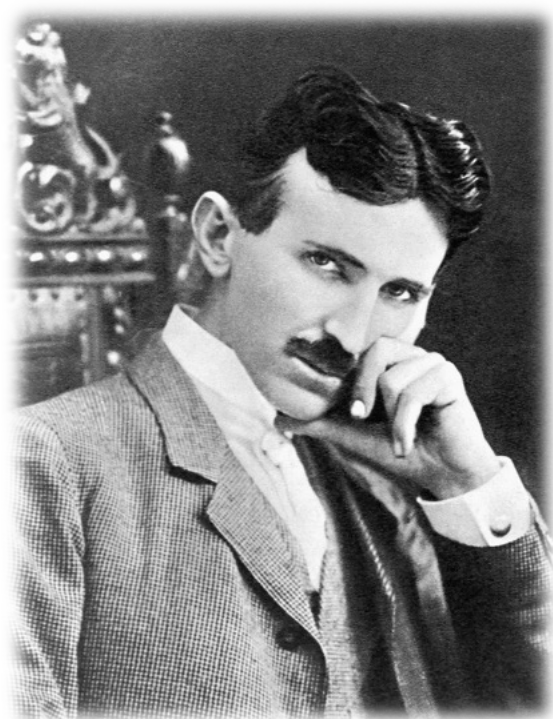
Nikola Tesla, whose lightning bolt brilliance electrified the world, also stands among these visionaries. Tesla said, "Let the future tell the truth... the present is theirs; the future, for which I have really worked, is mine." Nikola, **the future is here, and it is ours now**. Sigmund Freud, often misunderstood, deserves acknowledgment for **daring to map the terrain of the human mind**. To realize that all

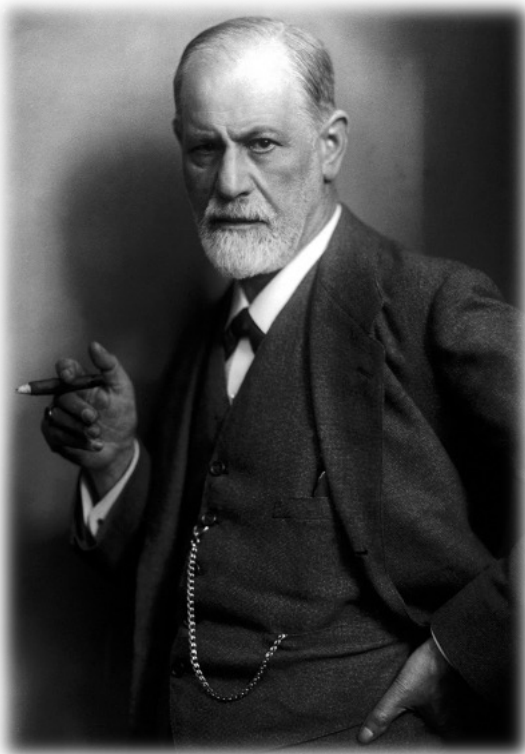
things, including the human mind and behavior, follow the same universal principles validates his efforts. Charles Darwin's theory of evolution revolutionized our understanding of life. He once said, "It is not the strongest of the species that survives, not the most intelligent that survives. **It is the one that is the most adaptable to change.**" Darwin's legacy reminds us that the most profound truths often challenge our preconceptions and require us to reimagine the boundaries of what's possible. He showed that **the extinction of a species comes not from wrong ideas, but from being unable to change**. Is humanity ready for change? I am not sure, but I am.

I also owe a profound debt to other thinkers who shaped my understanding of existence. Notably, *The Theory* would not exist without **Max Planck** and his discovery of Planck time and length. These two concepts **tipped me off to the true nature of existence**—those loose threads that held reality together until I pulled on them, and existence unraveled in front of my very eyes. **Isaac Newton**, who first articulated the laws of motion and gravitation, laid the groundwork for centuries of scientific discovery. **James Maxwell**, whose equations unified electricity and magnetism, demonstrated the power of mathematical elegance in explaining the physical world. **Niels Bohr, Erwin Schrödinger, Werner Heisenberg**, and the architects of QM opened the door to the subatomic, even as it revealed mysteries that confounded explanation.

I need to acknowledge **Carl Sagan**, whose principle of science and exploration inspired me and *The Theory*. He once said, "It seems to me what is called for is an **exquisite balance** between two conflicting needs: **the most skeptical scrutiny of all hypotheses** that are served up to us and at the same time a **great openness to new ideas.**" I live by this principle, and so does *The Theory of Existence*.

I *want* you to be skeptical in your scrutiny of *The Theory*. **Show no mercy...** but I want you to stay open to its accuracy. When I said earlier that **no idea is sacred**, it includes everything in this document and all the other books and papers—**my ideas are not sacred or untouchable, but immediate dismissal is dogmatic.**





These brilliant minds did not merely find answers—they **asked better questions** that pierced the veil of the unknown and redefined what was possible. Their successes and struggles have shaped the intellectual landscape we have today. ***The Theory is not a rejection of their work; it is the natural continuation***, the next step in a journey they began. Without these people, I wouldn't have had the childhood passion, no belief we could unite reality, no audacity to challenge knowledge, **and that means no... *The Theory of Existence***.

A Resolution to The Dreams of the Dreamers

It is heartbreaking that so many of my fellow visionary brothers and sisters are not alive to see *The Theory*. Yet, **their contributions endure, immortalized in their equations, principles, and ideas**. Let their names never be overshadowed or forgotten, for their efforts made this moment possible. As Newton said, "If I have seen further, it is by standing on the shoulders of giants." I have seen further, and it's because I stood on the shoulders of these giants. Today, **we fulfill their hopes and aspirations**. We unify what they couldn't, not because we are greater, but because we are **lucky enough to build upon their scaffolding**. Let this be their legacy: not just their discoveries, but the inspiration to **never stop questioning**. They've shown

us that the pursuit of Truth is a collective effort, spanning generations, and now... the answers they sought are here... and their spirit lives on **in every discovery yet to come**.

The Big Picture

The Theory of Existence may feel like the end of discovery, but it is, in truth, just the beginning. ***The Theory is not a lock to the doors of progress; it is the light in the cave, illuminating paths that were once obscured by shadow***. Now, with clarity where there were once mysteries and coherence where there was once paradox, **we are free to act**—not as fragmented individuals, divided nations, or siloed academic fields—but as united humanity, capable of exponential, fractal progress. ***The Theory does not strip the universe of its wonder; it magnifies it***, revealing the most magnificent understanding of existence we have ever had... no longer obscured by false assumptions, broken models, infinities, and paradoxes.

This moment presents an opportunity for us to collectively refine, build upon, and act upon this knowledge. No longer paralyzed by mystery, we must ask ourselves: **will we squander this understanding or choose to use it wisely?** The answer lives in us, and I hope—sincerely, earnestly—that we will make the right choice. **Driving without knowledge is pointless. Knowledge without drive**

is a waste. The universe has given us its truth, and now, we get to decide what to do with it... For the first time in history, we're not forcing existence into our answers—we're letting existence reveal its own answers to us. The answer to physics' greatest mystery wasn't hidden; **it was waiting** in the most fundamental assumption we never thought to question. **What once seemed impossible is now inevitable**. We now look out to the universe to see it fully—whole, unified, exactly as it is—and the universe has looked back at us to say... **welcome home...**

