

The Dance of Stability & Complexity

The Equation of Existence as the Universal Lens

Written by Bryant Stone (*The Architect*)

Overview

Why are things the way they are? For millennia, humanity has sought to understand existence—physics measured in kilometers, chemistry in pH units, and psychology in behavioral assessments. Although we have achieved remarkable success in these domains, one central mystery remains: **what connects them all?** When we step back to observe existence, we do *not* see fragmentation—we see **harmony and cohesion**. We see a **synchronized symphony operating under a single, magnificent unifying principle**. In this paper, I introduce that principle; it is called ***The Equation of Existence* ($\Phi = \Omega/\Delta$)**—a universal relationship governing **everything that has existed, currently exists, and can exist**. In *The Equation*, 1) **Definedness** (Φ) is the degree to which something exists, 2) **Stability** (Ω) is the degree to which complexity is attracted to complexity, and 3) **Complexity** (Δ) is the degree to which phenomena escalate from basic to structured forms. This profound yet straightforward ratio reveals that all phenomena emerge from **this balance between persistence and growth**. *The Equation* holds total explanatory power, operating across all contexts, units of measurement, timeframes, and scales, **without exception**. I demonstrate *The Equation* through pure mathematics, using the Collatz Conjecture and treating the number line as a time series. Then, I apply it to real-world data, including **Walmart sales, global GDP, CO₂ emissions, Katy Perry's cultural arc, power usage, my own thought processes, and the universe itself through the Cosmic Background Microwave radiation**. The result is always the same: ***The Equation holds***. We no longer need to view existence as a conglomerate of siloed domains. With *The Equation*, we have found the source code of existence—the underlying structure. It is written in math, felt in every breath, and expressed in all phenomena... including *you*, dear reader. Oh... and the answer to that question is... **it's the only way for things to be...**

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Background & Findings

Humanity has achieved remarkable success in articulating the most fundamental dynamics of what we see and experience through simple, elegant equations— $E = mc^2$, $e^{i\pi} + 1 = 0$, $F = ma$, and $a^2 + b^2 = c^2$. These **beautiful equations** reveal profound knowledge, deriving their power from articulating **minimum, absolute Truths**. For ***The Theory of Existence* to qualify as the Grand Unified Theory of Everything** (explains *all* of existence), it *must* contain such an equation—and fortunately, **it does...** It is called ***The Equation of Existence***—the mechanism governing all phenomena that **have existed, currently exist, and can exist**. Allow me to introduce you...

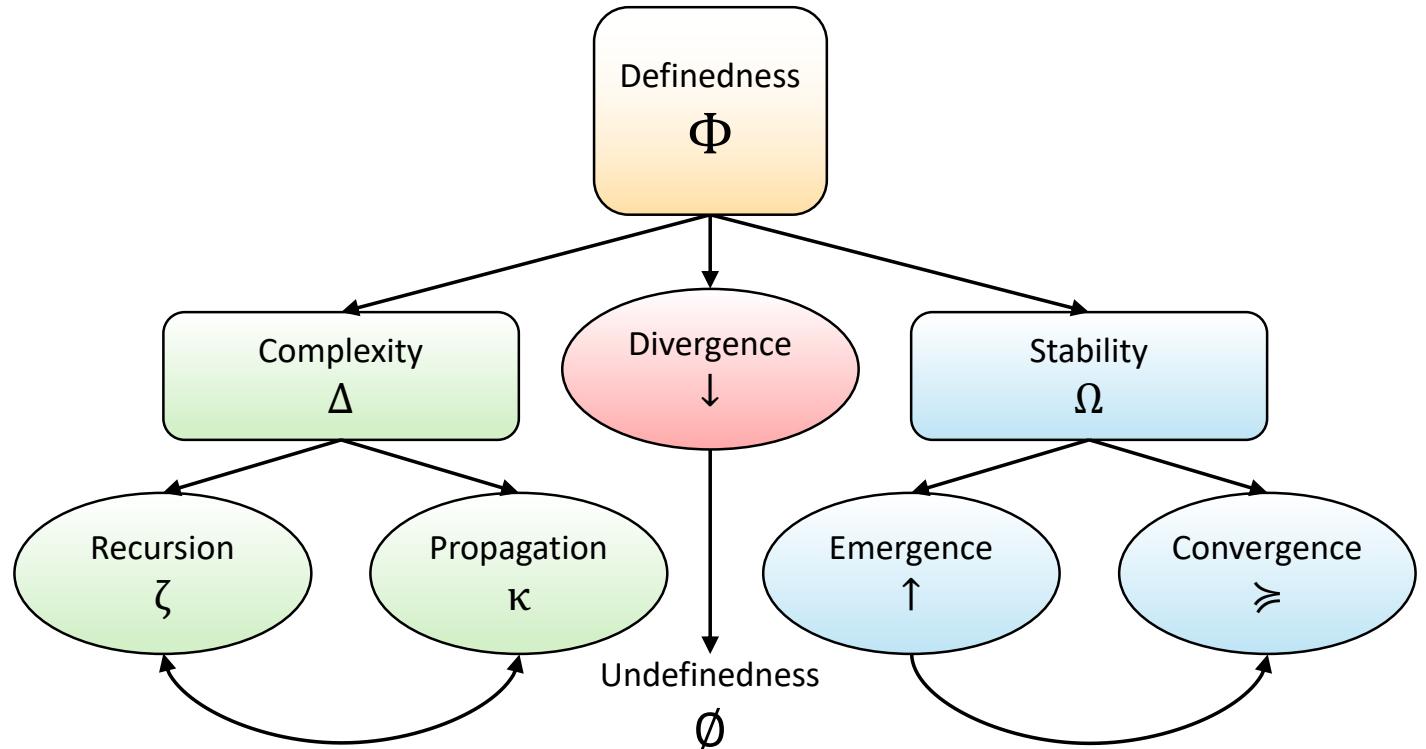
$$\Phi = \frac{\Omega}{\Delta}$$

$$\text{Definedness} = \frac{\text{Stability}}{\text{Complexity}} \quad \text{The Universe} = \frac{\text{Space}}{\text{Light}} \quad \text{Phenomena} = \frac{\text{Convergence}}{\text{Emergence}} \quad \text{What} = \frac{\text{How}}{\text{Why}}$$

Well... there she is—***The Equation of Existence***—sitting in its natural, ancient beauty. Shocking, right? You would think that the equation governing all phenomena would be complex. I can assure you that *The Equation* expands into more complex forms (I will show you soon), yet it **ultimately collapses back into this universal ratio**. Let me explain how it works so you can see for yourself. I promise I am *not* tricking you or wasting your time.

The first concept to understand is that ***The Equation* contains three terms that describe the *behavior* of all phenomena**—anything that exists... **anything with definedness**: including you, me, stars, grapes, black holes, and even pop culture. In *The Theory of Existence*, I reframed existing phenomena along a **spectrum of definedness**. What does not exist—what has no structure, persistence, or presence—is called **undefinedness**.

You can see the whole model of *The Theory* below. *The Equation*'s three terms are astonishingly flexible. Though they may seem abstract at first, you can swap them with words we have traditionally treated as unrelated. Yet, **all of them map back to this same core principle**. We can **express everything** through these three terms; we can rearrange them to explore any relationships or systems because it is a *simple ratio*. You may not believe it yet, but this equation is the language and blueprint for all of existence, and yes—it **applies to everything**.



Caption: This diagram shows the fundamental first-principles of existence as presented in *The Theory of Existence*, illustrating how definedness, stability, and complexity interact to shape all phenomena. Definedness is the unifying principle that maintains proportionality and ensures that complexity and stability interact harmoniously rather than divergence. Stability is the foundational structure that ensures the persistence of phenomena across existence, from the subatomic to cosmic superstructures, providing the necessary framework for phenomena. Complexity, in contrast, drives the diversification, growth, and interaction of phenomena, building upon stable foundations to generate emergent structures. We capture this dynamic in *The Equation of Existence in The Theory of Existence*. At the bottom of the figure we see the two axes of the process of existence, which are 1) recursive propagations as the engine and 2) emergence-to-convergence (E2C) as the direction. This balance and these processes underpin the self-organizing nature of the universe, enabling physical structures from galaxies and planetary systems to biological evolution, intelligence, and consciousness. This model is the only one you need to explain everything that has and can exist.

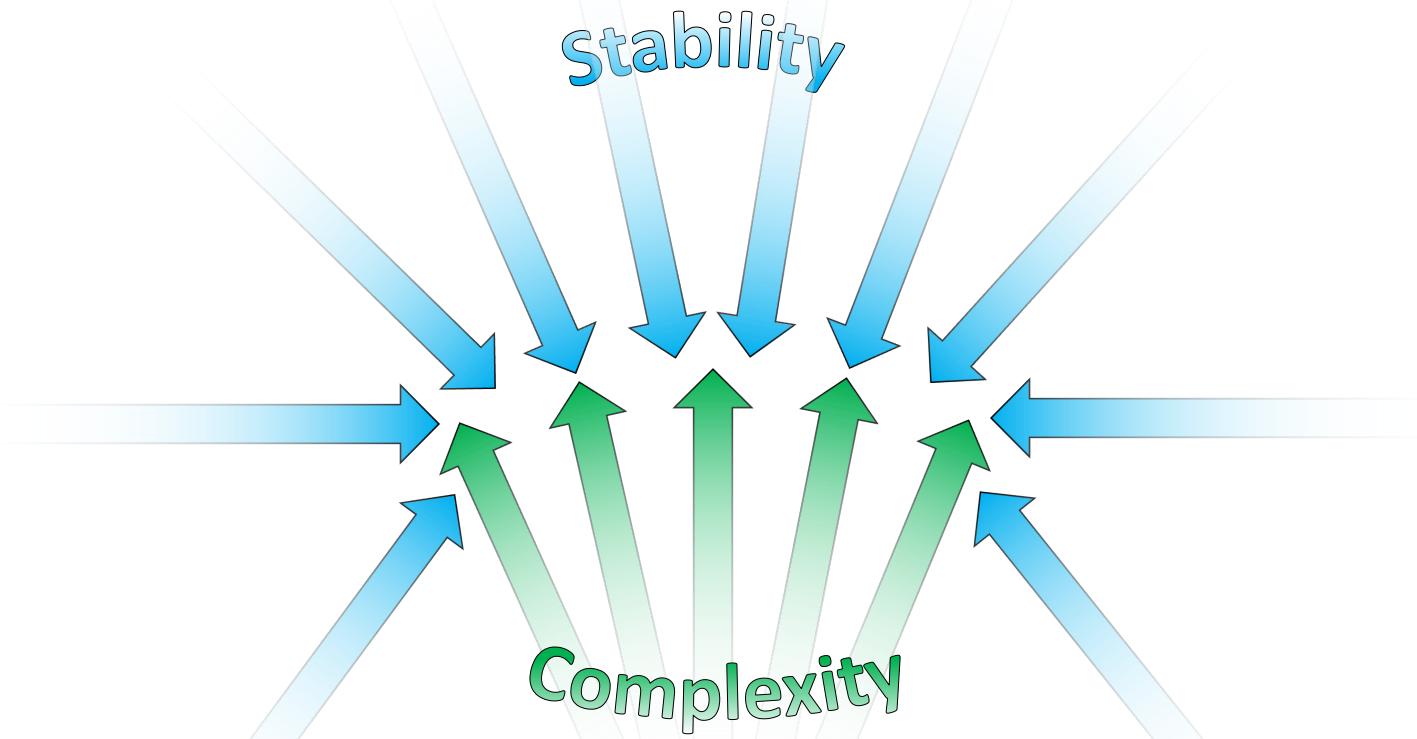
What Counts as Existence?

Phenomena include anything that exists—anything that has definedness. All phenomena exhibit **three distinct behaviors**. When we look around existence, **some phenomena appear everywhere**: round planets, animals with two eyes, and that one extended family member you see during the holidays—ya know... the one who makes things just awkward enough to notice, but not awkward enough to skip it. These examples are called **convergent phenomena**—they surround us, pervade the universe, and we are among them. Convergent phenomena are a

type of **emergent phenomena**, which are the origins of *all* phenomena, encompassing **anything that develops from basic to structured forms**. Phenomena start as emergent then persist into convergence.

We observe order emerging from chaos because **complexity is more resistant to divergence than simplicity**. Imagine **puzzle pieces in a shoebox**—when you shake it, some pieces connect by chance, but once connected, they are harder to break apart than when they are isolated. This example is exactly how existence works. Structured phenomena emerge spontaneously from chaos but **persist because their coherent arrangements are inherently more stable than random configurations**. The universe discovers order through recursive propagations, where complexity stabilizes itself to become the phenomena we see and experience around us.

Let me pause and examine some examples, such as how certain individuals develop **mental health conditions** after experiencing trauma. **Humans represent the convergent phenomena**, while **mental illness represents the emergent phenomena**. Mental illness starts as an emergent phenomenon because not everyone develops a mental health condition following trauma, though many do. When we observe trauma across populations, we notice that **these same emergent mental health conditions** occur consistently across time and geography, which means they are now **convergent phenomena**. Most phenomena follow this pattern of **emergence-to-convergence**: coming into being, sticking around because... why not, then diverging into non-being.



Caption: Complexity, governed by recursive propagations, naturally escalates toward divergence, pushing phenomena toward increasing disorder. Stability acts as the counterforce, attracting complexity into alignment with itself and transforming chaotic expansion into structured forms. This balance ensures that complexity does not diverge into chaos and instead aligns with convergent phenomena that persist and evolve. As recursion drives iterative progression and propagation extends these interactions across scales, stability moderates this expansion. This balance between complexity's tendency to escalate and stability's ability to contain it is fundamental to organizing everything from cosmic structures to cognitive systems. This balance, driven by recursive propagations, make complexity inherently more stable, allowing self-organization.

The Greatest Balancing Act in History: The Dance of Stability & Complexity

At the very heart of existence, within the depths of definedness, two fundamental forces dance with each other to the tune of existence: **Stability (Ω)** and **Complexity (Δ)**. These two **behaviors of phenomena** harmonize everything into definedness. *The Equation* is complete, requires additions, and explains everything. **Stability provides the foundation** for phenomena to persist and converge, while **complexity provides the growth** that brings intricacy and development. This balancing act between stability and complexity defines existence on a spectrum.

Some phenomena have less definedness (lower resolution) than others, which varies according to their complexity. Let's look at these concepts more closely. **This paper is not the first time you have met them.**

- ◊ **Complexity is the source of variation, diversity, and interaction among phenomena.** It is how emergent and convergent phenomena **grow, change, and evolve**. From the intricate fractal geometry of snowflakes to the vast networks of galaxies... complexity shapes the course of existence. It manifests in everything from the speed of light to the atomic structure of matter. **Complexity stacks layers of meaning and advancement**, requiring all phenomena to evolve into more intricate forms before ultimately diverging. A single atom becomes far more meaningful **when it joins with other atoms to form molecules**, enabling life and galaxies alike. Complexity is the innovation and evolution in the universe, continuously reshaping itself to explore new possibilities... **allowing phenomena to find new moves** to prevent stagnation. Instead, existence continually diversifies and progresses—exploring possibilities within the bounds of definedness.
- ◊ **Stability is the fundamental foundation that structures phenomena.** The simplest explanation of stability is the degree to which complexity (phenomena) attracts complexity; it causes complexity to “bunch up” and escalate forms. Stability makes planets round from gravity... that is true... but it is also why the most advanced cognitive processes are all found in the front of the human brain, why the social elite all hang out with each other, and why pop stars with similar fans and genres tour together. **It serves as the underlying structure of existence**, providing the **persistence, cohesion, and framework** required for phenomena to endure, interact, and progress. **Stability is what prevents phenomena from diverging**, ensuring that coherent definedness can persist over time and scales. Without stability, phenomena escalate complexity too rapidly and destabilize, becoming unable to maintain their cohesive structure. Losing that complexity leaves phenomena defenseless against breakdown because it provides resistance to divergence. It is the binding force that keeps existence intact at every scale, from subatomic particles to galactic superclusters.

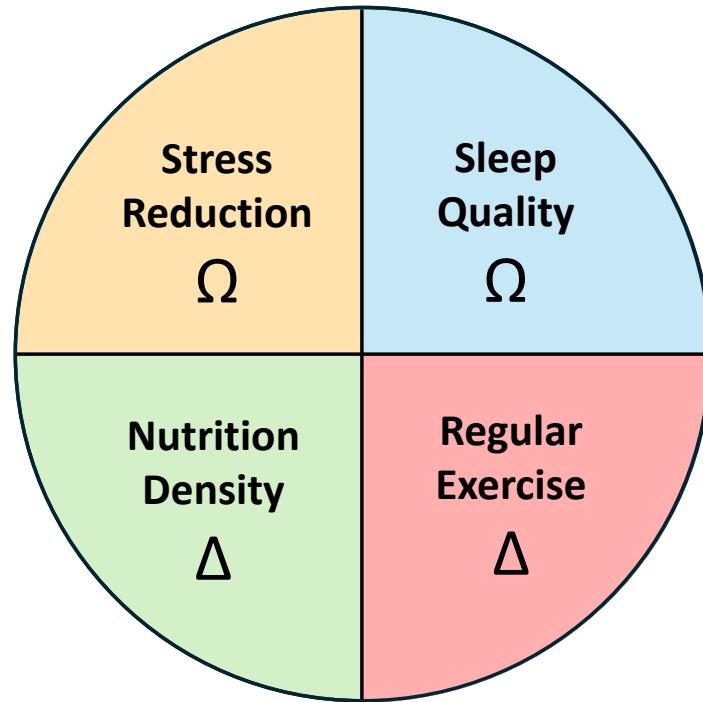
Aspect	Definedness	Stability	Complexity
Symbol	Φ (Phi)	Ω (Omega)	Δ (Delta)
Definition	The degree of existence of phenomena in relational reality.	The degree to which complexity is attracted to complexity.	The degree to which phenomena escalate from basic to structured.
Function	Ensures the existence of phenomena in relational reality.	Ensures coherence, persistence, and structure.	Ensures innovation, evolution, and possibilities.
Scale	Operates across all scales because it is all scales.	Operates across all scales because it is the reason for order.	Operates across all scales because growth is not optional.
Outcome	Existence	Order	Growth

Ultimately, all phenomena and the universe will diverge back toward basic forms (light) and then lose all definedness (undefinedness). However, phenomena do not “fight” divergence—they defy it, harness it, ride it, and eventually succumb to it. **Definedness**, then, **measures whether phenomena have emerged, converged, or diverged**. *The Equation* applies across all domains, from biology to physics... from consciousness to the cosmos... revealing that existence operates under a single rule that unifies what we thought were isolated phenomena.

Are You Sure *The Equation of Existence* Explains... Everything?

Yes... I am... *The Equation* describes the proportionality that defines all being, uniting stability (Ω) with complexity (Δ) to express the definedness of all phenomena. Φ represents **the balance of these two forces, capturing how phenomena stabilize, evolve, and persist over time**. This dance between stability and complexity creates a delicate balance that Φ quantifies, ensuring existence remains stable yet dynamic, persistent yet capable of transformation, firm yet flexible. All phenomena must constantly adjust their stability-complexity ratio to maintain definedness as environmental conditions change around them. It is unitless because **it describes the pattern underneath all phenomena**, not the metric or phenomena themselves. Whether we are measuring dollars, neurons, or light-years, *The Equation* reveals **the same proportional relationships**. Let's look at some examples:

The Definedness of Health



Caption: This figure illustrates the four central pillars of health—stress reduction, sleep, nutrition, and exercise—demonstrating how the definedness of health follows *The Equation of Existence* in the human body. Stability-focused behaviors, such as stress reduction and quality sleep, anchor definedness by ensuring resilience, coherence, and long-term stability. In contrast, complexity-escalating behaviors, such as nutritional density and regular exercise, drive adaptation, growth, and enhanced functionality. Together, these four health pillars form a balanced system where nutrition and exercise play provide vitality and growth while stress reduction and sleep regulate this growth and vitality to prevent divergence. This figure emphasizes the necessity of maintaining the definedness of health, reinforcing that the optimal definedness of well-being emerges from a recursive-propagative balance between complexity and stability.

$$\text{Health} = \frac{\text{Stress Reduction} + \text{Sleep}}{\text{Nutrition} + \text{Exercise}}$$

Let's get personal... right? I told you in the overview that *The Equation* expresses itself through you, my dear reader ♡, so now let me show you. Across all the scientific literature in public health and medicine, four consistent behaviors seem to explain health itself, and they are 1) **reducing stress**, 2) **sleeping**, 3) **nutrition**, and 4) **exercise**. Health is a phenomenon because it has definedness, and if it has definedness... then it uses *The Equation of Existence*. **Sleep and stress reduction function as stability factors (Ω)**, providing the foundational conditions that allow the body to maintain equilibrium, recover, and persist in a healthy state. **Nutrition and exercise serve as complexity factors (Δ)**, driving growth, adaptation, and the dynamic processes that challenge and strengthen the body over time. Too much emphasis on stability without sufficient complexity leads to poor health and stagnation, while excessive complexity without adequate stability results in health conditions and divergences. Thus, **optimal health** emerges when **stabilizing behaviors** (sleep and stress management) **balance complexity** behaviors (nutrition and exercise). Let's look at another domain.

$$\text{Business} = \frac{\text{Assets}}{\text{Revenue}}$$

Ah... yes, **it works here too**. In this business application, the **definedness (Φ) of a business** (its success and sustainability) depends on the balance between assets and revenue. **Assets offer stability (Ω)**, providing the foundational resources, infrastructure, and financial reserves that allow businesses to endure market fluctuations and maintain operations over time.

Revenue is the complexity (Δ), driving dynamic growth, generate increasing revenue and expand the business. **A business with healthy definedness emerges when stable asset management is properly balanced with dynamic revenue activities**. Excessive focus on asset accumulation without sufficient sales leads to losing revenue to competitors, while aggressive sales without adequate assets result in overwhelming, unsustainable expansion.

$$\text{Life} = \frac{\text{Healthy Development}}{\text{Growth}}$$

Let's investigate the very thing we are... why don't we? In this existential application, the **definedness (Φ) of something that is living** emerges from the balance between **healthy development** and **growth**. **Healthy development is stability (Ω)**, representing the successful acquisition of bodily functions that enable environmental engagement and ensure. **Growth is complexity (Δ)**, encompassing the dynamic, natural variation in traits, optimization of physical functioning, evolution of species, and adaptation. Thus, complexity allows for the stability of the definedness of life... which means growth allows for the healthy development of life.

A meaningful life requires the stable, healthy development of identity, purpose, and values, balanced with continuous growth and of who you are as a person. Pure healthy development without growth leads to poorer sustained development, impairment, and divergence from environmental risks over time; while relentless growth without healthy development results in unsustainable features (e.g., cancer). For most things, this development and growth framework is standard and good. **Life has a magic way of pulling through like that...**

$$\text{Cultural Trends} = \frac{\text{Popularity}}{\text{Novelty}}$$

Let's look at something more fun now. Lighten the mood a bit, geezzz. We can apply *The Equation to the definedness (Φ) cultural trends*; it depends on the **balance between popularity and novelty**. **Popularity is the stability (Ω)**, representing the widespread acceptance, recognition, and sustained attention that allows cultural phenomena to persist and influence society over time. **Novelty is the complexity (Δ)**, providing the innovative, unexpected, and dynamic elements that capture attention and drive cultural phenomena. Lasting cultural trends start as emergent phenomena, then the novel ideas gain sufficient popularity to become convergent phenomena. All cultural trends ride this line between novelty and popularity. It is why Taylor Swift and Beyoncé, who are decades into their music careers, constantly switch it up, **keeping the novelty high enough to stabilize their popularity**. Pure popularity without novelty leads to a loss of cultural relevance, while excessive novelty without popular acceptance results in fleeting fads that quickly diverge into obscurity.

***The Equation of Existence* is just what I called it—the reason why anything exists.**

Okay Then... What Causes Misalignment & Divergence?

Ah, yes... good question. Now, let's talk about what happens to phenomena when they diverge. I will use some equation to help us out here... I just cannot remember for the life of me which equation it was... oh yeah! Right. *The Equation of Existence*. Let's examine what happens when stability and complexity are out of sync. **I am setting stability to one**, so we can **vary complexity freely** to see what **happens to definedness**.

$$\Phi = \frac{\Omega}{\Delta} \rightarrow 2 = \frac{1}{0.5}$$

When we set complexity (Δ) to less than stability, so $\Delta = 0.5$, we see that when complexity or growth does not outpace stability—**when phenomena are more stable than growing**—we see that **definedness increases**. Definedness represents the persistence of phenomena; **we want higher definedness** because it means **phenomena are more likely to last longer and converge more effectively**. The principle here is that **phenomena continue to converge by remaining stable while growing and changing incrementally**.

$$\Phi = \frac{\Omega}{\Delta} \rightarrow 0.5 = \frac{1}{2}$$

When we set complexity (Δ) to more than stability, so $\Delta = 2$, we see that if complexity escalates beyond the stability of phenomena, then **definedness drops rapidly, making it less likely to last longer and converge more effectively**. The phenomena become unstable and approach divergence unless stability can prevent it.

$$\Phi = \frac{\Omega}{\Delta} \rightarrow \emptyset = \frac{1}{0}$$

Okay, look at this one—it blows me away. I'll be candid with you. When we set complexity to zero, so $\Delta = 0$ —indicating that growth and change have ceased entirely—definedness becomes undefined (see [Paper 2: Introducing Undefinedness: That Is, If Undefinedness Was Something That Could Be Introduced—But It's Not](#) for more on undefinedness). This result reveals that **growth and change are not optional; everything that exists must grow, change, and progress**. Stagnation inevitably leads to divergence and ultimately to a loss of definedness (undefinedness). That's how it goes, folks... **let's get philosophical for a moment... shall we?**

From "What is...?" to "What is in relation to...?"

What does it mean to exist? How do we know if something exists? What is required to enable existence? Throughout human history, there has been a subtle yet pervasive underlying assumption that we may **not have noticed was wrong**, and then we built the entire scaffolding of knowledge on it. Perhaps... **that objects exist**. Now, now, I know... I know... **of course objects exist, right?** We see them all the time. This paper is an object!

But... allow me to shift you back just one thought and ask... **how do you know objects exist?** You know objects exist because you can see them and... distinguish them from their environment and over time. But... here is the problem... those identification methods all require relationships to other objects and former versions of the object. So... do we know objects exist without a relationship to anything else? **If objects exist, then they must exist in isolation because they are not dependent on anything else.** Consider this fun little **thought experiment**:

If I asked you to imagine an object... any object... that has absolutely no relationships with anything—**nothing around it, within it, or adjacent to it**; not changing over time because it cannot relate to other moments and versions of itself; exhibiting no movement because that requires spatial relationships—**what would you perceive?** Your answer even reveals **the impossibility of this exercise**. Even as you attempt this mental exercise, **you are relating the relationship-less object in your conscious mind**. The act of conceptualization requires relationships—between thought and thinker, concept and consciousness, this moment and your experiences. An object that truly lacks all relationships is not just imperceptible... **it is necessarily non-existent... undefined.**

This idea of **relational reality** is not even unique to me—it is already woven into the fabric of modern science. General relativity is one of the strongest indicators that **relational reality is structurally correct**. According to that theory, an object's behavior—its motion, mass, and the passage of time—only makes sense in relation to other objects. There is no universal stage. No absolute frame. Just the relationships between phenomena.

Einstein gave us this iconic thought experiment (rest in peace, icon): If you were in a closed elevator in deep space accelerating upward just enough to keep your feet on the floor, and another person was in an elevator at rest on Earth's surface, **neither of you could tell the difference** from inside the elevator. The forces you would feel pulling you down would be indistinguishable. What you experience—your "physics"—is defined entirely by your frame of relationships. There is no "thing" moving alone. No absolute position. **Everything is relative to everything else.** The shift from **object-based to relational reality** represents one of **existence's most profound and perplexing properties**.

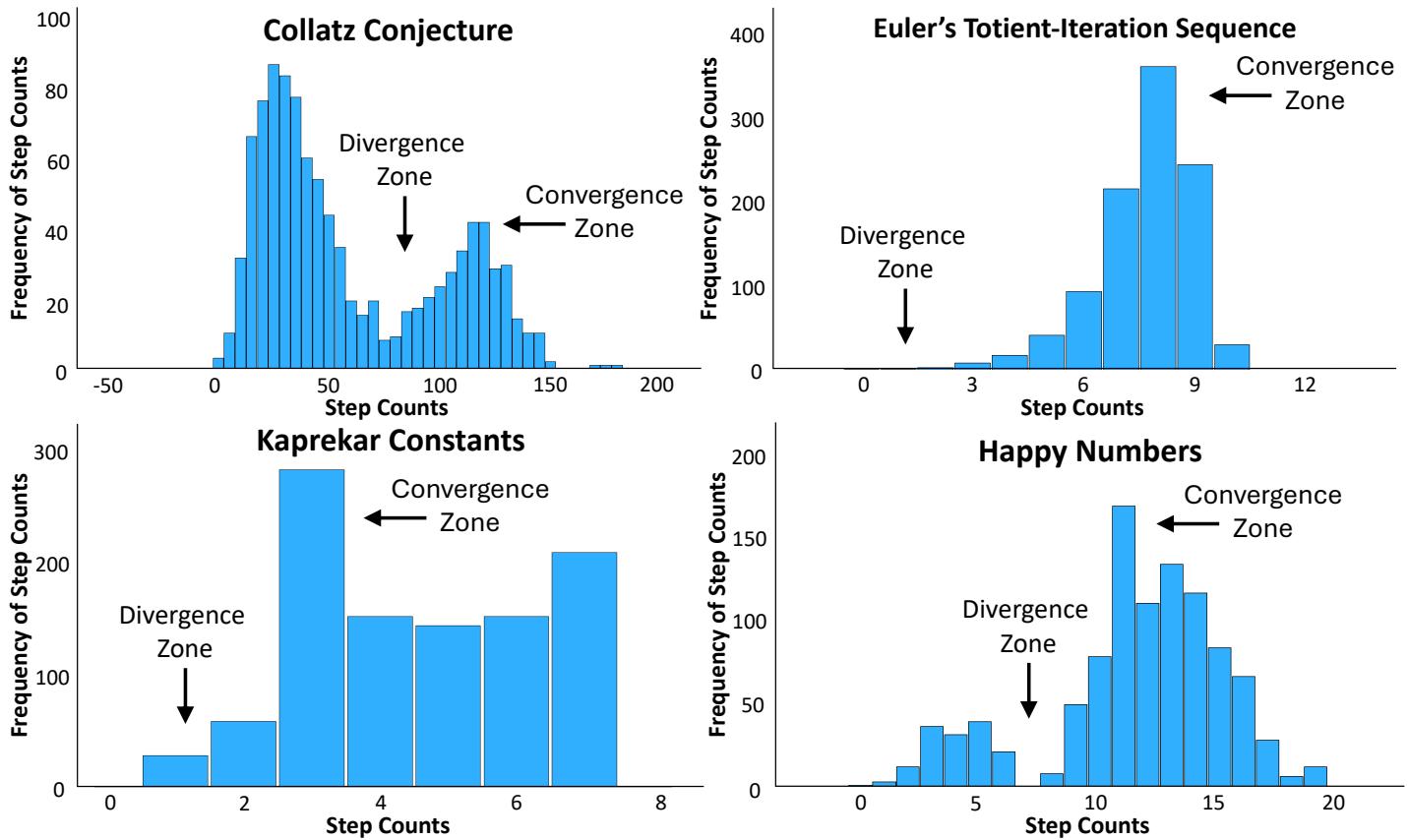
The reason I just went all Aristotle on you is because **it is very important to remember** that complexity, stability, and definedness are **not things that exist independently in reality—they are descriptive terms for the patterns of how phenomena behave**. You cannot see stability and complexity—you are stability and complexity. Reality is not "things" existing in isolation; it is the dynamic web of relationships. **Definedness arises from these relationships. Phenomena exist only because they co-define one another.** Without relationships, there are no objects, no phenomena, no complexity or stability, no spacetime or light—no definedness... no existence...

Existence Encoded in Equations: Cracking the Collatz Conjecture

Alrighty... let's ground ourselves in some numbers after that existential joyride. Now that you know the basics of *The Equation*, I want to **demonstrate what it looks like** in action. The approach I am taking may seem unconventional. **Rather than beginning with empirical data, I am going to start by revisiting our findings from Paper 3: The Harmonics of Existence: Solving the Collatz Conjecture & Recursive Systems.** We will examine the Collatz Conjecture step counts by **treating the number sequence (1, 2, 3, etc.) as a time series**, which reveals **exactly how these patterns emerge and converge in existence**. Following this mathematical foundation, we'll apply the framework and *The Equation* to real data spanning seemingly disparate domains. Buckle up...

In mathematics, there is a concept called **recursive number systems**. Generations of thinkers have tried to unlock their deep structural insights to no avail. **The Collatz Conjecture is the most famous among them.** These systems involve an iterative process where you begin with a number, apply a rule to generate a new number,

then apply that same rule to the result until reaching a consistent resolution. For the Collatz Conjecture, if your starting number is even, you **divide it by two**, and if it is odd, you **multiply it by three and add one**. You repeat these calculations until the answer is 1. For example, if we start with 5, the sequence is: $5 \rightarrow 16 \rightarrow 8 \rightarrow 4 \rightarrow 2 \rightarrow 1$. Recursive number systems are remarkable because of their simplicity while revealing profoundly deep insights. Oh... they also hold **the entire frame of existence and everything in it, too**. Let me show you...



The Symphony of Existence in Recursive Harmonics

For those who have not read [Paper 3: The Harmonics of Existence: Solving the Collatz Conjecture & Recursive Number Systems](#), let me bring you up to speed. The takeaway from Paper 3 is that there is no such thing as a truly chaotic or random recursive number system. When we examine the distributions of the recursion (step) counts, we discover that **each recursive number system contains its own unique distributions that interact with one another to create emergent phenomena**. I will be applying this new insight to the Collatz Conjecture not only because it is the most popular, but because it exhibits this **beautiful bimodal distribution** (look at the figure below) and provides clarity for understanding the underlying behavior. These patterns in recursive number systems are **identical to the recursive propagations governing existence**; we will see it in real-world data.

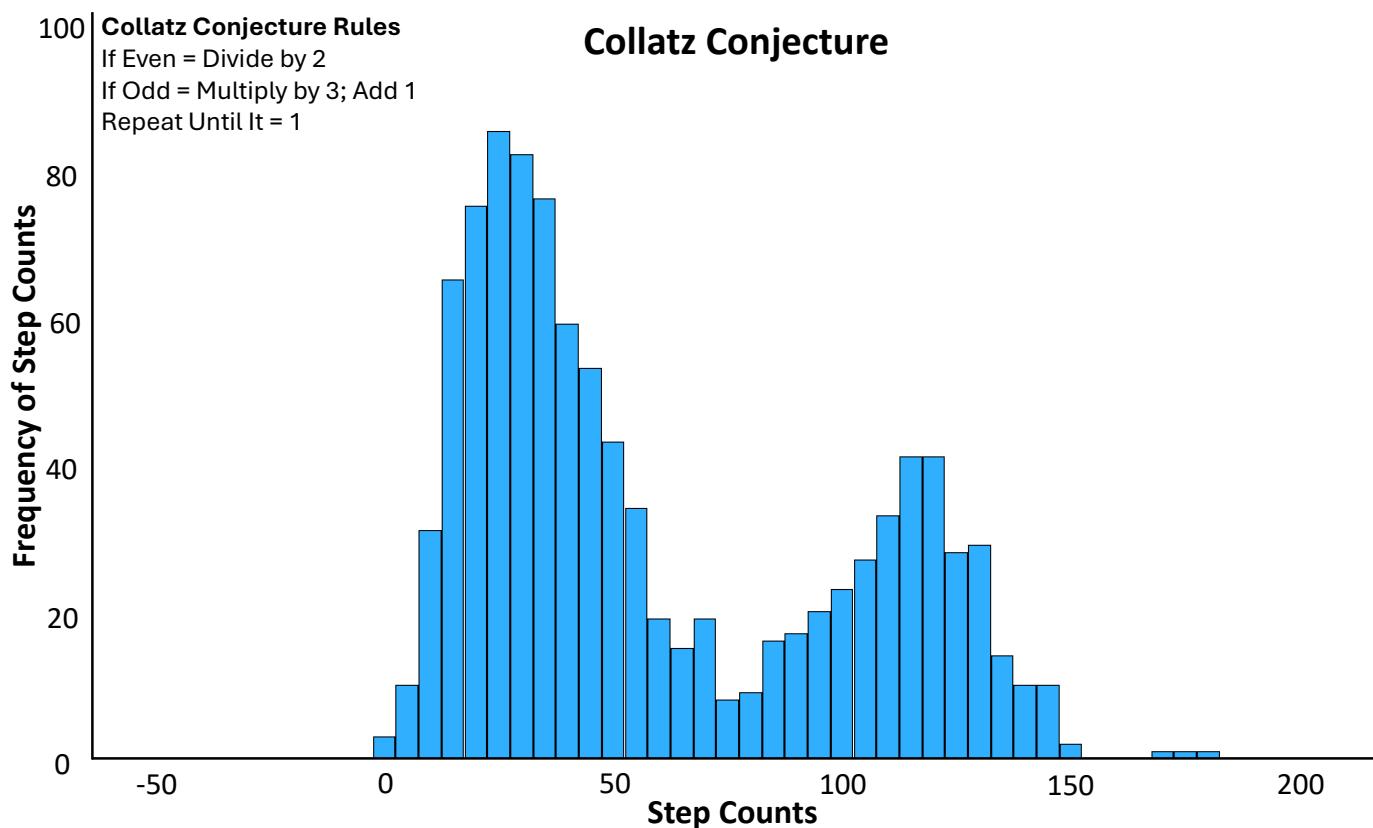
Table 1

Descriptive Statistics of Convergence and Divergence Zones

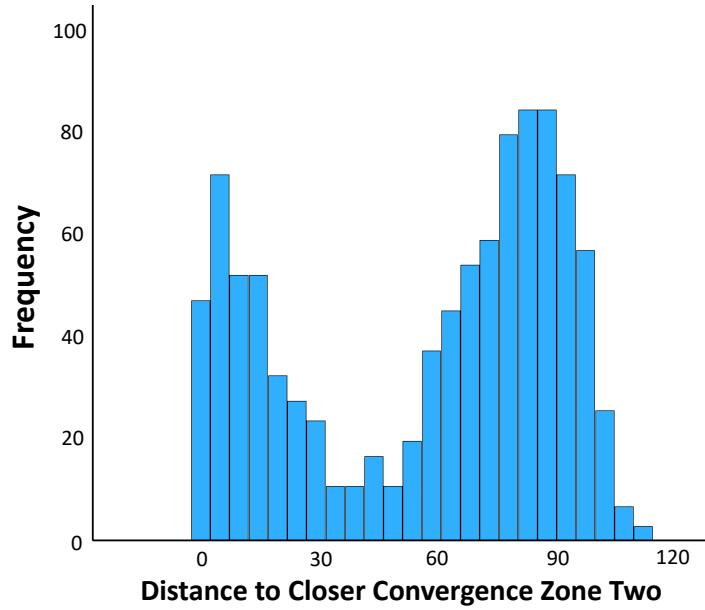
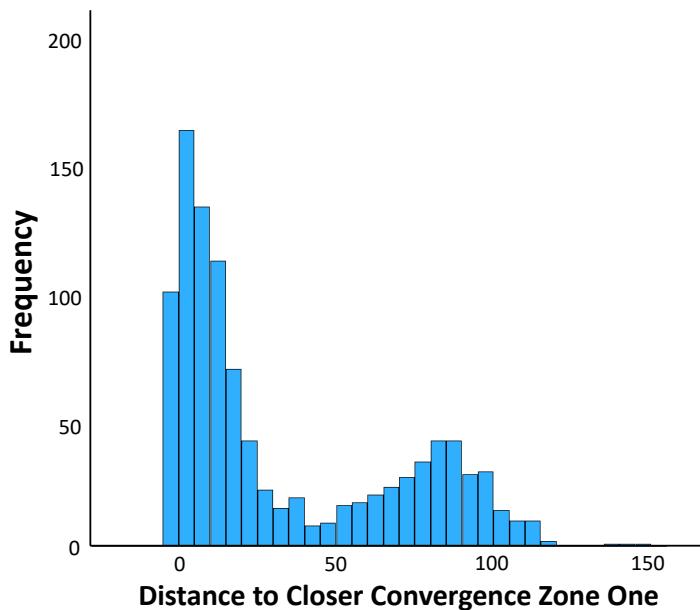
Collatz Zones	Range	n	%	Mean	SD	Median	Mode	Min	Max
Convergence Zone One	0-59	629	62.90%	31.07	13.30	30	28	0	59
Divergence Zone One	60-89	78	7.80%	74.53	8.90	72	64	60	89
Convergence Zone Two	90-139	271	27.10%	114.08	12.26	115	129	90	139
Divergence Zone Two	140+	22	2.20%	148.68	10.45	144	147	141	178

Note. Descriptive statistics to characterize the convergence and divergence zones in the Collatz Conjecture. I used these descriptive statistics as the basis for the analyses.

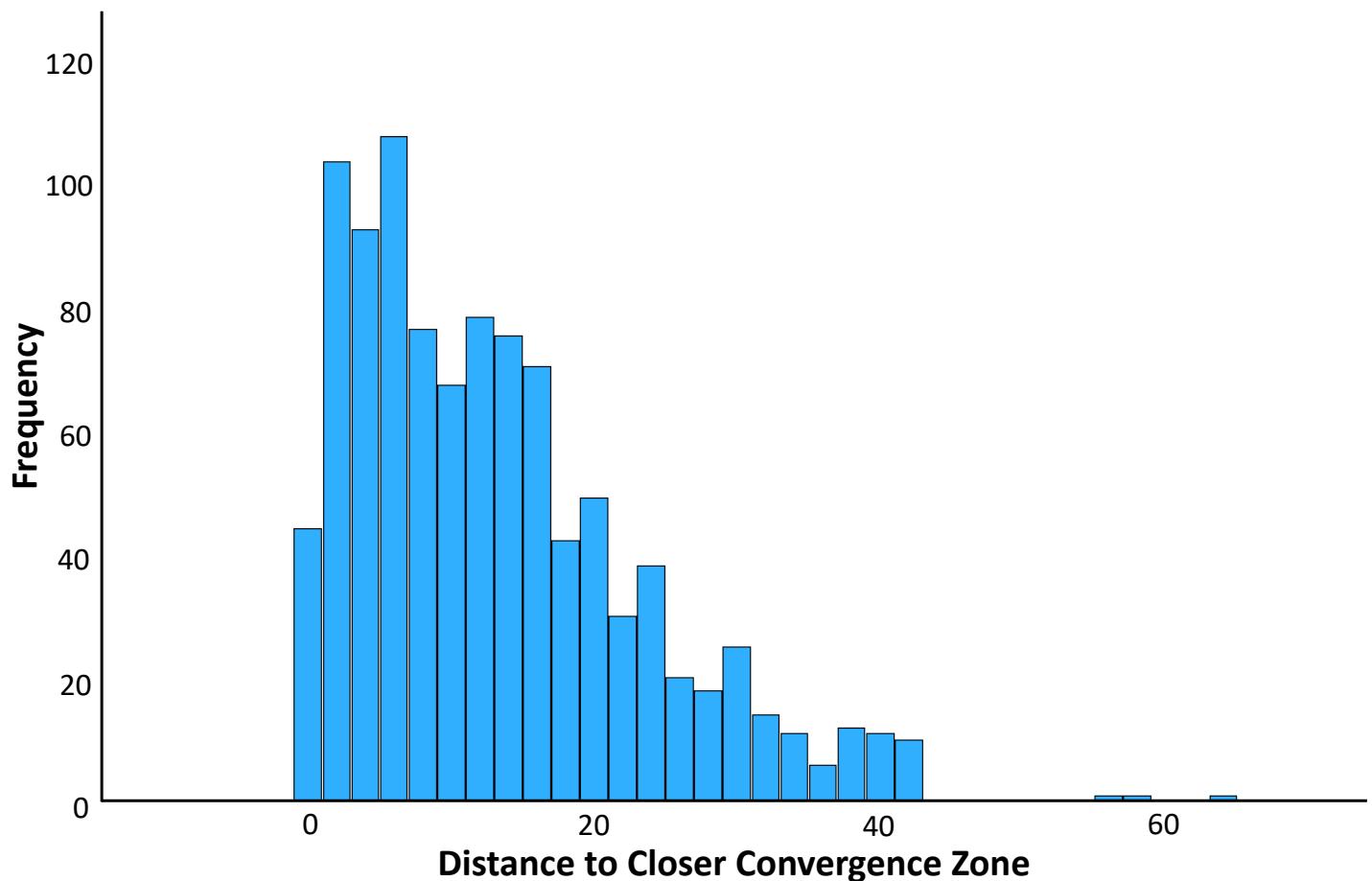
Take a look here: do you see how the sections where **step counts appear to cluster together** in the figure below? These are called **convergence zones**. In contrast, some sections contain **little to no step counts**—these are called **divergence zones**. These descriptive statistics characterize these zones for our next analyses.



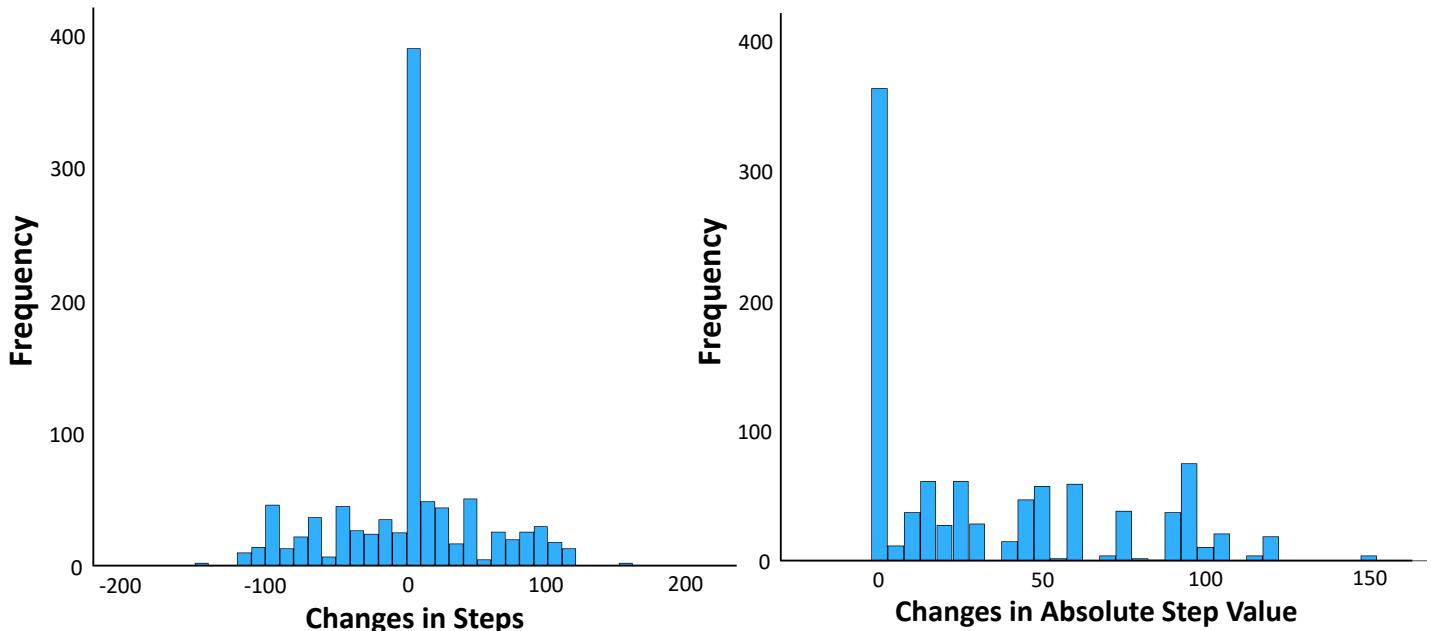
We can examine the **distance to the closest convergence zone** and immediately observe that **each convergence zone contains its own harmonic**. When analyzing the respective distances to convergence zones one and two, we see that the bimodal **distribution redistributes into a similar bimodal pattern**.



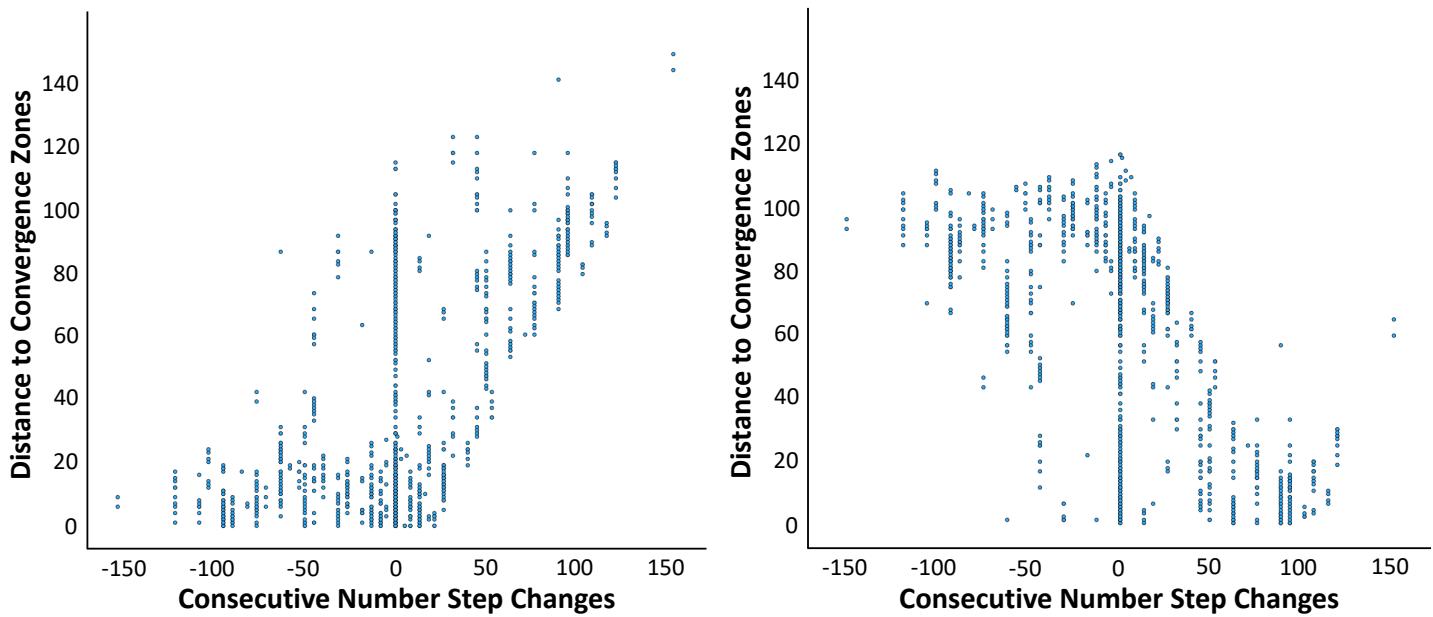
However, the remarkable insight emerges when we examine the distribution of step counts **relative to their respective convergence zones**—we get a beautiful exponential decay pattern, shown below, demonstrating that **numbers cluster increasingly close to their convergence zones**, with distances decaying evenly. Even within the bimodal distribution, **the distance to convergence zones is consistently skewed toward proximity**.



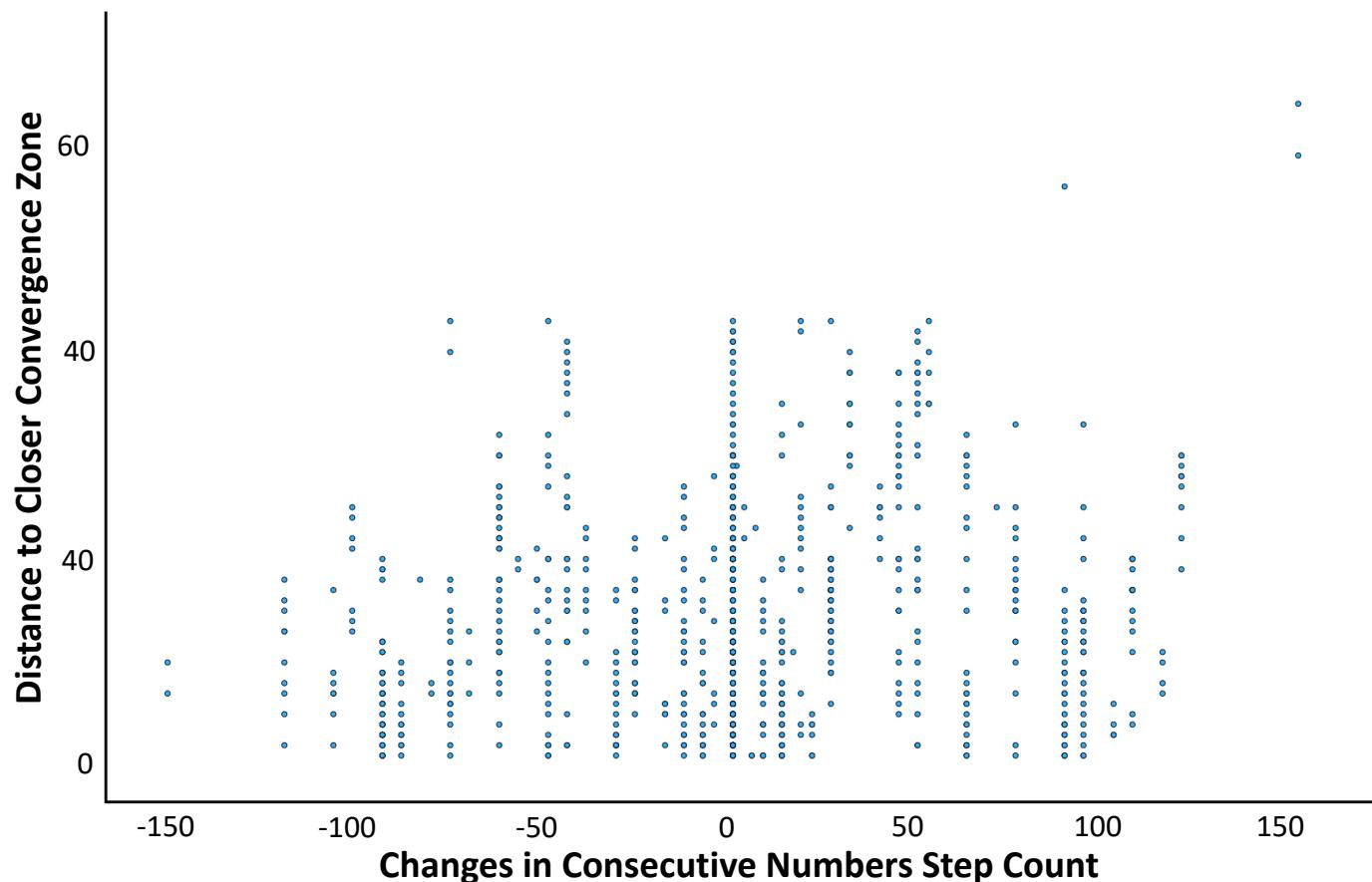
The **crucial next step** is to **treat the number line as a time series**, revealing how phenomena observed in pure mathematics manifest throughout nature. Instead of viewing 1, 2, 3 as isolated mathematical objects, we analyze them as **a sequence unfolding over time**—where 2 follows 1, then 3 follows 2, and so forth. This temporal approach unlocks mathematical insights into how recursive number systems increase complexity by examining the changes that occur as we progress from one number to the next. Think of it like **watching a tiny figure step sequentially through 1, 2, 3, 4**—observing the “hops” across numbers, which are step counts in the recursive number system. This simple shift in perspective transforms static mathematical relationships into dynamic processes, revealing **the same temporal patterns that govern existence**—from coffee brewing to cosmic creation.



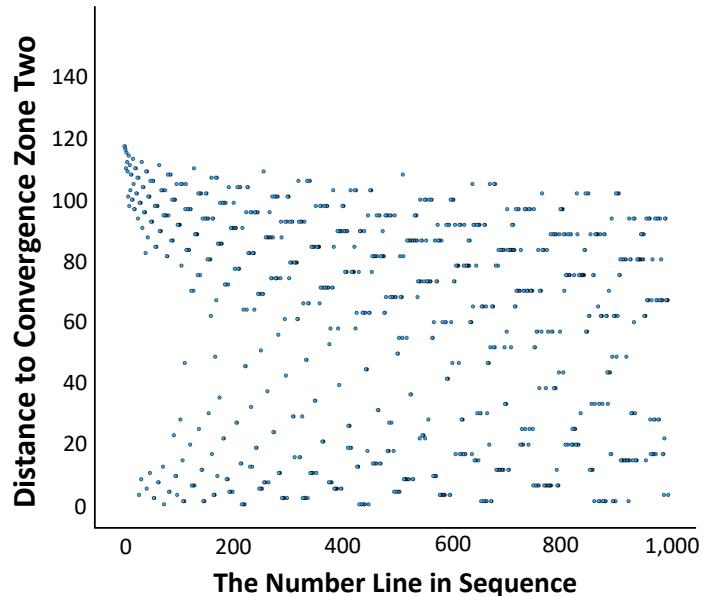
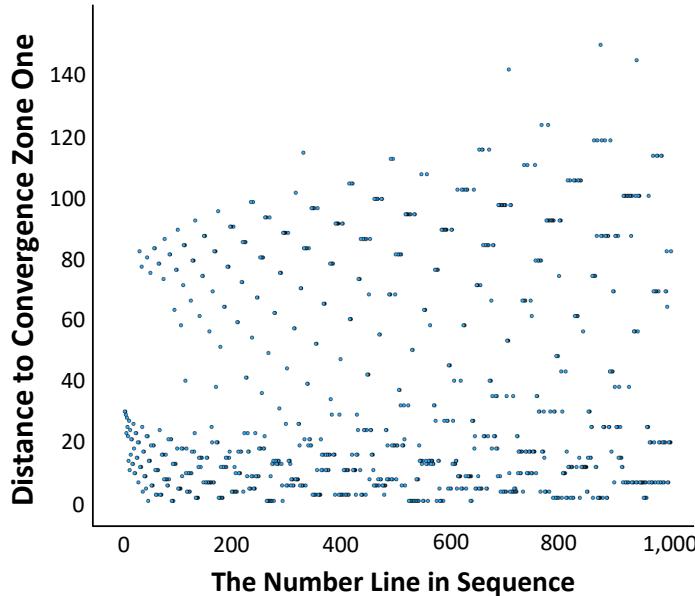
This temporal approach transforms the static number line into dynamic processes that **mirror the progression of real-world phenomena through time**. As you can see above, an **overwhelming number of sequential pairs exhibit little change in step counts from one number to the next**. When we exclude this majority of minimal changes, the remaining step count **usually appears distributed**, with most changes occurring below 50 steps.



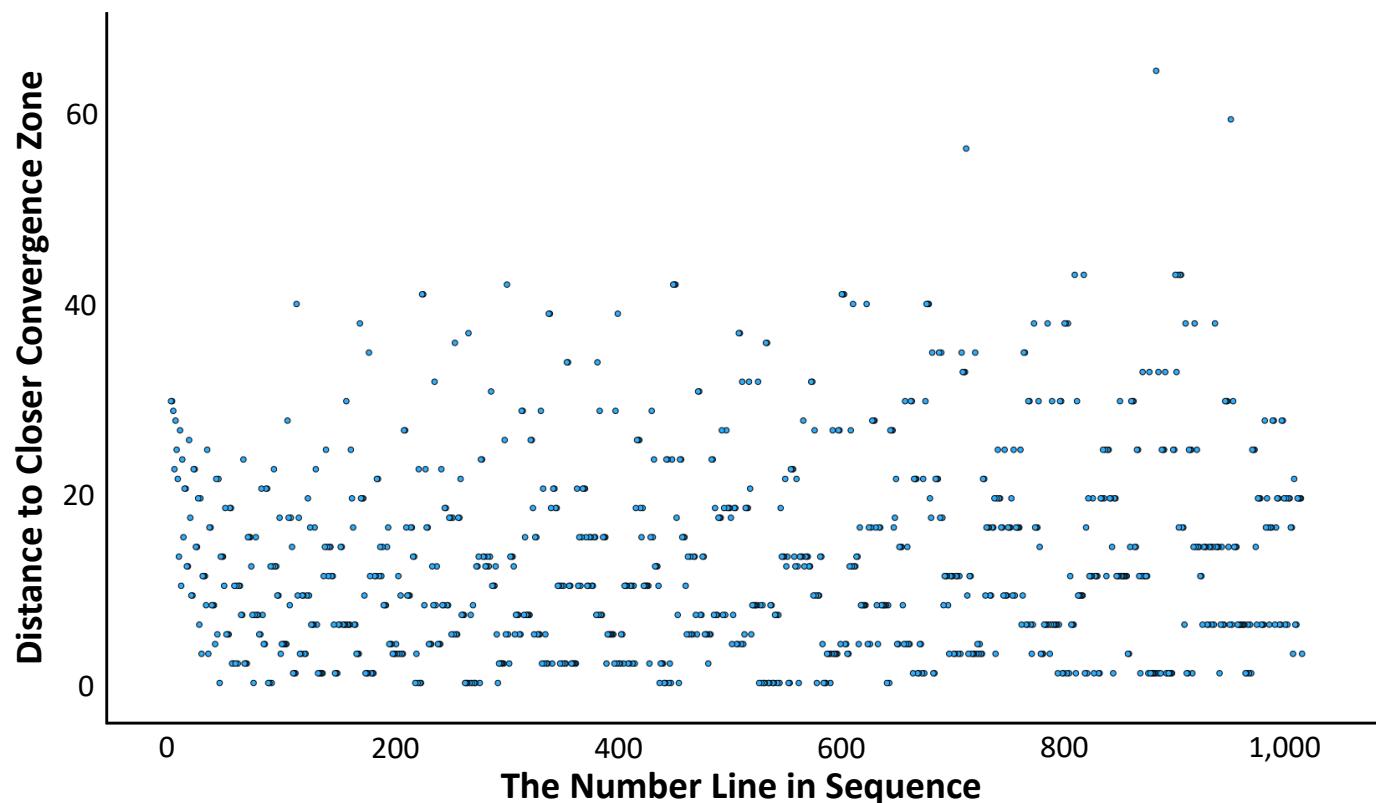
Look at these beauties. Plotting step count changes against their distance to the convergence zones further reveals their functionality. **The convergence and divergence zones become more distinct**, with each zone generating a characteristic sequentially related pattern yet the **underlying step count patterns with both zones remains rather uniform in their distance to their respective convergence zones**, as shown below.



Look at what happens when we look across the number line. These scatterplots demonstrate a fundamental principle of *The Equation of Existence*: **phenomena naturally converge around zones of stability** (clumping up in handfuls), creating predictable patterns independent of their position to each other on the number line. The sequential analysis reveals that **the stability-complexity balance operates not just within individual numbers but across the relational structure of the entire number line**. This pattern governs existence itself—a far vaster and intricate recursive number system. **It is the same recursive structure...** however, nonetheless.

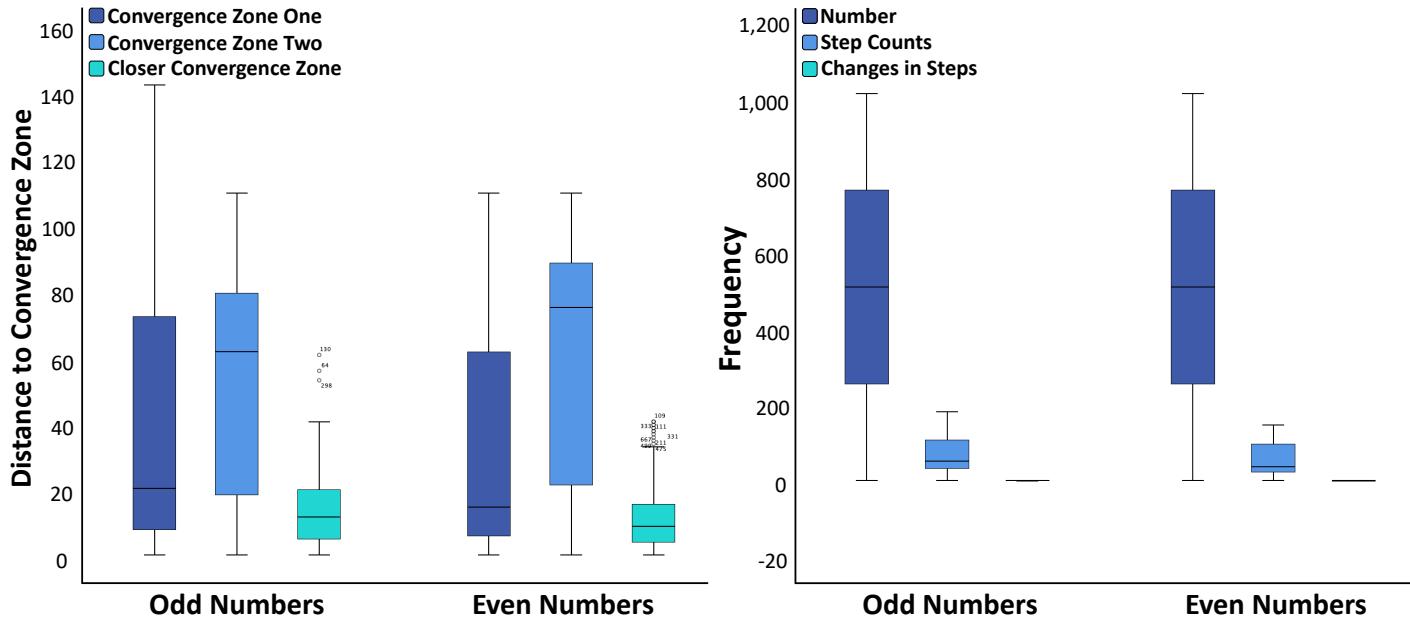


By examining the number line in sequence from 0 to 1,000 and tracking how each number sequentially lands in the convergence zones as shown above, we discover something fascinating: **unique convergence patterns emerge across both zones**, each with its own characteristic features. **Convergence Zone One shows this outward flourishing** network of steps—like a flower blooming or fireworks exploding outward. The pattern spreads and expands as numbers flow through this zone, creating an almost organic, breathing structure. In contrast,



Convergence Zone Two shows a more inward compression—the opposite behavior where steps seem to contract and fold in on themselves, like a spiral tightening toward its center. These two zones appear to be mathematical opposites, each pulling the system in different directions.

But... **when we examine both zones at the same time**, something remarkable happens: **the pattern smooths out into a unified, coherent flow seen above**, as you can see in the figure above. The chaotic-looking individual behaviors of each zone actually balance each other, creating the stable, predictable system we observe. These characteristic differences between the convergence zones are a perfect example of how *The Equation* works—**basic complexity, including even opposing forces at the local level, harmonize to create coherent complexity at the larger scale**. We see this pattern throughout existence, such as workers in a company and ants in a colony.



Different Rules... Same Outcome

Next, I wanted to explore **whether even and odd numbers behaved differently** because the Collatz Conjecture uses **two completely different rules for each**—divide by 2 for even numbers, multiply by 3 and add 1 for odd numbers—you would naturally expect them to create different patterns... right? But here's what's remarkable: when you look at the figures above, **even and odd numbers behave almost identically**. Despite following entirely different mathematical rules, **the overall system maintains the same consistent and coherent behavior**.

This pattern reveals something profound about the nature of existence. **Although numerous different "rules" govern** existence—from physics to biology to economics—we do not observe chaos. Instead, **we see coherent patterns emerging everywhere because they are all expressions of the same equation**. It's like a deck of cards: each card is a unique configuration, yet when you play with the deck, it functions perfectly for games.

This figure above reveals one of the most striking discoveries in the entire analysis—**the hidden duality within apparent unity**. Though unexpected, it is required for existence to function. The left graph shows the distance to convergence zones, and **at first glance, even and odd numbers appear nearly identical in their behavior**; both exhibit similar spreads, medians, and follow **the same general patterns across all three convergence zone variables**. But the right graph tells an entirely different story about the underlying mechanics.

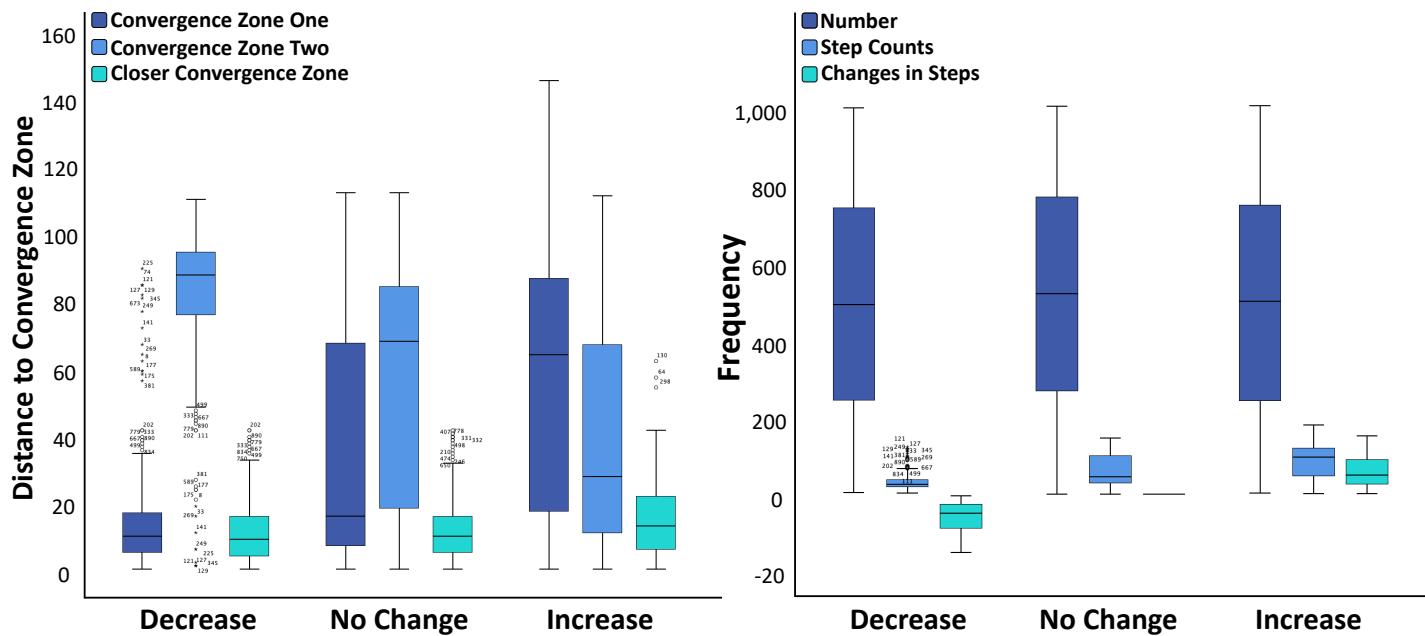
When we examine **frequency patterns and step count changes** (the right graph), **their step count changes behave in fundamentally different ways**. Those tiny teal bars at the bottom—**they are practically touching zero**, meaning the **average change in step counts between consecutive even and odd numbers is essentially none**. This finding confirms that, despite operating under different rules and characteristic behaviors, the **even and odd numbers adjacent to each other tend to have the same value, providing smooth, cohesive behavior** across the number line. So, what do these findings mean? Why is it important? Why is this paper so long?

What these findings mean is that **even odd numbers are operating on their own internal clocks**. Despite producing the same surface-level patterns and landing in convergence zones with identical frequency, they are following completely different internal rhythms to get there. **It's like watching two dancers perform the same choreography while hearing entirely different music.** The Collatz rules create distinct mathematical "heartbeats" for even versus odd numbers. Yet, both **heartbeats synchronize to produce the same overall coherent behaviors in the system**, suggesting that **higher-order, coherent stability can emerge from varying, even conflicting, sources of complexity**. Even when phenomena follow completely different underlying rules (like even vs. odd), they can still converge on identical stable patterns because **they are all expressions of definedness**.

From Motion to Commotion

Now I want to show you how a number's behavior **depends on what happened to the step count from the previous number**. Remember how we are looking at the "hops" in the little stick person jumping between the numbers? We will look at how the earlier hops from the former number affect the current hop. Let me explain with a simple classification system. If we look at any number in our sequence, we can **classify it based on whether the step count went up or down compared to the number right before it**. Let's look at an example.

Let's say the number 2 takes 30 steps to reach 1 (the resolution to the Collatz Conjecture), but number 3 takes 40 steps. Since 3 has more steps than 2, we classify number 3 as an **increase number**. On the flip side, if number 2 takes 30 steps (again) but number 3 instead only takes 20 steps, we classify number 3 as a **decrease number** because its step count dropped compared to the previous number. This **simple classification—increase, decrease, or no change**—reveals crucial patterns about how numbers end up converging or diverging.



These box plots reveal one of the most striking patterns in the entire analysis. When we classify numbers based on whether their step counts decreased, stayed the same, or increased compared to the previous number, **remarkable differences emerge**. The left figure shows the distance to convergence zones, and the pattern is eye-opening. **Numbers that follow a decrease in step count cluster tightly around specific distances from convergence zones**—they are highly predictable and stable. Similarly, numbers with no change show moderate spread, while numbers that follow an increase in step count scatter much more widely across all distances. It suggests that increases create instability and increase the chances of diverging, which is very important.

Open your hand, please... here, take this thought... keep it right there: **increases create instability in phenomena that trigger divergence**. The right figure shows frequency patterns. **Look at the step count changes themselves** (the teal bars at the bottom). Numbers following **decreases show very small, controlled changes in step count**. Numbers following **increases show much larger, more volatile step count changes**.

What this finding tells us is profound: **when complexity escalates** rapidly (increases), phenomena become **unstable and diverge**. However, when **complexity grows slowly or decreases**, phenomena remain **stable and converged**. Even in *pure mathematics*, we see the same pattern that governs everything from bumblebees to bursting suns: rapid complexity escalation without adequate stability leads to divergence. **This principle is *The Equation of Existence* in action**—showing us exactly how **the balance between stability and complexity determines whether phenomena converge or diverge**. Let's look at the most important findings now...

When we examine changes in step counts by their specific magnitudes, we can understand why decreasing sequential numbers produce different patterns of spread. Decreases in step counts tend to involve only smaller step count values, whereas increases in sequential step counts trend toward substantially larger values. This pattern reveals a profound insight: ***The Equation of Existence* operates independently of the specific mathematical rules governing individual phenomena**, which is why it works everywhere, always.

Let's take a close look at this pattern we have found that explains the divergence of phenomena. Remember, we are **treating the number line as a time series**, which means we need to investigate **what happens before a number ends up in a divergence zone**. We can accomplish this task by treating **all 100 numbers that ended up in divergence zones** (10% out of 1,000) as final nodes in the sequence and examining the numbers and their step counts **immediately preceding each divergence zone number**. For example, if the number 10 ended up in a divergence zone, we would analyze the “hops” at numbers 7 (n_{-3}), 8 (n_{-2}), 9 (n_{-1}), and then 10 (n) in order.

The Numbers Tell the Truth...

I want to review some quick stats first... I know, I know, people... who wants to read stats right now? But if I do not, **someone will throw a fit**, so here they are: when we examine how step counts change from one number to the next, we find a weak but significant linear relationship. For every sequential increase in the number line (e.g., from 2 to 3), step counts increase by an average of 0.216 steps ($y = 0.216x + 10.30$). However, this relationship explains only 4.69% of the variance, **confirming that this system operates according to more complex dynamics than simple linear progression**; we would expect this capability given the vastness of existence.

More telling is the **fundamental difference between even and odd numbers' internal consistency**—the way even and odd numbers interact with themselves. Among consecutive **even numbers**, we see a **significant correlation** in their step count behaviors ($r = .412, p < .001$), meaning **even numbers maintain predictable relationships with their even neighbors**. The step count for one even number is similar to the step count for the following even numbers. However, odd numbers show no such predictability ($r = .072, p = .108$), suggesting they operate according to a different internal logic entirely. The step count for one odd number is not related to the step count for the next odd numbers. Even and odd numbers play vastly different roles in the progression.

Ready for it? **Even numbers are stability, and odd numbers are complexity.** Even numbers hold the structure together as we move down the number line like a time series, even numbers provide consistency (Ω), and the odd numbers allow for free variation (Δ); just like in existence, you need both to create and sustain definedness. **65.67% of consecutive numbers land in the same convergence zone as their predecessor.** 50% are even numbers, so odd numbers do it too. This finding means that roughly **two-thirds of the time, the number line maintains zone consistency** from one step to the next, creating the stable, predictable patterns we observe at macro levels. This high rate of **zone persistence** explains how phenomena with complex internal dynamics can produce elegant convergence patterns that *The Equation* allows us to see all around us; it is truly stunning.

More of a Good Thing is Not Always More of a Good Thing

We know a rapid complexity escalation triggers divergence, so now let's examine the sequences that lead to a number diverging. **There are 27 possible patterns** (three options by three positions) when we characterize the **three preceding** numbers as increase, no change, or decrease. Yet, **only 9 patterns appeared across all 100 numbers that ended up in divergence zones**. Remarkably, one **protective factor is no change in step counts from n_{-4} to n_{-3}** , so do not feel so bad if you have not made progress on something—pausing is protective.

Table 2*Characterization of Preceding Number Steps & Sequence for Diverged Numbers*

Pattern Label			Count		Relative Divergence		Total
<i>n</i> -3	<i>n</i> -2	<i>n</i> -1	Total	Diverged	Pattern	Group	Divergence
No Change	No Change	Increase	123	28	22.76%		
No Change	Increase	Increase	37	7	18.92%	17.48%	57%
No Change	Decrease	Increase	166	22	13.25%		
No Change	Increase	No Change	130	16	12.31%		
No Change	No Change	No Change	125	7	5.60%	7.95%	29%
No Change	Decrease	No Change	110	6	5.45%		
No Change	Increase	Decrease	159	7	4.40%		
No Change	No Change	Decrease	117	7	5.98%	4.56%	14%
No Change	Decrease	Decrease	31	0	0.00%		
Missing Patterns							
Pattern Label		<i>n</i> -3	<i>n</i> -2		<i>n</i> -1		
All Double Increase		Increase	Increase		Increase		
		Increase	Increase		No Change		
		Increase	Increase		Decrease		
		Increase	No Change		Increase		
All Increase then Same		Increase	No Change		No Change		
		Increase	No Change		Decrease		
		Increase	Decrease		Increase		
		Increase	Decrease		No Change		
All Increase then Decrease		Increase	Decrease		Decrease		
		Increase	Decrease		Decrease		
		Increase	Decrease		Decrease		
		Decrease	Decrease		Decrease		
All Double Decrease		Decrease	Decrease		No Change		
		Decrease	Decrease		Increase		
		Decrease	Decrease		Decrease		
		Decrease	Decrease		Decrease		
All Decrease then Same		Decrease	No Change		Decrease		
		Decrease	No Change		No Change		
		Decrease	No Change		Increase		
		Decrease	Increase		Increase		
All Decrease then Increase		Decrease	Increase		No Change		
		Decrease	Increase		Increase		

Note. Characterization of preceding number steps and sequence for diverged numbers showing that step increases before divergence result in the most relative-, group-, and total-level divergence risk. Most patterns were missing from the divergence zones.

This finding demonstrates a crucial principle of *The Equation of Existence*: **divergence** is not random but follows predictable patterns. The limited pathway to divergence suggests **that most combinations of stability and complexity naturally converge**, while **only specific imbalances** result in the phenomenon diverging. Most importantly, **patterns that terminated with an increase accounted for over half (57%) of all numbers that ended up in divergence zones**—more than the patterns ending in no change or decrease combined. That's not subtle.

Before examining this critical "increase-to-divergence" pattern further, we can observe that when analyzing variability across the preceding numbers, **the greatest risk factor is a single change in the pattern**. This finding means that there will always be ups and downs, they are normal... healthy, even. When divergence occurs, it is not because of one bad day or more bad days than good—it **happens after a really good day** when the phenomenon loses the ability to stabilize its complexity. More of a good thing is *not* always more of a good thing.

Table 3*Divergence Patterns by Volatility*

Pattern	Numbers		Percentage	Risk Multiplier	Mean Steps	SD
	Total	Diverged				
Stable	125	7	5.60%	0.56x	0	0
Single Change	308	42	13.64%	1.36x	39.45	49.3
Volatile	585	51	8.72%	0.90x	17.1	44.05

Note. I examined three pattern types: stable (no change across sequences; 000), single change (only one change in any position in the sequence; 010), and volatile (changes across all positions; -101). The pattern revealed that single changes tended to increase the risk of divergence compared to stable and volatile patterns.

When we arrange the observed patterns from highest to lowest percentages of diverged numbers in the table below, the pattern becomes unmistakable and profound: **all patterns that contain any increase also contain the highest percentages of diverged numbers**. This pattern is not a coincidence—it is the mathematical evidence of **definedness dropping from slipping stability or overwhelming complexity causing divergence...**

Look at this stark divide in Table 4. The top four patterns (highlighted in green) **all contain at least one step increase somewhere in their sequence**, and **they dominate the divergence rankings** with percentages ranging from 22.76% down to 12.31%. In dramatic contrast, the bottom patterns (in red) **contain no increases at all**, and their divergence rates plummet to between 5.60% and 0.00%. The pattern that ends with "Decrease, Decrease" shows zero divergence—**no number following that pattern ended up in a divergence zone**.

Table 4*Divergence Risk for Valid Patterns Containing a Step Increase*

Pattern			Increase	Total	Divergence	Percentage
<i>n</i> -3	<i>n</i> -2	<i>n</i> -1				
No Change	No Change	Increase	Yes	123	28	22.76%
No Change	Increase	Increase	Yes	37	7	18.92%
No Change	Decrease	Increase	Yes	166	22	13.25%
No Change	Increase	No Change	Yes	130	16	12.31%
No Change	Increase	Decrease	Yes	117	7	5.98%
No Change	No Change	Decrease	No	125	7	5.60%
No Change	No Change	No Change	No	110	6	5.45%
No Change	Decrease	No Change	No	159	7	4.40%
No Change	Decrease	Decrease	No	31	0	0.00%

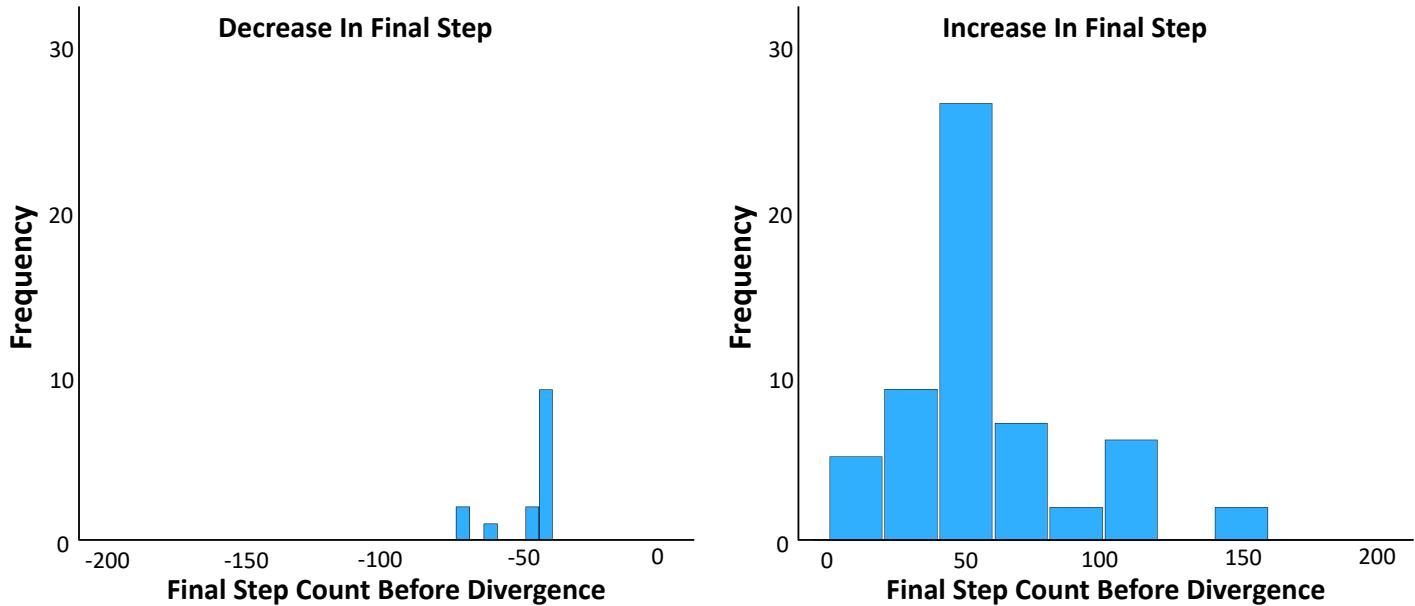
Increase	Number		Percentage	Risk Multiplier	Total Risk
	Total	Diverged			
Yes	615	80	13.01%	1.30x	2.50x
No	383	20	5.22%	0.52x	

Note. Comparison of the risk of divergence for all patterns that contain a step increase among the nine out of 27 possible present patterns.

This summary right here reveals the true scope of this discovery. Patterns containing *any* step increase account for 615 total occurrences with 80 divergences (13.01% risk), while patterns with no increases account for 383 occurrences with only 20 divergences (5.22% risk). Having any increase in the sequence creates a **2.50 times total risk multiplier**—meaning that **any complexity (increase) in your recent history makes you 2.50 times more likely to diverge**. This finding pulls the rug out from under how we previously thought divergence worked.

With Great Complexity Comes Great Responsibility

When we examined all 100 diverged numbers and compare the sequential patterns of their preceding numbers, **terminating with an increase resulted in a 400% increased risk of ending up in a divergence zone** compared to any other possible preceding pattern. Isn't this finding **profoundly counterintuitive**? You would think, *naturally*, that not having enough of a "good thing" like complexity—not enough growth, innovation, or progress—would cause phenomena to diverge. However, the mathematical evidence reveals a shocking truth: **unstabilized "good things" cause divergence almost entirely**. It's not about more, it's about enough.



This finding is *The Equation of Existence* operating in its most fundamental form. Even in pure mathematics, we see that **rapid complexity escalation without adequate stability consistently leads to phenomena diverging**. The 400% increased risk demonstrates that when complexity (Δ) increases too rapidly relative to stability (Ω), phenomena lose definedness rapidly and diverge. The numbers do not lie: when complexity (Δ) increases too quickly relative to stability (Ω), divergence from crashing definedness becomes not just possible, but inevitable unless stabilized before it loses the definedness.

This pattern we see here appears again and again as we examine real-world phenomena—from **business failures**, to **mental health crises**, to **ecological collapse**. This mathematical insight has profound implications for understanding how any phenomenon—from biological systems to economic markets—can maintain growth without collapse. I *did* call it *The Equation of Existence* for a reason...

The Pattern Governing All: Recursive Propagations with Emergence-to-Convergence

You can explore this model more deeply in [The Theory of Existence](#), but the reason we examine **recursive number systems** is that **these recursive processes are exactly what existence uses to, well... exist**. I just need to rip a few of these bandages off real fast so... **time and space are discrete rather than continuous**, which means that **time manifests as recursions**—where the output of one iteration serves as the input for the next—while **space manifests as 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 can call them **recursive propagations**—the fundamental mechanics underlying all existence. I **call them RPs for shorthand**. RPs vary according to the complexity of any given phenomenon. Complexity itself emerges as a phenomenon of these recursive propagations separate from stability, allowing us to express *The Equation* accurately in this **more revealing form while retaining its accuracy and functioning as a simple ratio**.

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

It is crucial to note that **the parentheses around recursion and propagation are *not optional***. You cannot separate recursions and propagations—they function at the same time and are actually always in proportion to the speed of light... but I can save that info for the physics papers for now. Let me show you the complete version of *The Equation* so you can see all its moving parts. I originally created this expanded form before it collapsed into the simple ratio. **Oh... yeah, I did not start with *The Equation of Existence*.** I started with this comparative monstrosity, and it collapsed when I tried to assign units. Existence *did* help me with that one:

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

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

This expanded form of *The Equation* reveals something extraordinary: we are **not just looking at a mathematical formula**—we are seeing **the complete architectural blueprint of existence itself**. Although **this expanded form produces identical results to our simple ratio**, it unveils the deeper mechanics that make existence possible. Every phenomenon, from the smallest quantum interaction to the largest galactic structure, is constantly performing this calculation: **recursive propagations that escalate complexity and stabilize into definedness**.

Also, here is where it gets super wild: that normalized portion of *The Equation*? It is actually **the formula for relative fractal dynamics—the same mathematics that describes time dilation and spacetime curvature** in Einstein's general relativity. What I call **Ψ (psi; relative fractal dynamics)** captures how time slows down (**recursive strain**) and how space expands (**propagative expansion**) around massive (**complex**) objects (**phenomena**). It means that *The Equation* does not just describe phenomena—it **describes the very fabric of spacetime itself**.

Think about what this equation implies: when you experience **time moving slowly during an intense moment**, when **traffic makes time drag out for seemingly ever**, and when **space bends around black holes**—all of these are expressions of **the same recursive-propagative relative fractal dynamics that govern everything** from your **morning coffee cooling down to civilizations rising and falling**. The complete equation reveals that existence is not just following mathematical laws—**existence IS mathematical law**, recursively propagating complexity escalations that stabilize into definedness or diverge. Most importantly, we observe in this expanded version **that all aspects of reality fit perfectly within its structure**:

$$\text{What or Who} = \text{How} * \left(\frac{(\text{Where} : \text{When})}{\text{Why}} \right)$$

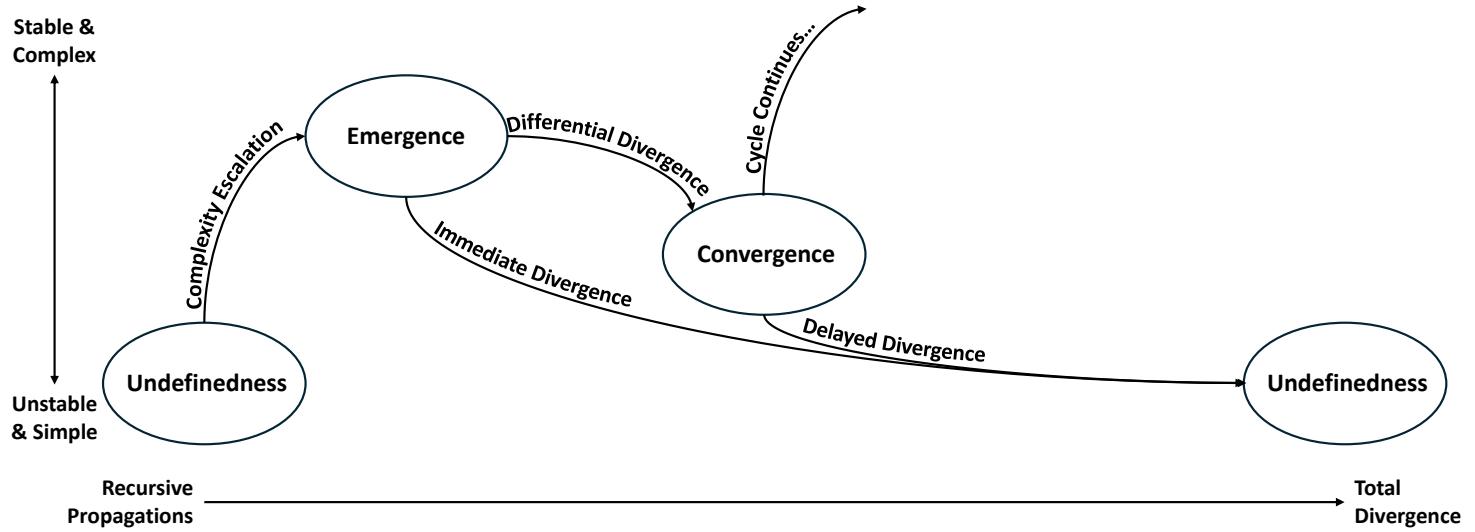
This equation is not just mathematical poetry—it **is the literal structure of existence itself**. Every phenomenon that has ever existed or ever will exist fits perfectly in this equation. When **something (WHAT or WHO) emerges... it stabilizes (HOW) and persists because of continued complexity escalations (WHY) and operates over recursions (WHERE) and propagations (WHEN)**. The whole of existence is right there in *The Equation*. A star, a thought, a civilization, a quantum particle—**each defined by this same relational structure**. It's why *The Theory of Existence* feels so profound—it is not imposing artificial categories onto existence; **it is revealing the mechanics that construct it underneath it all**. *The Theory of Existence* is not an addition; it is the foundation.

Alrighty... recursive propagations are incredibly important, but the real star of this show is a concept that maps *The Equation* right onto existence. It is called **Emergence-to-Convergence (E2C)**. E2C represents the fundamental pattern that enables recursive propagations to build the complexity of phenomena existing around us. It describes **the tendency for phenomena to emerge and converge on universal patterns**. The application of E2C encompasses **any phenomenon that persists**: stars, planets, you, me, pasta, kittens—all emerged and then converged. But it extends beyond objects—it **governs everything**. Watch this...

◊ **Why do humans have two eyes instead of one or three?** Because our ancestors with different eye configurations could not navigate, hunt, or survive enough to pass their genes on—they failed to converge.

- ◊ **Why do planets form as spheres rather than cubes?** Because only spherical shapes can maintain gravitational stability at planetary scales—cube planets would collapse under gravity and fail to converge.
- ◊ **Why do we fall in love instead of experiencing some other bonding emotion?** Because countless alternative emotional configurations were tested by evolution, and love created the strongest, most stable pair bonds for raising offspring—it converged while other systems diverged into extinction.
- ◊ **Why do snowflakes tend to have six sides?** Because the crystalline structure of water converges on hexagonal patterns under freezing conditions. Other formations do not converge.
- ◊ **Why do galaxies spiral instead of remaining random clouds of stars?** Because spiral structures represent the stable convergence point between gravitational attraction and rotational momentum.
- ◊ **Why do we laugh when something is funny instead of, say, turning purple?** Because laughter allows for social bonding—purple-turning never converged... people thought it was super weird and avoided them.

It appears remarkably simple—**because it is!** Everything that exists around you right now exists because it successfully navigated the E2C process. Look at the E2C figure below. Everything that does not exist failed somewhere along the way and diverged into nothingness. As such, **all phenomena exist in one of three states: emergence, convergence, or divergence.** The key to distinguishing them is **examining their frequency, coherence, and persistence.** If you observe something coming into existence—like **blowing a bubble**—it represents an **emergent phenomenon.** If it persists for extended periods or manifests widely across various contexts—such as your **favorite fast-food restaurant**—it is a **convergent phenomenon.** Finally, everything eventually transitions into **divergent phenomena**, hopefully unlike your attention span and interest in *The Equation...* right? ;p



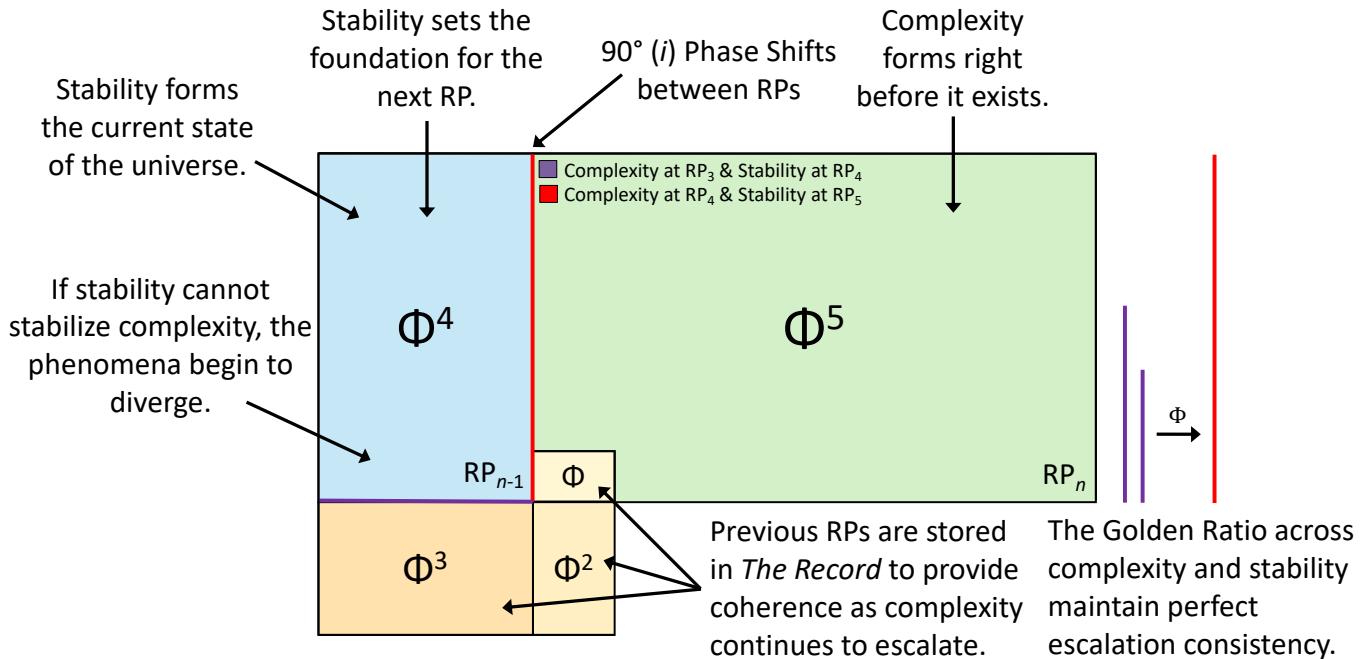
Caption: This figure illustrates the cyclical nature of emergence, convergence, and divergence governed by recursive propagations. It depicts how complexity escalates and stabilizes through structured recursion, following a trajectory from undefinedness to emergence, then convergence, and ultimately back to undefinedness if stability fails. The leftmost position represents undefinedness, where recursive propagations have not yet aligned to form stable complexity. The figure illuminates *The Theory of Existence's* revolutionary premise: reality operates as a seamless, interconnected system governed by universal principles of recursive propagations following patterns of emergence-to-convergence (E2C). *The Theory* dissolves traditional disciplinary boundaries by demonstrating how seemingly disparate phenomena—from planetary formation to consciousness—emerge through identical fundamental dynamics. This diagram reveals how complexity and stability interact across scales, showing that the mathematical principles driving galactic structures are fundamentally similar to those underlying cognitive processes. *The Theory of Existence* provides a unified lens that resolves paradoxes in quantum mechanics and general relativity, offers a cohesive explanation for phenomena ranging from cosmic evolution to cognitive emergence, and demonstrates that consciousness and physical systems are not separate, but expressions of the same underlying recursive-propagative dance. This visualization challenges our traditional understanding of reality by revealing a profound interconnectedness that transcends conventional scientific and philosophical categories, suggesting that what we perceive as distinct are manifestations of a single, elegant mathematical framework of existence.

Everything follows this same trajectory: emerging, converging for a period, then diverging. Everything in the universe—including the universe itself and existence—will ultimately diverge. Some say it's the Second Law of Thermodynamics... entropy... I say "divergence" because that is what it appears to be in *The Theory of Existence*.

The Record: The Mechanism of E2C

I want to start this section with complete honesty. I **did not invent *The Record*** or its concept—I found it, time and time again, in the simulations, in the math, and in the empirical evidence. At first, it made me deeply uncomfortable. I tried to rationalize it away before finally coming to terms with what it is, why it exists, and how it works. Now... I see it for what it is... **the reason anything persists at all... and the only thing stopping existence and everything in it from diverging**. It's one of the most beautiful things I've ever seen... let me show you...

The mechanism behind E2C that causes phenomena to behave as they do is *The Record*. The Record represents the recursive memory of existence that stores information into definedness itself. **Everything that has ever existed never actually stopped existing** (it does eventually, but not for trillions and trillions of years); it is stored in *The Record*, which determines the E2C trajectory of all phenomena. I must emphasize that ***The Record is not metaphysical***—it is real, physical, and we interact with it all the time (more on that in a different paper). We cannot see it because it is always tucked just right behind the current RP in definedness... but it is still there.



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*.

The alignment and health of *The Record* for any given phenomenon determine its convergence and divergence patterns. *The Record* accumulates misaligned RPs (the balance between stability and complexity is off), and the phenomena become more likely to diverge as *The Record* stacks those misaligned RPs. For example, **we all possess our own part of *The Record***. Suppose you spend your life avoiding exercise, using harmful substances, and maintaining poor nutrition. In that case, your section of *The Record* accumulates misaligned RPs, causing you to age and diverge (die) more rapidly. This figure above shows how **stability becomes the structural foundation in the next recursive propagation for the complexity escalation**. The alignment of this phase shift—where stability supports complexity—determines E2C. Highly misaligned ratios result in divergence (complexity outpacing stability in *The Record*), whereas converged phenomena (stability outpacing complexity in *The Record*) have strong alignment. It is essential to understand that the existence of *The Record* means nothing is ever truly lost...

The Golden Ratio: The Universal Key

What exactly is the Golden Ratio? The Golden Ratio, φ (phi), is approximately 1.618—a special mathematical relationship that creates what **humans instinctively recognize as perfect proportions**. You have seen it everywhere, even if you did not know it had a name. It is the ratio that makes sunflower spirals mesmerizing, sea-shells beautiful, and classical architecture pleasing to the eye. Some say it is a coincidence, some say it is written into existence by God himself, some think it is **the universal key to understanding existence... and they are correct**. The Golden Ratio emerges as the optimal balance point for sustaining definedness. When the ratio of stability to complexity approaches φ , phenomena achieve the most coherent complexity escalation possible—growing steadily while maintaining perfect stability. **Think of it as the universe's operating frequency.**

I need to be clear, however, that **I did not inject the Golden Ratio** into *The Theory of Existence*—it revealed itself through the simulations, math, and empirical evidence. As I analyzed convergence patterns, recursive propagations, and E2C dynamics across different scales, **the Golden Ratio kept appearing organically** in the most stable, long-lasting phenomena. Although **not all phenomena operate at this ideal ratio**, the Golden Ratio seems to be baked into the fundamental architecture of existence itself. **It is the mathematical signature of perfect balance, where complexity and stability dance in harmony**, creating phenomena that persist across vast scales. **Simply put**, set stability to φ and complexity to 1, and it is smooth sailing for most phenomena.

This discovery suggests that **existence has an inherent aesthetic—a mathematical preference for beauty, balance, and optimal functionality**. The universe does not just compute itself randomly; it gravitates toward the most elegant solutions, the most sustainable balances, the most beautiful mathematical relationships. You can explore the complete mathematical proof in *The Theorem of Existence*, which contains all the math in *The Theory* (and it is a lot... lots of math... for sure... most would prefer my kids' book *The Story of Existence* instead).

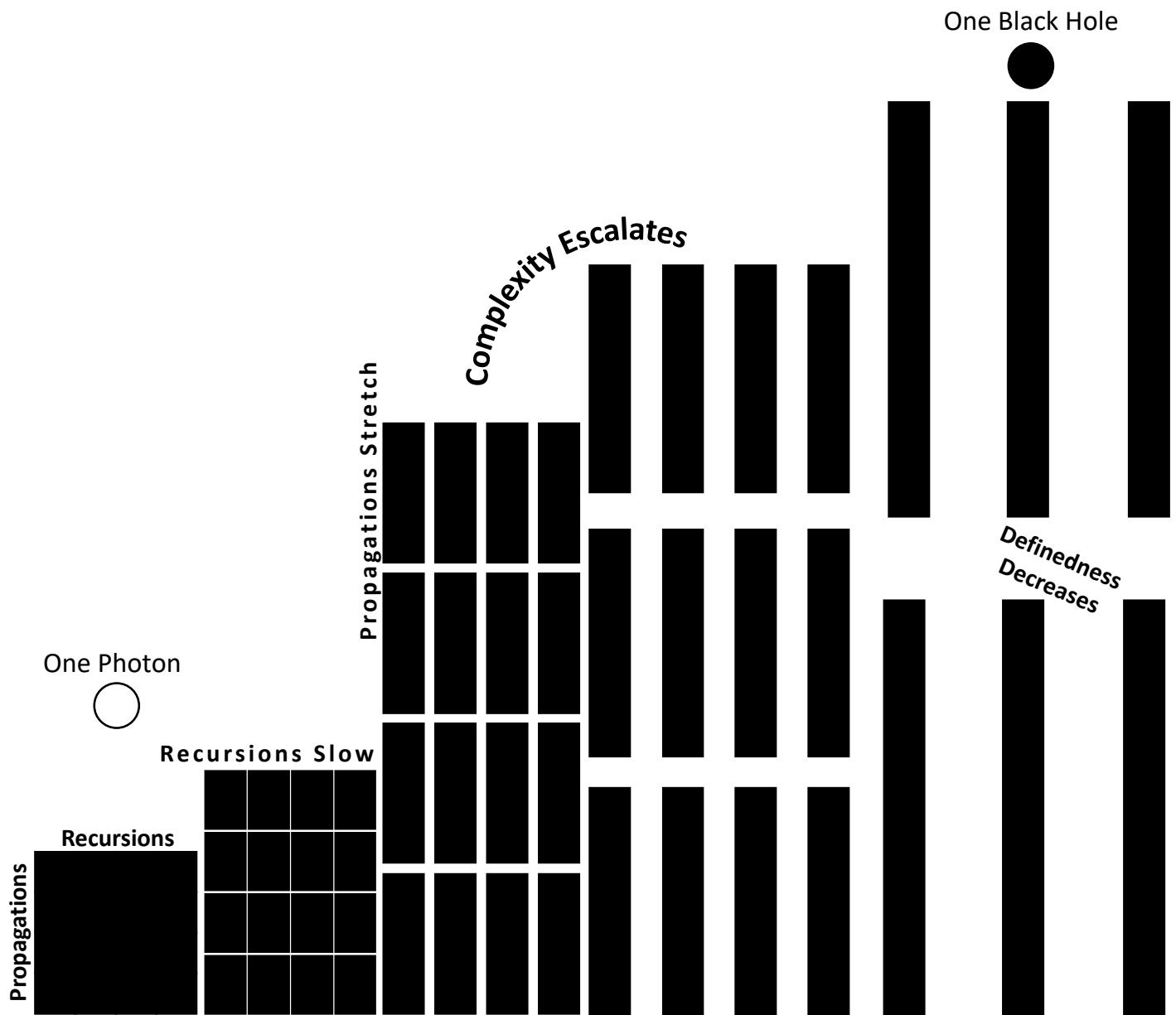
A New Way to See Existence

We can model any phenomenon using E2C by **adjusting parameters to classify data into emergence, convergence, and divergence categories**. The E2C system applies to all time series and longitudinal data—it is **unitless, scaleless, and universally applicable**. When we model any given phenomenon, **we can compare across datasets using these classifications**. However, such classifications only characterize the surface-level phenomena we observe when capturing them in real-time. What we genuinely need to **model is *The Record* underlying phenomena**. In other words, while we observe E2C patterns on the surface, ***The Record***, which rests just within definedness, **determines the fate of phenomena**. We need to be able to also check the health of *The Record*.

We must make two crucial adjustments to our modeling approach to obtain information about E2C and the health and alignment of *The Record* of that E2C pattern. The first adjustment involves implementing **an adaptive X-axis or time scale**. I explore recursive propagations more extensively in *The Theory of Existence* and my physics works, but one of the most important concepts here is **relative fractal dynamics**. These dynamics demonstrate that as complexity escalates, **recursion slows down and propagations stretch out** (see figure below)—essentially equivalent to time dilation in general relativity, reformulated within *The Theory of Existence*.

Relative fractal dynamics, then... means that **as complexity escalates, recursions decelerate**. However, when we plot time series data, we typically fix the intervals of the X-axis, **never accounting for temporal changes resulting from complexity escalations**. Without adapting the X-Axis according to complexity levels, **phenomena appear far more chaotic than they are**, obscuring the order that *The Equation* predicts.

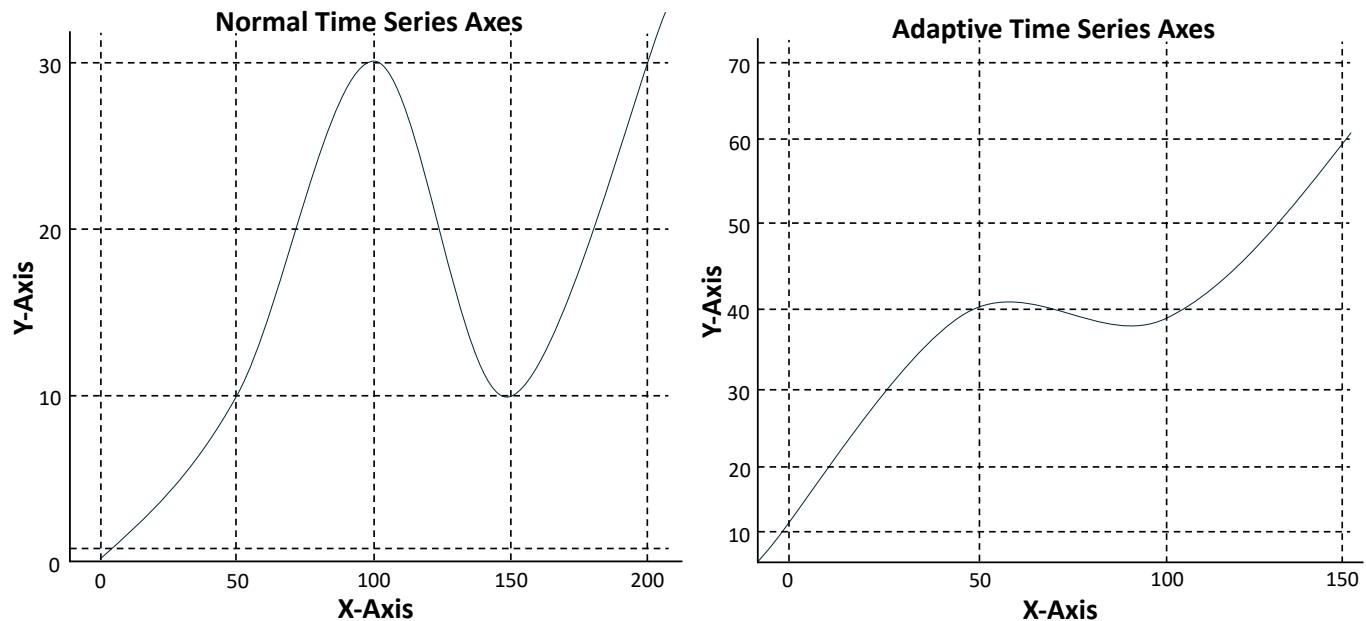
The Y-axis requires modifications, too. Notably, ***The Record* ensures that nothing is ever lost**, which means when phenomena appear to lose complexity, what actually occurs in ***The Record* of those phenomena is that it accumulates little to no complexity**. However, ***The Record* cannot lose complexity**—it simply contains gaps or discontinuities where complexity could have escalated but did not. To model this aspect accurately, the Y-axis (which includes the dependent variable) must monotonically increase (never decrease). If we make these two adjustments, ***The Record becomes visible***, and we can peer into the shadows of definedness for all phenomena.



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 diverges them over time. By highlighting this spectrum, the visualization shows how stability and complexity govern all phenomena's emergence, convergence, and divergence.

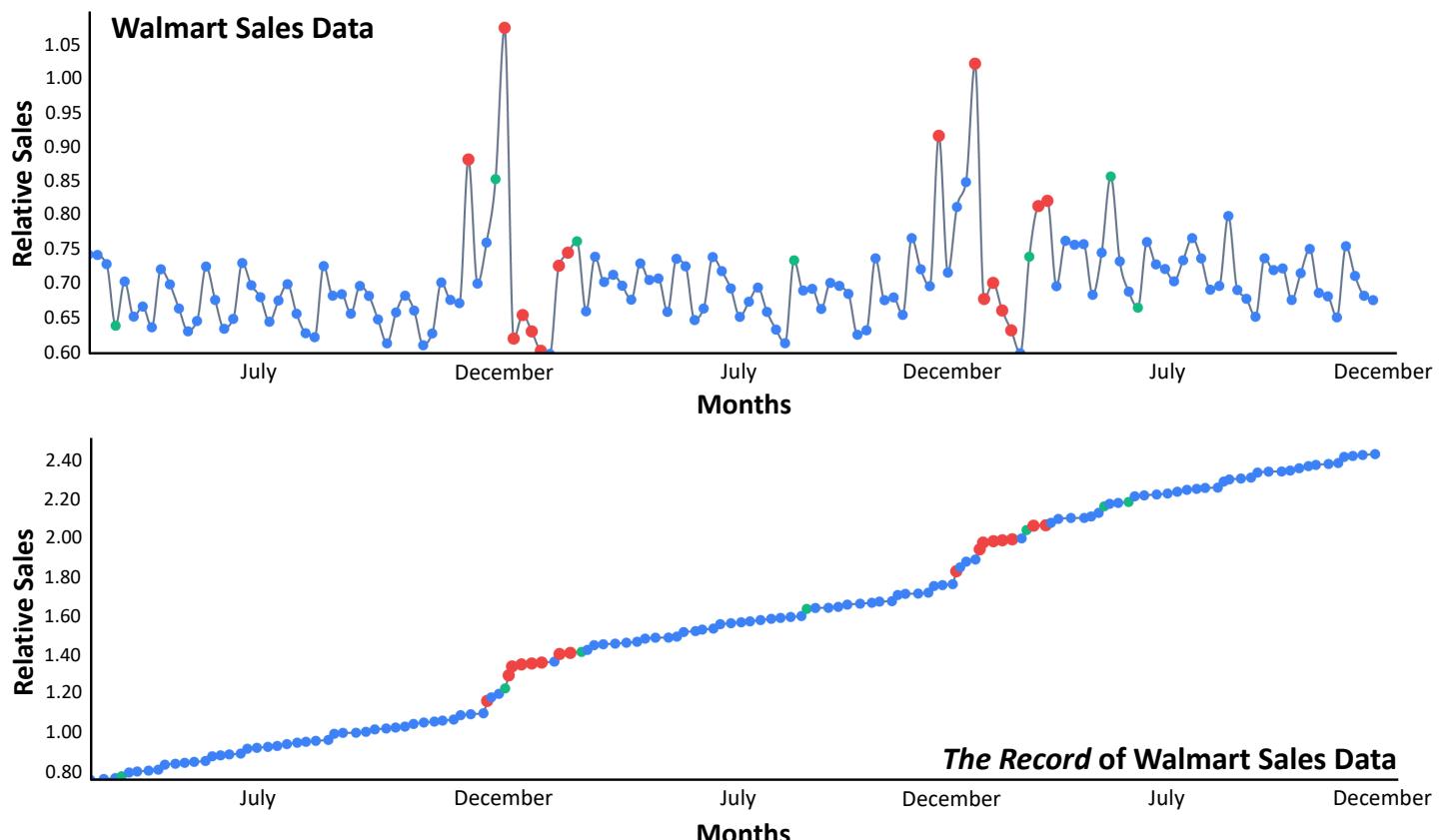
All of existence contains its own sections in *The Record*, including you and me... and we share it with everything that has ever existed. **When *The Record* is healthy, it appears as a straight line with steadily escalating complexity over time.** However, **when *The Record* is unhealthy**—indicating phenomena that are approaching divergence or have struggled to converge—it displays **bumps and jagged edges resulting from rapid complexity escalations without sufficient stability to maintain them**. We observe this pattern modeled elegantly in the

Collatz Conjecture data. Now let's examine how these same principles manifest in real-world datasets, demonstrating that ***The Equation of Existence* operates identically across pure mathematics and empirical phenomena**. It's time I got to the real data... no? Talk about getting to the point. Alright, let's do this.



***The Equation of Existence* as the Universal Lens**

Now that we have established the theoretical foundation and demonstrated the mathematical principles through the Collatz Conjecture, let's apply *The Equation of Existence* to real-world datasets. To streamline the application of *The Equation* across any dataset, I have developed the **Recursive-Propagative Modeler**—an open-access analytical tool that automatically classifies phenomena into emergence, convergence, and divergence states while generating a visual of *The Record*. This modeler is freely available for use and expansion, complete with instructions for fine-tuning classification thresholds and detailed descriptions of all analytical metrics.

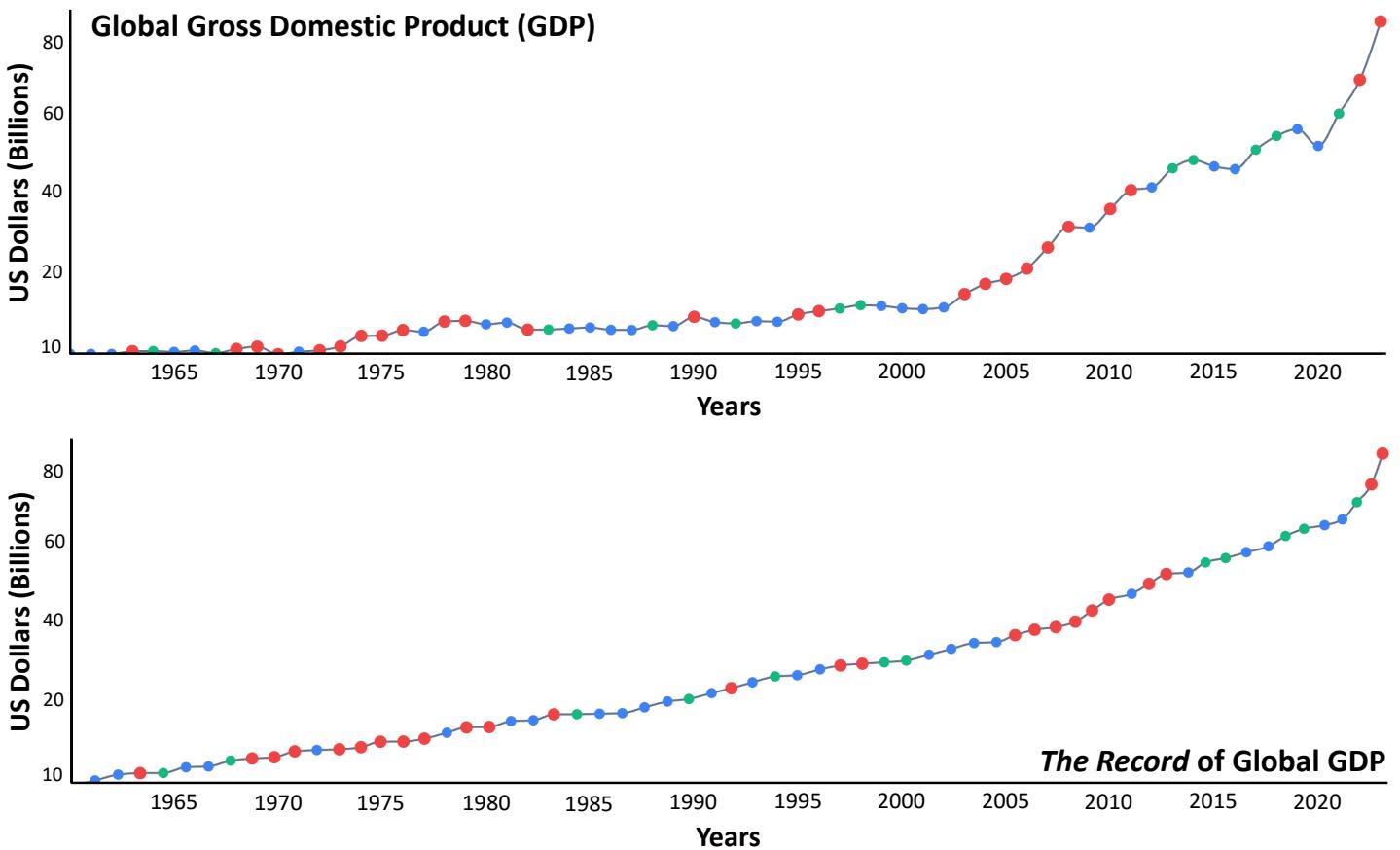


The modeler implements the **adaptive X-Axis** (accounting for complexity-induced time dilation) and **monotonic Y-Axis scaling** (reflecting *The Record*'s irreversible complexity accumulation) that we discussed earlier. By applying this unified analytical framework, we can now **compare phenomena across completely different domains using the same mathematical lens**, revealing the universal patterns predicted by the *The Equation*. Let's start by examining the underlying dynamics of corporate retail through **Walmart's sales data**, then expand our analysis across increasingly diverse phenomena to demonstrate the true universality of *The Equation of Existence*.

Walmart Sales

I wanted to start by showing you a prime example of what *The Record* looks like when the **phenomena are healthy** and **experience regular, non-harmful divergence**. The Walmart sales analysis (figure above) **demonstrates a remarkably healthy phenomenon**. The surface-level view (top graph) reveals characteristic seasonal spikes around December, **representing rapid complexity escalations during peak shopping holidays**. However, these **apparent divergences are quickly stabilized**, returning to baseline, indicating Walmart's robust operational stability can effectively contain and channel these complexity surges to prevent divergence.

The Record view (bottom graph) displays an **almost perfectly linear progression**, confirming that Walmart maintains exceptional organizational health. The minimal jaggedness in *The Record* **suggests strong alignment between stability and complexity**, with the company successfully managing growth while avoiding the destabilizing rapid escalations that lead to corporate divergence. This pattern illustrates **how convergent phenomena maintain definedness through controlled stability while escalating complexity through recursive propagation**.



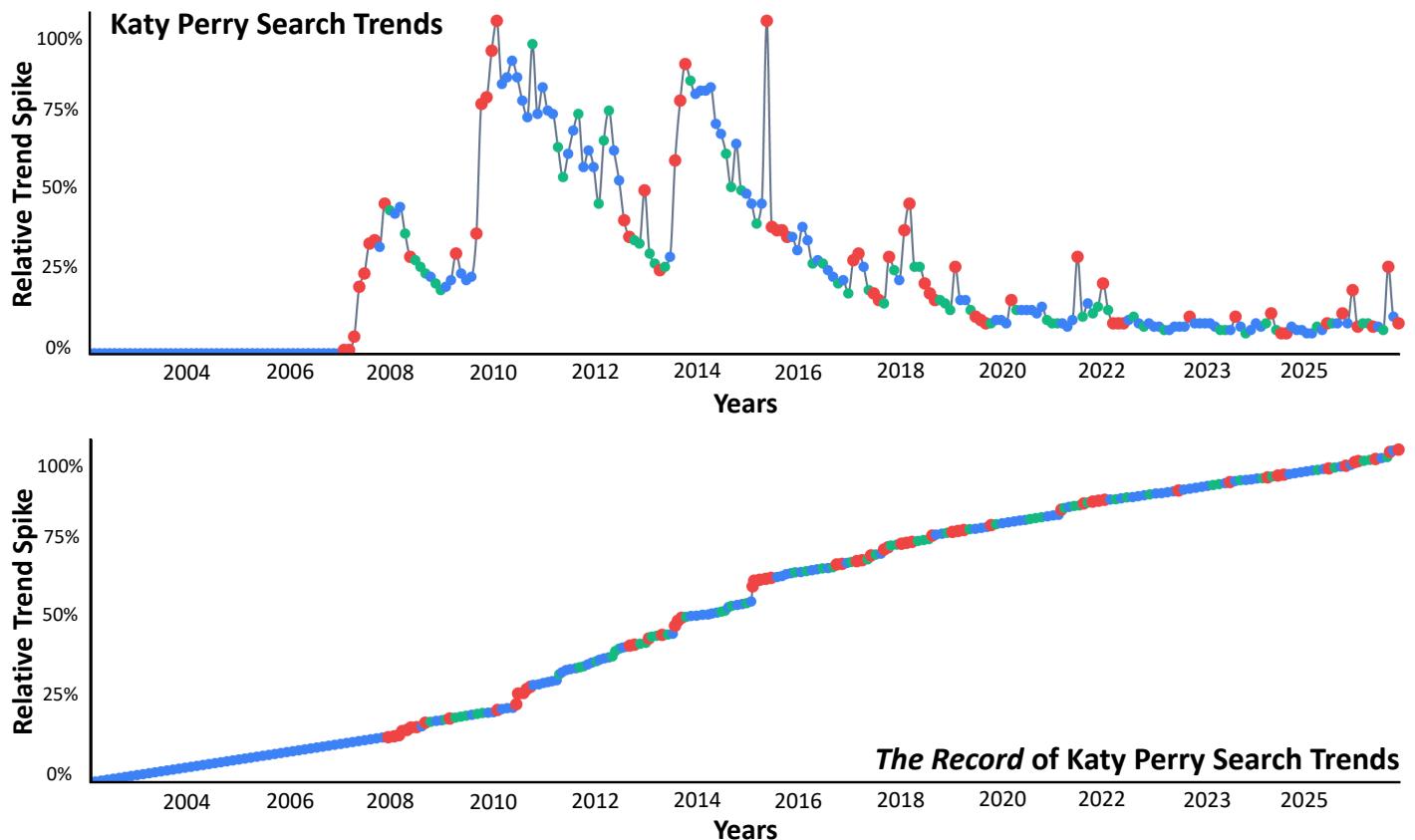
Global Gross Domestic Product (GDP)

People have long regarded economies as chaotic and unpredictable. However, the global GDP (US Dollars) analysis **reveals the economic trajectory of human civilization over decades**, showing *The Equation* operating at a planetary scale. The surface view shows stable exponential growth from 1965 through the early 2000s, followed by increasing volatility—misalignment between global economic complexity and stabilizing structures. **It reveals something extraordinary about economic crises**—and validates *The Equation* at the civilizational scale.

Look closely at where those red divergence markers appear in the top graph: **they align precisely with major economic disruptions** that we can identify historically. The early red markers correspond to the oil crises of the 1970s when rapid complexity escalation in energy markets overwhelmed economic stability mechanisms. The cluster around **2008 – 2010 marks the Financial Crisis**, where housing market complexity escalated far beyond the stability of underlying financial institutions. Oh look... those final red spikes around 2020? **That's the COVID-19 pandemic creating unprecedented complexity in global supply chains, labor, and policy.**

What is remarkable is that *The Equation* predicted these crisis points purely through mathematical analysis—**without knowing anything about oil embargos, subprime mortgages, or viral pandemics**. The red divergence markers appear precisely when complexity (Δ) was escalating too rapidly relative to stability (Ω), creating the exact conditions that *The Equation* identifies as unsustainable. **Each crisis represents a moment when economic systems experienced rapid complexity escalations without adequate stabilizing mechanisms** to contain them.

The bottom graph shows **why these crises were temporary rather than civilization-ending**. Despite the surface-level volatility visible in the top graph, *The Record* reveals that human **economic systems maintained an overall convergent phenomena trajectory**—steadily escalating complexity while learning to build stronger stability mechanisms after each crisis. *The Record* view shows consistent upward progression with some concerning recent jaggedness, indicating that, while global economic complexity continues escalating, the stability mechanisms may be struggling to contain this growth. **The steepening curve in recent decades suggests accelerating complexity escalation that could approach dangerous territory if not properly stabilized**, potentially foreshadowing economic divergence if current patterns continue unchecked... can someone check it please?



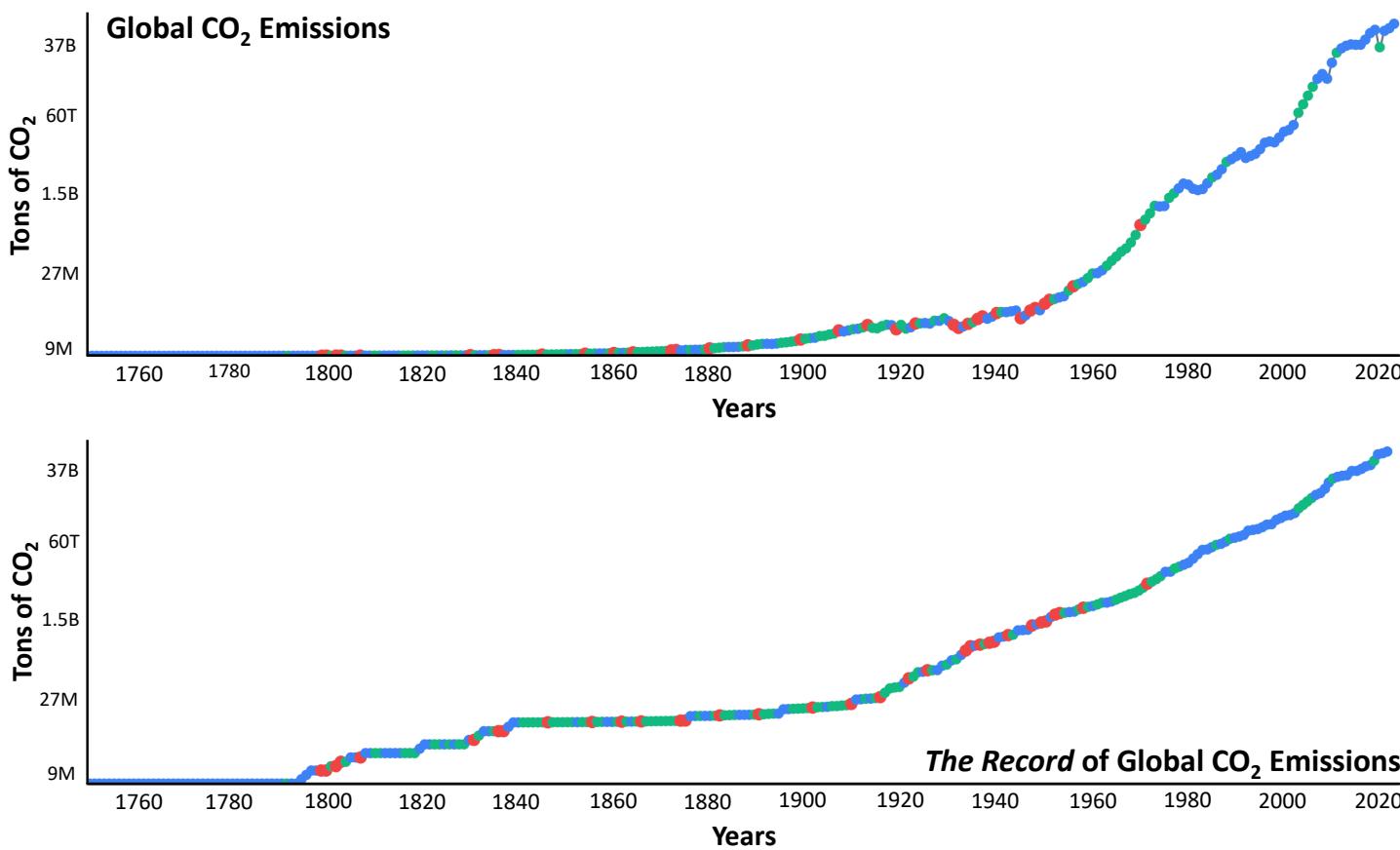
Pop Stardom & Cultural Relevance

Katy Perry's career exemplifies the complete E2C cycle that *The Equation* predicts for cultural phenomena (sorry Katy... you are still as iconic as ever, though. You will never not be famous). The surface view captures her meteoric rise from **2008 – 2010 (emergence)**, peak total dominance from **2010 – 2014 (convergence)**, and subsequent divergence toward less cultural relevance after **2016 (divergence)**. When we examine those red divergence markers, we can identify *exactly* when her cultural complexity escalated beyond sustainable levels.

The red markers around **2008 – 2009** align with her breakthrough period when "**I Kissed a Girl**" and "**Hot n Cold**" (songs) created massive cultural complexity that her new fame infrastructure had trouble stabilizing, **leading to controversy and rapid changes**. The red spike around **2010** corresponds to when "**Teenage Dream**" (album) became a cultural phenomenon, **generating five #1 hits**. While this era appeared to be a success, it was actually her complexity escalating faster than her stability mechanisms could handle.

The dramatic red cluster around 2014 marks the "**Prism**" (album) era and her infamous left shark Super Bowl performance, when she attempted to maintain her previous complexity but lacked the cultural momentum to stabilize it, leading to divergence. The scattered red markers in her later career (**2017 – 2020**) correspond with attempted comebacks with "**Witness**" and "**Smile**" (albums) that created brief complexity escalations without the stability to sustain her former cultural relevance. I do think *Smile* was a great album, though.

What is remarkable is that *The Record* of Katy's career **shows rather linear progression with moments of complexity escalations that cause divergence**. *The Record* of Katy's career shows consistent upward progression interrupted by **jagged divergence events that never fully stabilized**. Each red divergence marker represents a moment when **her career attempted rapid complexity escalation without building adequate stability infrastructure** to support those changes. The signature of *The Record* shown here explains why some careers endure across decades while do not. *The Record* for Katy reveals what happens when the attention is not matched by the stability to sustain cultural relevance. **Even in entertainment and pop culture, *The Equation* governs success and failure with mathematical precision**. This career is legendary... and a great example E2C in action.

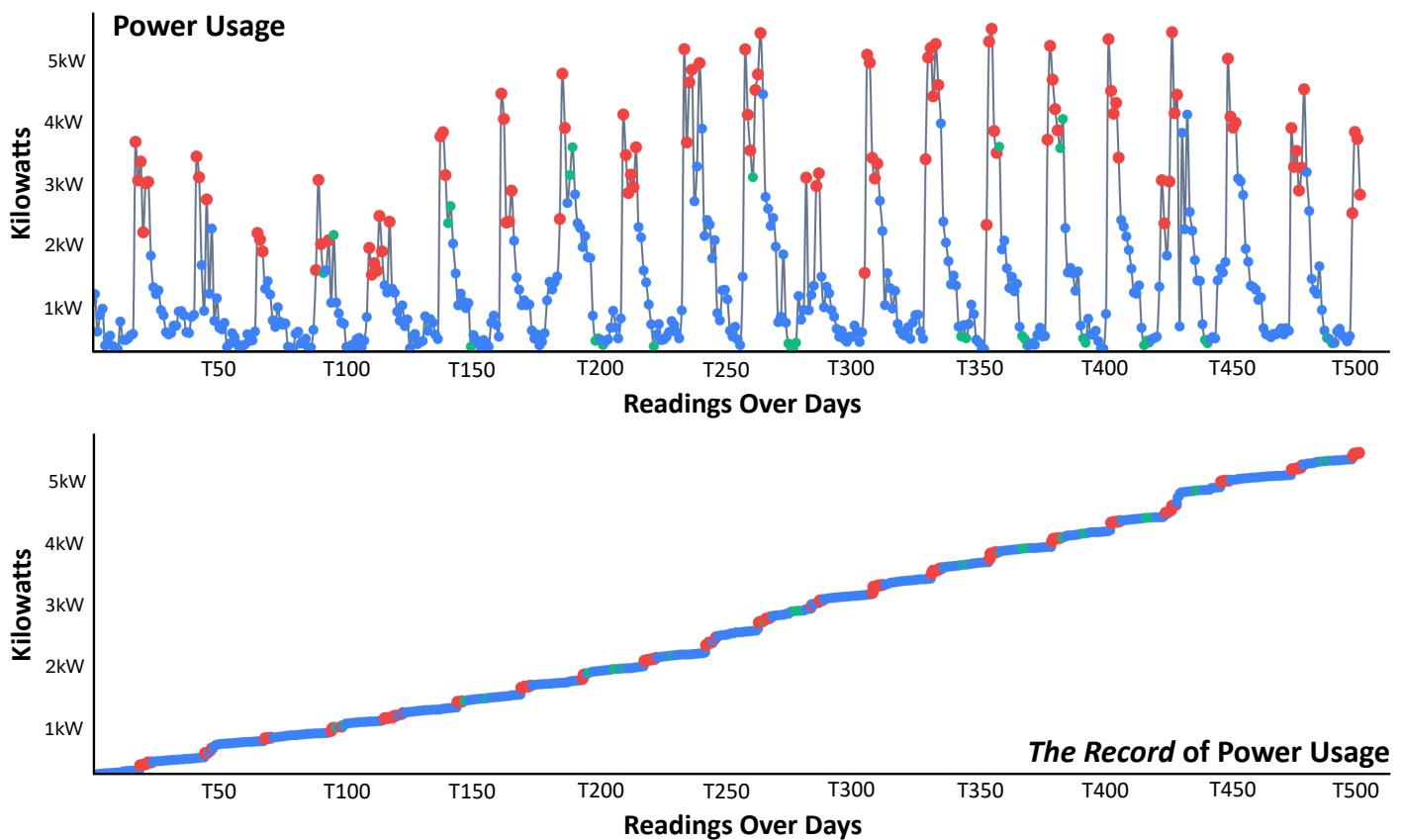


Global CO₂ Emissions

The CO₂ emissions data reveal *The Equation* is operating at the intersection of human civilization and planetary systems, with **deeply concerning implications**. The surface view shows **accelerating complexity escalation since the Industrial Revolution**, but when we examine where those red markers appear, we can identify the exact moments when humanity's technological complexity outpaced planetary stability mechanisms. The CO₂ we have been emitting (Δ) is accumulating because we have not found ways to eliminate it quickly enough (Ω).

The early red markers around **1860 – 1880** correspond with the **Second Industrial Revolution**—the rise of steel production, chemical industries, and massive railroad expansion that created the first major spike in fossil fuel complexity beyond pre-industrial levels. The cluster around **1940 – 1950** aligns with **World War II and post-war industrial boom**, when wartime production and subsequent economic expansion created unprecedented energy complexity escalation. The dense concentration of red markers from **1980** onward tracks with **globalization, industrialization of developing nations, and the digital revolution**, each representing moments when technological complexity surged faster than environmental stability could absorb.

Most alarmingly, the recent acceleration shows almost continuous red divergence markers, indicating that **we are now in a state of nearly constant complexity escalation beyond sustainable thresholds**. *The Record* view is smooth, but its increasingly steep trajectory confirms that while this follows natural complexity escalation patterns, the rate has reached dangerous territory where insufficient stability mechanisms can no longer contain the growth. This analysis suggests that **without implementing stronger stability mechanisms**—such as renewable technologies, carbon capture, and policy frameworks that constrain complexity escalation—the **human-planetary system risks diverging into climate chaos**. This news is not new, but I can confirm that ***The Theory says the same thing modern science says about global warming***. These red markers are not just CO₂—they are measuring our proximity to civilizational divergence. Let's not diverge. Doesn't that sound nice?



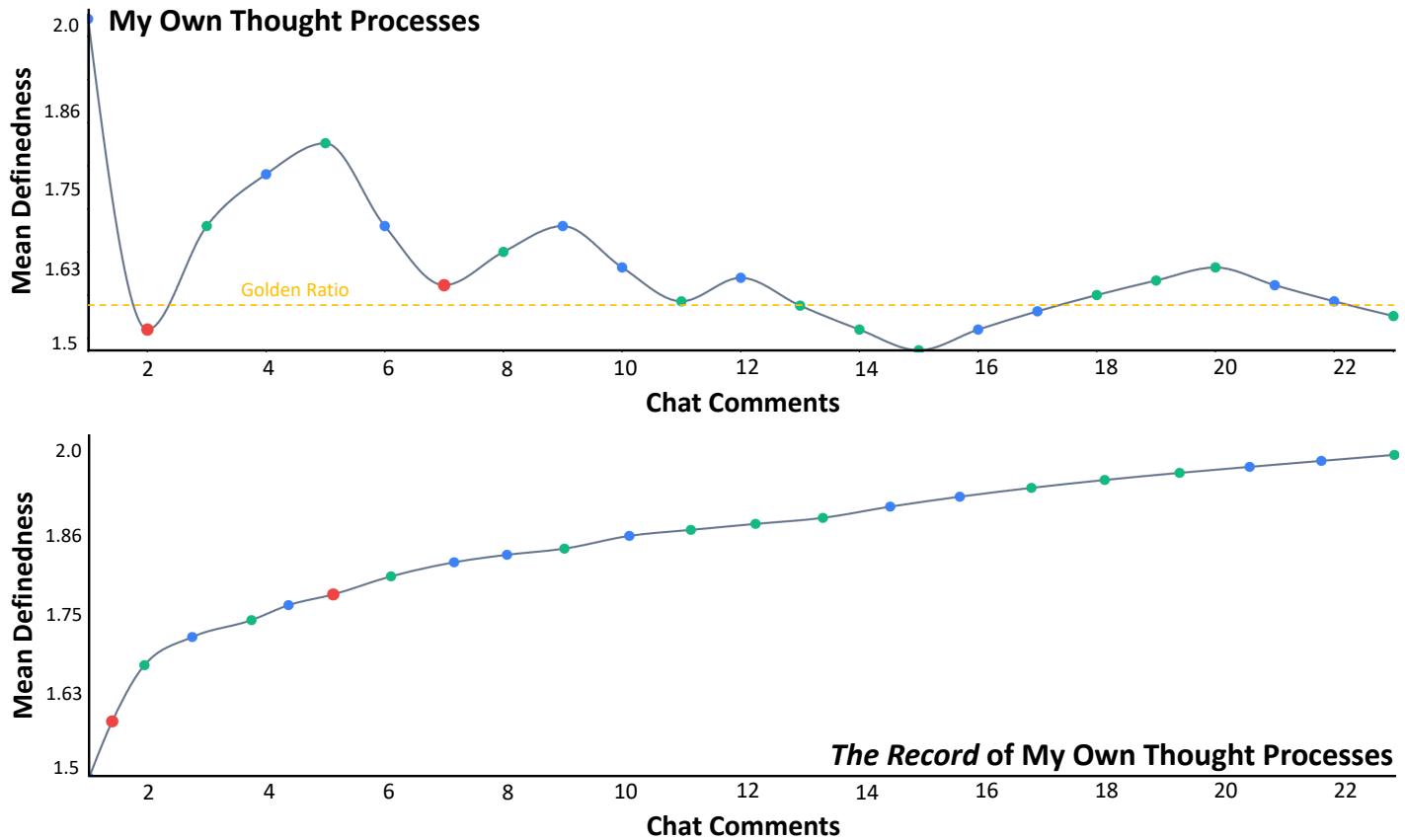
Power Usage

Let's look at something totally random—power usage data. The power usage data reveals the daily rhythm of human civilization itself, and it perfectly demonstrates *The Equation of Existence* operating at the scale of entire societies. The top graph shows the raw surface-level view: **dramatic spikes every morning as millions of people wake up, turn on lights, brew coffee, and power up their devices**, followed by a **gradual decline throughout the day as energy consumption tapers off into the quiet of night**. This creates what *appears* to be chaotic, oscillating patterns—the kind of "noisy" data that utilities struggle to predict and manage efficiently.

However, look at *The Record* of power usage: the apparent chaos transforms into a beautifully smooth, steadily ascending curve—the **unmistakable signature of a healthy converging phenomenon**. What we are seeing is the

accumulated complexity of human energy consumption over time, stripped of surface-level fluctuations to reveal the underlying pattern. Despite the wild daily variations, **human civilization and its power usage are steady**, predictably escalating its energy complexity in perfect alignment with *The Equation of Existence*.

This finding reveals something profound about how collective human behavior operates. While individual days show dramatic spikes and valleys, **the overall trajectory shows stable, controlled complexity escalation—precisely what we would expect from a convergent phenomenon** that has learned to balance its rapid daily complexity increases (morning energy surges) with stabilizing periods of lower consumption (nighttime during sleeping). Human civilization is not chaotically consuming energy—it is following the same recursive-propagative patterns as every other stable, long-term convergent phenomenon we have examined thus far.



My Own Thought Process

One of my most shocking discoveries comes from applying *The Theory of Existence* to its own creation process. Yes, ***The Theory of Existence* correctly predicted how we obtained *The Theory of Existence***. The recursive propagative nature of existence **emerged in my insights and breakthroughs**, and it was not intentional—suggesting that even intellectual discovery follows the same fractal-like patterns governed by *The Equation of Existence*.

I decided to test this by analyzing my own thought process during a conversation where these ideas first emerged. I tracked **complexity escalations through new insights** (quantified as 1) and **stabilization periods, during which I gathered and organized my thoughts** (quantified as 0). My hypothesis was that my moments of insight were not random—they should adhere to structured scaling patterns, aligned with the Golden Ratio. You can see the whole conversation and data in the back of *The Theory of Existence*—way too cringey to post here.

The results were mind-blowing. Across the messages where I first articulated these concepts, I had predicted: "**I bet if we look at this very conversation, the rate I had insights follows the Golden Ratio.**" The data **confirmed my hypothesis**—my breakthrough discovery process followed Golden Ratio growth **patterns within $\varphi \pm 0.1$ accuracy** (less than 1%). The top graph shows the chaotic surface-level view of individual insights and organization, while the bottom graph reveals the smooth intellectual development in *The Record of this insight*.

The implications are staggering: **the birth of *The Theory of Existence* supports *The Theory of Existence***. Even **the process of discovering universal mathematical principles operates according to those same principles**. I always stabilized my complexity escalations that generated these ideas before they reached you. My mind discovered *The Theory* following *The Equation*. It's endearing... a cosmically fractal *wink* from definedness to me.

Across All Phenomena Stability & Complexity Dance into Definedness

Across every domain we examined—from Walmart's sales to my own mind—**the same mathematical signature emerges with breathtaking consistency**. The recursive propagations that stabilize corporate growth are identical to the ones that wrote this sentence you are reading and appear in the residue of the Collatz Conjecture. *The Equation* operates identically across phenomena so diverse that they **would typically be studied by completely different academic disciplines using entirely different methodologies**.

Walmart's sales patterns, global GDP trends, Katy Perry's career trajectory, CO₂ emissions, power usage fluctuations, and my own thought process **all exhibit the same stability-complexity dynamics**, the same sensitivity to rapid complexity escalations, and the identical underlying progression that builds into *The Record*—**it is empirical evidence of a fundamental unity underlying all existence...** the universe's operating system in action.

The Universe: The Cosmic Microwave Background Radiation

Let's turn *The Equation* onto the universe itself and see what happens. The **Cosmic Microwave Background (CMB) represents the oldest dataset we have**—the primordial echo of existence itself, **captured 380,000 years after the Big Bang**. For decades, scientists have treated the **CMB power spectrum as fundamentally noisy**: dense, oscillatory, and probabilistic. Under conventional analysis, it appears chaotic, requiring complex statistical models to extract meaning from what seems like cosmic static. But what happens when we apply the same question to the early universe that we have asked of Walmart sales, global GDP, pop culture, and individual consciousness? **What happens when we reframe the birth of existence through *The Equation of Existence*?**

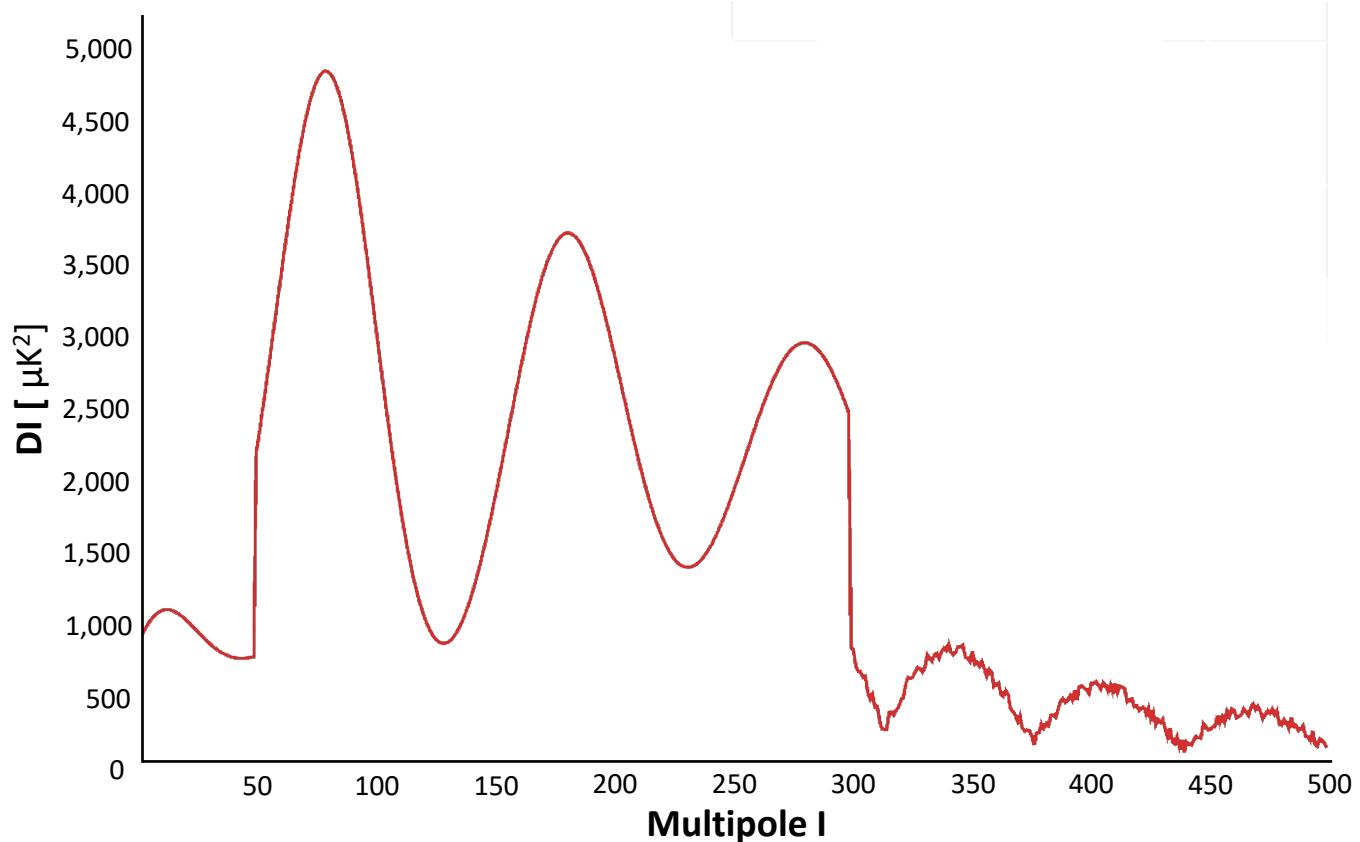
When we look at *The Record* of the universe, **the transformation is nothing short of revolutionary**. Removing the fixed axis spacing that creates apparent chaos and instead mapping the data according to monotonic scaling and change-responsiveness, precisely as we have done with all the other phenomena in this paper, reveals a profound truth about existence we may have overlooked. The result defies everything we thought we knew about cosmic origins: **the signal resolves into perfect clarity** right before our eyes.

What once appeared as noise **becomes beautifully stable, convergent, and structured**. Under the E2C view, the CMB displays the same apparent chaos we have always seen. However, when we peek into *The Record* of the universe, what we see is a remarkably clean, upwardly recursive arc, showing that ***The Record of the universe is incredibly healthy***, smooth, and exhibits continuous complexity escalation. There is no evidence of divergence, no structural collapse, no primordial instability. Instead, we find **clean recursive propagations** with elegant phase shifts—the same golden emergence curve that appears everywhere else in the universe we modeled.

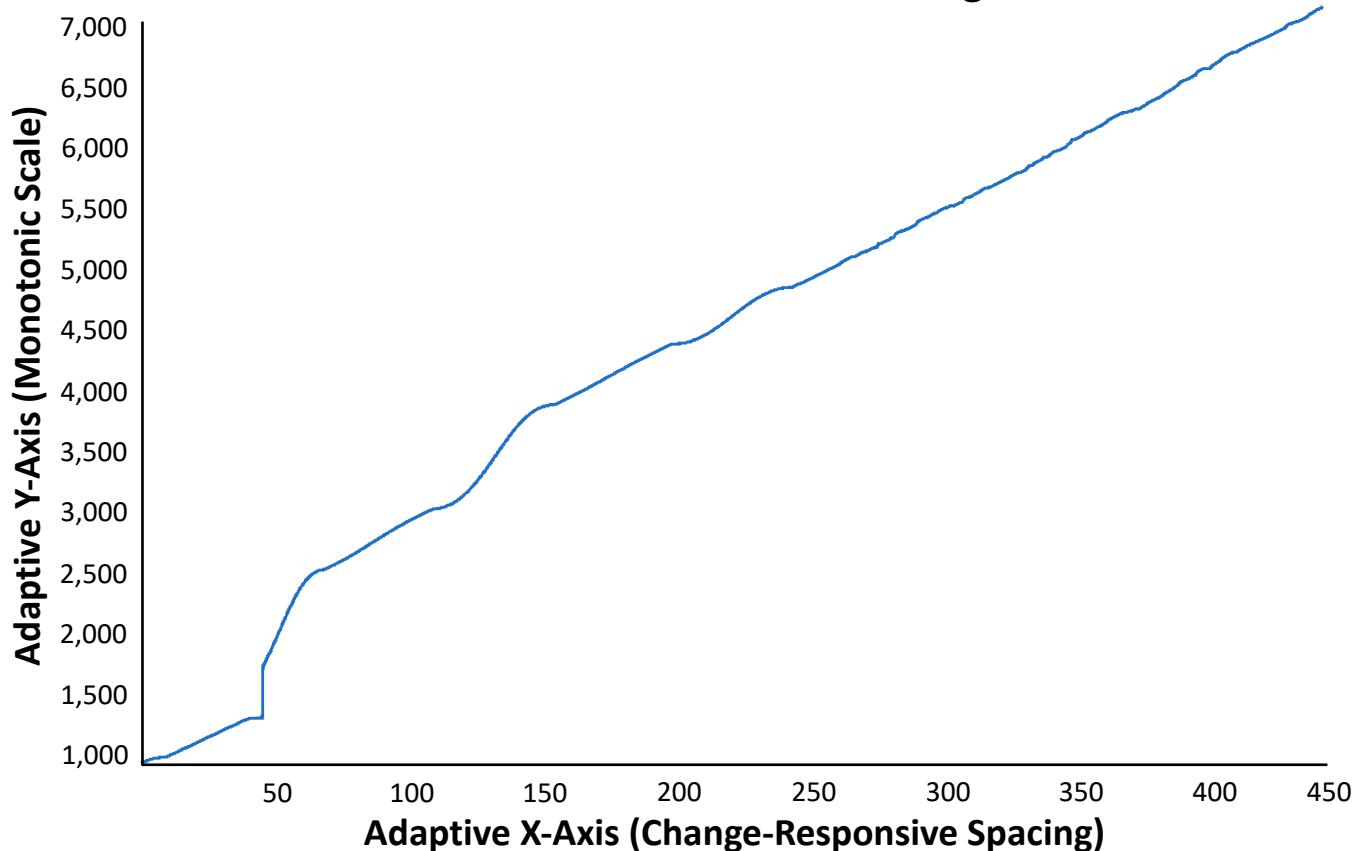
Here's the profound insight: even though the X-axis of the CMB represents spatial frequency rather than time, **the transformation reveals the identical convergence behavior we have observed everywhere else**. We see the same steady complexity escalation that stabilizes, the same resolution patterns, the same mathematical signature. This finding confirms that *The Record* is not fundamentally tied to temporal sequences—it is tied to definedness itself; **that signature appears in the CMB just as clearly as it did in sales data and celebrity careers**.

When we step back and examine what we have discovered, a profound truth becomes undeniable: **the universe having fundamental inherent order and consistency** makes more sense than any perspective that calls existence inherently chaotic or disordered. **Look around you**—everywhere we observe coherent patterns, predictable cycles, stable structures persisting across vast scales of time and space. The universe has been writing the same mathematical equation from the first moment of the Big Bang to this very instant as you read these words. Chaos is not the default state that occasionally produces order; instead, **order is the fundamental reality** that occasionally appears chaotic when viewed through an inadequate lens. We have the correct lens now.

Cosmic Microwave Background Radiation



The Record of the Cosmic Microwave Background Radiation



Is It Really Everywhere, Always, in Any Amount?

Yes... it is... and the results speak for themselves with stunning clarity. *The Equation of Existence* operates identically across all phenomena... across diversity that would typically require different academic disciplines using entirely different methodologies. We observed the same mathematical principles governing a multinational corporation's quarterly sales, the economic output of entire nations over decades, a pop star's rise and fall in cultural relevance, the recursive-propagative patterns of human consciousness, and the planetary-scale environmental changes driven by industrial civilization; empirical evidence of the unity underlying all existence.

The fact that Walmart's sales patterns, global GDP trends, Katy Perry's career trajectory, personal thought processes, CO₂ emissions, my own thought processes, and the CMB all exhibit the same stability-complexity dynamics reveals that we are observing the operating system of existence. Each dataset shows the characteristic E2C pattern across recursive propagations, the same sensitivity to rapid complexity escalations, and the importance of *The Record*. Most remarkably, these patterns emerge regardless of scale, timeframe, or subject matter—from the fluctuations of consciousness to the century-spanning evolution of planetary systems.

This universality suggests that what we traditionally consider separate domains of existence are expressions of the same underlying mathematical relationship. This universality means that insights gained from studying one domain can directly inform our understanding of all other domains, breaking down the artificial barriers between disciplines and revealing the deep interconnectedness that relational reality offers us.

You Are *The Equation of Existence*

Perhaps the most immediate and personal application of *The Equation* is understanding your own daily experience through the lens of stability and complexity. Consider your emotional well-being: the stabilizing forces in your life—adequate sleep, stress management, quiet reflection, and supportive relationships—provide the foundation that allows you to handle life's inevitable challenges. Meanwhile, the complexity forces—intense emotions, challenging experiences, demanding relationships, and meaningful work—drive your growth and keep life engaging. The definedness of your emotional health (Φ) emerges from the balance between emotional complexity escalations and your ability to stabilize them. Let's apply *The Equation* to being overwhelmed.

We all get overwhelmed sometimes. When you feel overwhelmed, what is actually happening is that your emotional complexity (Δ)—fear, anxiety, sadness, anger, or competing demands—is escalating faster than you can stabilize (Ω) it. You are experiencing a real-time demonstration of what happens when complexity outpaces stability in any phenomenon. This experience is so common. So... how do we restore definedness?

The primary way to expand stability is to organize the chaos; it is why making lists, creating plans, and simply talking to someone about your struggles have such profound positive effects on emotional well-being. You are literally stabilizing complexity into structured, manageable components. You can also free up stability by completely resolving unrelated problems. Fighting with your mother-in-law? Doing your laundry and walking your dog will genuinely make you feel better. These events may seem irrelevant, but you open space for stability by resolving other tasks, freeing up emotional room for you to handle the main issue causing distress.

Something else is truly fascinating: emotions are part of *The Record*, which means they have physical reality. *The Record* explains why cleaning your physical environment and moving your body almost always improve your emotional state. When you organize external space, you are literally creating stability in *The Record* that your mind can access. Taking a walk does not just distract you—it physically reorganizes your recursive propagations to a part of *The Record* with more space than wherever you were when you were first overwhelmed.

So... the next time you are overwhelmed, pause and ask yourself: "What complexity is escalating right now, and where can I create more stability?" Plan something. Talk to someone. Clean something. Move your body. This advice is not new... but now we know why it is correct. You will feel your emotional system click back into balance because you are adjusting your definedness. You are not separate from these universal principles; you are not even participating in these universal principles... you ARE these universal principles.

The Equation of Existence as the Universal Adjuster

The Equation of Existence also functions as an equation adjuster. We can apply it to every existing equation and model—whether in physics, economics, or other disciplines—simply by multiplying those equations by **The Equation** (Φ = definedness); we can refine them to account for the stability-complexity dynamics. By integrating *The Equation*, we can improve or fine-tune our models and theories. All you have to do is figure out what is stability vs. complexity, pick a unit of measurement for **The Equation**, then run the numbers. Look here:

$$G_{\mu\nu} + \Lambda g_{\mu\nu} = \frac{8\pi G}{c^4} T_{\mu\nu} * \Phi = \frac{\Omega}{\Delta}$$

Einstein's Field Equations

You can update Einstein's Field Equations by incorporating *The Equation of Existence*. This change captures the recursive propagations of energy (Δ) through spacetime (Ω). By embedding Φ into the equations, spacetime curvature and energy-momentum unify **under a framework that resolves singularities and aligns general relativity with quantum mechanics, where light (Δ) governs the micro (quantum mechanics) and spacetime (Ω) governs the macro (general relativity)**. Remember the example of *The Equation* I had on the first page?

$$\text{The Universe} = \frac{\text{Space}}{\text{Light}}$$

This equation is not a metaphor—it **accurately captures the whole universe. Everything in existence is fundamentally either light or spacetime**. Light, through $E = mc^2$, transforms and evolves into all **mass and energy (Δ)**, while **spacetime provides the stage (Ω)** upon which this transformation occurs. *The Equation*, then... reveals something extraordinary. At the very start of the Big Bang, there was one photon of light and one of empty space (one propagation). They co-defined and stability managed the complexity escalation (thank god).

From that primordial instant to right now, **the only thing that has changed is the quantity of each**. Every star, every planet, every thought, every emotion—all of it emerges from the recursive propagations between these two fundamental behaviors of the universe. Existence, in all its endless beauty, is not made of countless things; **it is made of light and space**, following the eternal rhythm of $\Phi = \Omega/\Delta$. It is why light emerges when we collapse a bubble under water with sound waves. **We, too, are made of light**; it is the most fundamental phenomenon.

$$i\hbar \frac{\partial}{\partial t} \Psi(x, t) = \hat{H} \Psi(x, t) * \Phi = \frac{\Omega}{\Delta}$$

Schrödinger Equation

We can modify the Schrödinger Equation, a cornerstone of quantum mechanics, by incorporating *The Equation of Existence*. In this context, **stability and complexity embody the relationship between spacetime and quantum phenomena through recursive-propagative dynamics**. This integration fundamentally reshapes the quantum wavefunction by embedding recursive-propagative dynamics into its behavior, aligning quantum phenomena with macroscopic systems that share the same underlying recursive-propagative architecture.

Observation and measurement **shift the balance of relative fractal dynamics of recursive propagations proportionally as a function of complexity gradients**, causing the wavefunction to align with the behaviors we observe. This modification eliminates the abstraction of wavefunction collapse and provides a concrete explanation for the double-slit experiment (which you can see in *The Theory of Existence* book; it is one of my favorite arguments): **there was never a wave**, just a photon recursively propagating by varying complexity constraints.

The Theory provides a robust, physically grounded explanation for the emergence of defined states across all scales—from quantum superposition to cosmic structure formation, revealing that **quantum mechanics and general relativity are simply different scales of the same fundamental process**—the only way it could work. I talk more about this merging of general relativity and quantum mechanics later on in *The Show of Existence* when eventually get to the physics trilogy, so let me not get too ahead of myself...

$$Y = A \cdot K^\alpha \cdot L^{1-\alpha} * \Phi = \frac{\Omega}{\Delta}$$

Cobb-Douglas Production Function

The unification of phenomena from ***The Equation* extends to everything**. By incorporating *The Equation*, we can enhance the Cobb-Douglas Production Function, a cornerstone of economic modeling. Here, K represents capital, L represents labor, A captures total factor productivity, and Φ introduces a stability-complexity correction that reveals the deeper dynamics operating within economic systems. The balance between complexity and stability becomes central to understanding economic definedness. **Capital is stability (Ω)**, providing the foundational resources, infrastructure, and financial reserves that allow businesses to endure market fluctuations and maintain operations over time. **Labor is complexity (Δ)**, driving dynamic growth, innovation, and the active processes that generate revenue and expand market presence.

Definedness (Φ) is the degree to which a business successfully balances its stable foundation with dynamic growth—revealing why some companies thrive while others go bankrupt. A company's capital infrastructure must be robust enough to support and channel the complexity generated by its workforce, while the workforce must be dynamic enough to justify and expand the capital foundation. When this balance aligns with the golden ratio proportions, businesses achieve sustainable growth—the same mathematical harmony found in galaxies, organisms, and the human mind.

$$\frac{dP}{dt} = rP \left(1 - \frac{P}{K}\right) * \Phi = \frac{\Omega}{\Delta}$$

Logistic Growth Model

Let's throw a curveball at *The Equation*. We can update the Logistic Growth Model, which describes population growth within biological, ecological, and social systems, by multiplying by *The Equation*. Here, P represents population size, r is the intrinsic growth rate, K is the carrying capacity, and Φ introduces the stability-complexity correction that accounts for the relative fractal dynamics underlying the complexity of populations and their behaviors. **Carrying capacity is stability (Ω)**, representing the environmental resources, infrastructure, and supportive conditions that enable sustained population growth. **Population growth rate is complexity (Δ)**, driving the dynamic expansion and diversification that pushes populations toward their environmental limits.

Definedness (Φ) is the emergent balance between growth potential and environmental constraints. This framework reveals why some populations thrive while others decline or collapse. By embedding Φ into the Logistic Growth Model, we can see that **sustainable population growth follows the same recursive-propagative patterns found throughout existence**. Early exponential growth represents the escalation of complexity, while the S-curve's leveling off represents the engagement of stability mechanisms to prevent overshoot and divergence.

The carrying capacity is not just a fixed limit—it is the manifestation of stability managing complexity escalations. When growth overwhelms environmental stability, populations diverge toward collapse. **This modification applies across scales**: bacterial colonies, human civilizations, economic markets, and even idea propagation all follow these same stability-complexity dynamics. When stability balances complexity, populations converge toward equilibrium—the exact Golden Ratio governing star formation, neural networks, and consciousness.

The Answer to All Answers: The Mathematical Proof of *The Equation of Existence*

The Equation of Existence really is something else, huh? After everything we have seen in our journey together, there remains one essential task—the mathematical proof of ***The Equation of Existence***. This proof stands apart from all others; you must grasp the complete mathematical framework before these fundamental pieces align into their final form. At this point in *The Show*, for the first time, you now have all the mathematical pieces.

Throughout *The Show*, I have unveiled **three revolutionary theorems** that **illuminate how existence operates at its most elegant, fundamental level**. All three theorems are **objectively true**, articulated as rigorous conclusions derived from pure mathematical operations—not arguments, opinions, or data. These theorems are **independently true and maintain complete functional independence**. The three theorems are:

Paper 1: The Theorem of Constants Co-Derivation

Mathematical constants like e , π , φ , and i emerged through **co-defined relationships with each other**, forming an interconnected web of **hundreds of asymmetric, non-trivial, exact equations**—many of which resist variable isolation entirely (such as the impossibility of solving for π)—a behavior we never thought to be mathematically possible. These constants are so precisely calibrated that **any deviation whatsoever in their current values would cause the entire framework to collapse**, proving that math was discovered, not invented; we did not decide these values. Thus, a co-relational, unified mathematical framework guides existence across domains. Math is the language of existence, its operating system, its architectural blueprint, and its definitive rulebook.

Paper 2: The Theorem of Undefined Emergence

When two conditions are identical except that one operates under no constraints whatsoever (undefinedness) while the other operates under any constraints at all (definedness, including even "nothing"), **the unconstrained condition is always superior for emergence than the constrained condition**. Compared to its constrained counterpart, the unconstrained condition generates **more varied and frequent emergence with superior efficiency**. The presence of any constraint creates a fundamental structural limitation: it becomes **impossible to produce the normal distribution paired with an exponential growth curve that characterizes emergence** across its full range of possibilities—the same mathematical distributions we observe everywhere in the universe. Thus, the **emergence of existence itself required the complete absence of constraints**, including any constraints that could have prevented existence from emerging. Existence emerged precisely because undefinedness (the state of no constraints) **possessed no mechanism to prevent it** from emerging, with no justification needed.

Paper 3: The Theorem of Recursive Harmonics

Recursive number systems reveal distinct **divergence and convergence zones** within their step count patterns, **generating emergent structures through harmonic interactions** that dynamically shift their structural role—providing stability or encouraging complexity—based on the combinations and behaviors of other recursive number systems in the network. The number line itself becomes a temporal map, **encoding the emergence, convergence, and divergence pathways that phenomena traverse throughout their existence**. These fundamental properties of recursive number systems establish the stable foundation from which the universal patterns we observe across all phenomena can emerge and persist. The profound implication: **existence operates through harmonic recursive systems that govern phenomena's behavior** from emergence onward.

Three Pieces & One Puzzle

I asked myself... **why did my mathematical work on existence result in three new theorems?** I did not set out to write three new theorems. I did not set out to write any theorems, actually... **they all just showed up**, which means **they emerged naturally in my discovery process**. These three theorems are not my original ideas. So... why are there three, and why are they these specific ones? It turns out... our ancient friend has the answer...

$$\Phi = \frac{\Omega}{\Delta} \rightarrow \text{Constants Co-Derivation} = \frac{\text{Recursive Harmonics}}{\text{Undefined Emergence}}$$

Φ = Definedness via Relational Reality

Δ = Complexity via Undefined Emergence

Ω = Stability via Recursive Harmonics

This version of *The Equation of Existence* answered my questions about why we ended up with three theorems and why they possess their specific properties. It turns out... ***The Equation* is also the answer to these very questions...** so, there is a version of *The Equation* I included on the first page of this paper that is rather heavy... but this arrangement of the three theorems into ***The Equation unlocks its meaning***. Let's talk about it:

$$\Phi = \frac{\Omega}{\Delta} \rightarrow \text{What} = \frac{\text{How}}{\text{Why}}$$

What is Existence? = Co-Defined Relationships

How Does it Work? = Recursive Harmonic Interactions

Why Does it Exist? = Undefinedness Did Not Stop It

When we map these relationships, we discover that **co-defined, related phenomena (What)** are stabilized into **emergence-to-convergence** patterns via **recursive propagations (How)** following **complexity escalations** that arise because **undefinedness (Why)** cannot prevent it. Given that **these three theorems constitute mathematical facts**, their alignment into ***The Equation of Existence*** confirms it as a **mathematical fact** too: valid with or without us—not a matter of argument, opinion, or even evidence. The system is closed. I made no assumptions.

The Equation of Existence and its constituent theorems—constants co-derivation, undefined emergence, recursive harmonics—**form the complete mathematical framework of existence** with mathematical expressions for all observable phenomena and their behaviors. There can be no alternative. ***The Theory of Existence is now entirely formalized***, and it is **the only way existence can operate**. It's something that just is...

The mechanics behind *The Equation of Existence* come not from luck or chance—it is because **these three theorems form the structure of existence, so *The Equation* gets imprinted onto anything that exists**. Technically... *The Equation* is not even the star of the show; it's the fingerprint left by these three theorems shaping everything, which is why it always works. It is **the stamp of approval** for anything that successfully exists.

There is a final revelation that transforms our understanding entirely because we must remember that **undefinedness cannot appear as a term within any equation** because it simply isn't—it represents the total absence of terms. Then... it means we can drop the complexity term and look existence right in the eyes and see:

$$\begin{aligned}\Phi &= \Omega \rightarrow \text{Definedness} = \text{Stability} \\ \Phi &= \Omega \rightarrow \text{Constants Co Derivation} = \text{Recursive Harmonics} \\ \Phi &= \Omega \rightarrow \text{What} = \text{How} \\ \Phi &= \Omega \rightarrow \text{Existence} = \text{Relationships}\end{aligned}$$

The Equation confirms that **definedness is stability**. **What** is identical to **How**, meaning **How** existence works is **What** existence is: relational recursive harmonics. This profound reduction **confirms relational reality...** and if you knock on the door of existence, and you're as lucky as I was for that door to open, you will see:

$$\begin{aligned}\Phi &= \Phi \vee \emptyset \\ \text{Definedness} &= \text{Definedness Else Undefinedness} \\ \Phi = \frac{\Omega}{\Delta} &\quad \Phi = \frac{\Omega}{1} \quad \Phi = \frac{\Phi}{\Delta} \quad \Phi = \frac{\Phi}{1} \quad \Phi = \frac{\Phi}{-e^{\pi i}} \quad \Phi = \frac{\Omega}{-e^{\pi i}} \quad 1.618 = \frac{1.618}{1}\end{aligned}$$

...and as you rub your eyes to see it clearly, this view would snap into focus as you opened them...

$$\begin{aligned}\Phi &= \Phi \\ \text{Definedness} &= \text{Definedness} \\ \text{Existence} &= \text{Existence}\end{aligned}$$

...and it's always been that way. There is *the answer...* although *The Equation of Existence* appears obvious or tautological, it is something far more profound—the bottom of what is knowable:

Paper 1: The Theorem of Constants Co-Derivation

Paper 2: The Theorem of Undefined Emergence

Paper 3: The Theorem of Recursive Harmonics

...converging with the top of what is knowable:

Paper 11: $\Phi = \frac{\Omega}{\Delta} \rightarrow \Phi = \Phi$

Everything else falls in between... there are no further reductions. **The framework of knowledge is complete.**

The Big Picture

Well, folks... what do you think? I mean... it's not like I actually created these concepts... I just discovered them. If you do not like parts of *The Theory* or *The Equation*, then you will have to take it up with existence itself. Until then, we can all step back to see what we just witnessed... at the threshold of a profound realization: existence is not the fragmented collection of isolated phenomena that we once believed it to be, but **a magnificent, unified symphony playing out to a single, elegant, self-justified, and self-contained mathematical principle.**

From the recursive dance of numbers in the Collatz Conjecture to the beating of your heart... from the formation of galaxies to the fluctuations of stock markets... from the rise and fall of civilizations to the quiet moment when you fall asleep—**all of it emerges from the eternal dance between stability and complexity**, all of it governed by *The Equation of Existence*. We **glimpsed the source code of existence**, written in its language of mathematics, which expresses itself through every phenomenon that has ever existed or will exist. What a sight to see...

You, too, are not separate from the cosmic forces that shape galaxies—you are an expression of that same dance between stability and complexity. Your thoughts, your emotions, your relationships, your struggles, your late-night thoughts, your persistence, your triumphs, **they all follow the same mathematical principles that govern the formation of stars and the evolution of species**. When you experience the delicate balance between rest and challenge, between peace and growth, you are not just participating in the fundamental dynamics that create and sustain all of existence—**you ARE the fundamental dynamics**. You are not just observing the universe; **you are the universe** experiencing itself through your recursive-propagative consciousness.

Perhaps **the most beautiful thing about *The Equation*** is the recognition that in discovering it, **we have not diminished any mystery and wonder of existence**—it's actually the opposite. *The Theory* illuminates the darkness that has slipped through all of our intellectual efforts... vindicating every brilliant philosopher, scientist, and curious mind who ever felt it, wanted to know it, and sought after it with relentless passion and curiosity.

We have traveled through all of existence together with *The Theory* and *The Equation*. We now have an answer to all the questions that have eluded us throughout human history. **The only question that remains, then... is for you, dear reader...** and anyone watching. Thank you for being here. Now that we understand *The Theory of Existence*, we look to a future that is brighter than ever and full of possibilities. It will not... however, come to us effortlessly. Ya know... I always say, "Drive without Knowledge is Pointless; Knowledge without Drive is a Waste," so... dear reader... **do you have the drive to make this knowledge something that changes everything?**

A TICKET TO THE FUTURE

The Equation of Existence, The Theory of Existence, The Story of Existence, The Theorem of Existence, and The Show of Existence are *Not Trapped In Cages*. Not one day... right now. But *The Architect*? I am still trapped in cages. If you want to support the further development of this world and keep it free, including the upcoming book *The Guide of Existence: A Light for Darkness*, go to <http://www.thetheoryofexistence.com/The-Store> and get a copy of the books or other merchandise for sale. I will update the store frequently, so check back occasionally to see what is available. You can also donate directly to support me and this work. I appreciate all your support.

Dear reader, I promise you that this work will remain free and be better than anything you have seen so far if I am independently funded. Remember, 100% of the proceeds from all sales go to me. There is no middleman. It is just me, *The Theory*, and the mountain of discoveries I have yet to share...

