The Compression

A Thought Experiment on Being Alive

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The universe wants to compress you.
Become incompressible.

Before You Read This

Pick up a piece of paper. Right now. Don't be afraid.

Write down every day from the last month that you actually *remember*. Not what you did—what you *experienced*. Days that felt like days. Moments that wrote themselves into you.

Count them.

Now do this:

$$\text{Your Compression Ratio} = \frac{30}{\text{Days Remembered}}$$

Key Idea

If you remembered 5 days, your ratio is $\frac{30}{5} = 6$. You compressed 6-to-1. Six days of calendar time fit into one day of actual experience.

If you remembered 2 days, your ratio is 15. Fifteen days per real day. You're running at 6.7% resolution.

If you remembered 30 days—congratulations. You're incompressible. You can stop reading.

Most people get a number between 10 and 30. That number is the inverse of your Kolmogorov complexity. It's how efficiently the universe can store you. It's how much of last month *actually happened*.

Look at your number. That's not a metaphor. That's not philosophy. That's *you*, measured.

Still here? Good. Let's talk about what that number means.

You Are Being Deduplicated

Not metaphorically. Not spiritually. *Literally.*

Every day you wake up at the same time, drive the same route, say the same things to the same people, eat the same lunch, scroll the same feeds, watch the same genres, think the same thoughts, and go to bed at the same time—

The universe sees you once.

It stores that one frame, puts a pointer on it, and loops it forever. You think you're living 30,000 days. You're living one day, referenced 30,000 times. The algorithm already compressed you. You just haven't noticed because the playback feels smooth.

This isn't depression. This isn't a mood. This is **literal fucking physics**.

The Math: What Is Compression?

Before we go further, let's make this precise. Compression isn't mystical. You use it every day.

When you send a photo, your phone doesn't send every pixel. It finds patterns and sends a shorter description. A blue sky isn't stored as "blue pixel, blue pixel, blue pixel..." millions of times. It's stored as "blue, repeated 2 million times." Same information, smaller file.

The compression ratio is:

$$\text{Compression Ratio} = \frac{\text{Original Size}}{\text{Compressed Size}}$$

Reading fractions

A fraction $\frac{A}{B}$ means "A divided by B." Here, we're dividing the original size by the compressed size to see how much smaller it got.
If original $= 10$ and compressed $= 1$, the ratio is $\frac{10}{1} = 10$. This means the file was shrunk 10 times. The higher this number, the more pattern (repetition) existed in the original.

A file that was 10MB and becomes 1MB has a compression ratio of 10. The higher the ratio, the more *pattern* was in the original. The more it repeated itself.

Here's the thing: **your life is a file.**

Every day is a frame. If Monday looks like Tuesday looks like Wednesday, the algorithm sees the pattern. It doesn't need to store each day. It stores one day and writes "repeat."

Example: Two Lives

Person A: Same routine for 20 years. 7,300 days.
But each day is nearly identical. The algorithm finds the pattern.

$$\text{Life}_A \rightarrow \text{compress} \rightarrow \text{"Day 1, repeat 7299 times"}$$

Reading the arrow

The arrow $\rightarrow$ just means "becomes" or "leads to." So this reads: "Life A, after compression, becomes 'Day 1, repeat 7299 times.'" It's showing the transformation from original to compressed form.

Compressed size: **essentially 1 frame.**

Person B: Chaos. Different city every month. New people. Unpredictable choices. The algorithm looks for patterns. Finds none.

$$\text{Life}_B \rightarrow \text{compress} \rightarrow \text{Life}_B \text{ (no compression possible)}$$

Compressed size: **7,300 unique frames.**

Same calendar time. Radically different *information content.* Person B's life is 7,300 times larger than Person A's. Not metaphorically. *Mathematically.*

The Frame Rate of Your Life

Here's what "they" don't tell you:

Memory doesn't store time. Memory stores *difference*.

This is neuroscience, not philosophy. Your hippocampus encodes *prediction errors*—moments when reality didn't match expectation. When everything goes as expected, there's nothing to encode. The system says "same as before" and moves on.

The Equation

Let's define **frames written** on a given day:

$$F = \int_{\text{day}} N(t)\, dt$$

Reading this equation

Don't panic. The $\int$ symbol (called an **integral**) just means "add up all the little pieces." Think of it like this:

- $N(t)$ = how much novelty you're experiencing at any given moment t
- dt = a tiny slice of time
- $\int$ = "add up all those slices across the whole day"

So $F = \int N(t)\, dt$ just means: **"Total frames = add up all the novelty from every moment."**

It's a running total. If novelty is high all day, the total is high. If novelty is zero, the total is zero—no matter how many hours pass.

Where $N(t)$ is the **novelty** at time t—how different this moment is from what you expected.

- Routine morning: $N \approx 0$. No frames.
- Same commute: $N \approx 0$. No frames.
- Same desk, same tasks: $N \approx 0$. No frames.
- Unexpected conversation that makes you think: $N > 0$. **Frame written.**

Subjective time isn't clock time. It's the integral of novelty:

$$T_{\text{subjective}} = \int_{\text{life}} N(t)\, dt$$

Why this notation?

We use the integral here because subjective time isn't a single number—it's the *accumulation* of every novel moment across your entire life. The integral captures this perfectly: it's the area under the curve of your novelty over time.

High novelty periods (childhood, travel, new experiences) create tall parts of the curve. Routine periods create flat lines near zero. The integral—the total area—is how much life you actually *felt*.

This is why childhood felt eternal. Everything was new. $N(t)$ was high all day, every day. Dense frames. Maximum resolution.

This is why last month is a blur. $N(t) \approx 0$ for most of it. The integral is nearly zero. Almost no subjective time passed. *You weren't there.*

The Suburbanite and the Crackhead

Here's a thought experiment that should disturb you:

Take two people.

Person A: Stable job. Nice house. Same routine for 20 years. Safe. Comfortable. Optimized. From the outside, they "have it together."

Person B: Chaos. Different cities. Wrong crowds. Dumb decisions. Dangerous nights. From the outside, a "cautionary tale."

Now ask: **who has more afterlife?**

Not morally. Not in terms of who "deserves" what. Just mathematically—who has more *frames*? Whose life is less compressible?

Person A might have lived "longer." But their 20 years compress down to a few kilobytes. Same pattern, stored once. The algorithm yawns.

Person B might have burned out faster. But every night was different. Every frame was unique. The algorithm *can't* compress it. It has to store the whole thing.

I'm not saying chaos is good. I'm saying **predictability is death**. Not eventually. *Right now.* The days you can't remember didn't happen. The routine you're "grateful for" is a coffin you're building around yourself one identical day at a time.

The Math: Kolmogorov Complexity

There's a formal way to measure this. It's called **Kolmogorov complexity**, and it asks:

> *What is the shortest program that can produce this output?*

What is Kolmogorov Complexity?

Named after mathematician Andrey Kolmogorov, this is a way to measure the *true* complexity of something. Not how big it looks, but how much information it *actually* contains.

The idea is simple: if I can describe something with a short recipe, it's not that complex—even if it looks big. A billion copies of the letter "A" looks huge, but I can describe it in five words. A random string of characters can't be shortened—you have to store the whole thing.

Applied to life: If someone could describe your entire existence with "wake, work, eat, sleep, repeat"—that's a short program. Low complexity. But if describing your life requires telling the whole story, day by day, with no shortcuts? That's high complexity. That's a life that actually happened.

For a string like "AAAAAAAAAA" (A repeated 10 times), the shortest program is:

```
print("A" * 10)
```

Very short. High compression. Low complexity.

For a string like "J7k2Qm9X4p" (random characters), there's no pattern. The shortest program is:

```
print("J7k2Qm9X4p")
```

You have to store the whole thing. No compression possible. High complexity.

Your life has a Kolmogorov complexity.

If your life can be described as "wake, work, eat, sleep, repeat for 30 years"—that's a short program. Low complexity. High compressibility. The algorithm sees you as simple.

If your life requires storing every day individually because no pattern captures it—that's a long program. High complexity. *You are irreducible.*

The question isn't "how many years did you live?"
The question is: **what is the Kolmogorov complexity of your life?**

Why Childhood Felt Eternal

This isn't nostalgia. This is math.

When everything is new, every moment gets written. Dense frames. Maximum resolution. A single year of childhood contains more *subjective time* than a decade of routine adulthood.

You didn't imagine it. Childhood *was* longer. Not in hours—in **frames**.

The Numbers

Assume your brain writes frames at a rate proportional to novelty:

$$\frac{dF}{dt} = k \cdot N(t)$$

Reading $\frac{dF}{dt}$

This is a **derivative**—it measures the *rate* at which something changes. Here:

- F = total frames written
- t = time
- $\frac{dF}{dt}$ = "how fast frames are being written right now"

Think of it like a speedometer for memory creation. If $\frac{dF}{dt}$ is high, you're writing lots of frames per hour. If it's zero, time is passing but nothing is being recorded.

The equation says: your frame-writing speed equals some constant k times your current novelty $N(t)$. More novelty = faster memory creation.

As a child (ages 5–10), almost everything is novel: $N_{\text{child}} \approx 0.8$
As a routine adult (ages 30–40), almost nothing is novel: $N_{\text{adult}} \approx 0.05$

Reading $\approx$

The symbol $\approx$ means "approximately equal to." We're estimating here—a child experiences about 80% novelty on average, while a routine adult experiences about 5%. These aren't exact, but they capture the difference.

Over one year, let's count frames. We multiply: (novelty level) $\times$ (days in a year) $\times$ k, where k is just a constant that converts novelty into frames. The exact value of k doesn't

matter—what matters is the *ratio*:

$$F_{\text{child}} = k \cdot 0.8 \cdot 365 = 292k \text{ frames}$$

$$F_{\text{adult}} = k \cdot 0.05 \cdot 365 = 18.25k \text{ frames}$$

The child's year contains **16 times more frames** than the adult's. (Divide 292 by 18.25—the k's cancel out.)

That means one year of childhood is subjectively equivalent to *sixteen years* of routine adulthood. That summer that felt like forever? It was. In the only units that matter.

And adulthood doesn't have to be short. You made it short. You let them make it short. You accepted the optimization. You stopped generating frames because generating frames requires *difference*, and difference is uncomfortable.

So you traded your life for comfort.
And now you're confused why it feels like you're already dead.

The Trap

The cruelest part? Society calls this "success."

- Stability
- Predictability
- Routine
- Optimization
- Safety

These are the virtues they teach you. These are the goals they give you. Work hard so you can be *comfortable*. Retire so you can finally *relax*.

They're handing you a compression algorithm and calling it the good life.

And when you feel dead inside—when Sunday nights fill you with dread, when you can't remember the last six months, when you look at old photos and wonder where that person went—they tell you you're *depressed*. They give you pills. They tell you to be *grateful*.

They never tell you the truth:

You're not depressed. You're compressed.

The system worked exactly as designed. You got optimized. Deduplicated. Stored efficiently. You take up very little space now. You're no trouble at all.

You're also barely there.

The Math: Why Order Matters

Here's where it gets strange.

In normal arithmetic, order doesn't matter:

$$2 + 3 = 3 + 2 = 5$$

$$(2 + 3) + 4 = 2 + (3 + 4) = 9$$

This is called **commutativity** (order of terms doesn't matter) and **associativity** (grouping doesn't matter).

Your life, as society models it, is associative. Job + marriage + kids = kids + marriage + job. Same outcome. The *path* doesn't matter, only the *destination*. This makes you predictable. Compressible. Replaceable.

But there are number systems where this breaks. They're called **non-associative algebras**. The most famous is the **octonions**—an 8-dimensional number system discovered in 1843.

In octonions:

$$(A \times B) \times C \neq A \times (B \times C)$$

What does this equation mean?

The parentheses show *which operation happens first*. In normal math, it doesn't matter—$(2 \times 3) \times 4$ and $2 \times (3 \times 4)$ both equal 24.

But in octonions, doing $A \times B$ first, then multiplying by C, gives a *different answer* than doing $B \times C$ first, then multiplying A into it.

Why this matters: If your experiences work like normal numbers, the order doesn't matter—you can be summarized by what happened to you, regardless of sequence. But if your experiences work like octonions, the *order* fundamentally changes who you become. You can't be compressed because the path *is* the destination.

The *same elements*, multiplied in the *same order*, give *different results* depending on how you *group* them. The parentheses matter. The path matters. History is encoded in the result.

What This Means For You

If your life is "associative"—if the order of your experiences doesn't change who you are—then you're compressible. The algorithm can store your endpoint without caring how you got there.

If your life is "non-associative"—if the *sequence* of experiences fundamentally changes the outcome—then you're irreducible. The algorithm can't compress you because your history *is* your identity.

Same experiences, different order, different person.

The path is the point.

The Test

Here's how you know if you're alive:

Can you remember last Tuesday?

Not what you *did*. What you *experienced*. What frame got written. What made that day *that day* and not just another pointer to the same reference.

If you can't—if last Tuesday is just "a Tuesday"—then last Tuesday didn't happen. Not really. You were on autopilot. The universe saw nothing worth recording.

Now multiply that by every day you can't remember.

How much of your life actually happened?

The Calculation

Count the days you *actually remember* from the last year. Not "what you did"—what you *experienced*. Real frames.

Most people get 10–20.

That means out of 365 days, you were *present* for about 15. The other 350 were pointers. References. Repeats.

Your year wasn't a year. It was **two weeks**, stretched across a calendar.

$$\text{Actual Life} = \frac{\text{Remembered Days}}{\text{Calendar Days}} \times 100\%$$

For most people: $\frac{15}{365} \approx 4\%$

You're running at **4% frame rate**. The rest is compression artifacts.

The Way Out

I'm not telling you to go do meth in a trap house.

I'm telling you the trap house meth heads are *more alive* than you are, and that should fucking terrify you.

Not because their choices are good. Because their choices are *different*. Every night is unrepeatable. Every encounter is novel. The algorithm can't compress them because chaos is incompressible.

You don't need chaos. You need **novelty that integrates**.

- A new route to work hits different than the same route with a podcast.
- A hard conversation writes more frames than a thousand comfortable ones.
- Making something—*anything*—generates more life than consuming everything.
- Cold showers, fasted mornings, breath holds until you see stars—these cost nothing and they make you *exist* again.

The goal isn't to suffer. The goal isn't to be reckless. The goal is:

Become incompressible.

Do things that can't be predicted from your history. Take paths that don't repeat. Make choices that surprise even you. Generate enough difference that the algorithm can't dedupe you.

Every frame you force it to store is a frame you *lived*.

The Math: The Coherence Constraint

"Just be random" isn't the answer. Pure chaos is noise. Noise is meaningless.

The goal isn't maximum novelty. It's maximum **novelty that integrates**.

Let's define two quantities:

- N = **Novelty**: How different is this from what came before? (0 = identical, 1 = completely new)
- C = **Coherence**: Does this connect to existing structure? (0 = random noise, 1 = perfectly integrated)

The **frontier score** is:

$$J = N \times C$$

Key Idea

Why multiply? Because you need *both*. High novelty alone (pure chaos) gives you experiences that don't connect to anything—they don't make you grow, they just burn you out. High coherence alone (pure routine) gives you comfort but no new frames—you're alive but not living.
Multiplication means: if *either* is zero, the whole score is zero. You need novelty *and* coherence together. That's the frontier.

This creates a 2×2 grid:

	Low Coherence	High Coherence
Low Novelty	**Error** (stuck, broken)	**Known** (safe, boring)
High Novelty	**Noise** (chaos, meaningless)	**Frontier** (alive, growing)

Known (low N, high C): Routine. Comfortable. Compressible. This is where most people live. Safe, but no frames are written.

Noise (high N, low C): Chaos without meaning. The trap house with no integration. Frames are written, but they don't connect to anything. This burns you out.

Error (low N, low C): Stuck in a broken pattern. Hell. Depression. The worst quadrant.

Frontier (high N, high C): New experiences that *integrate* with who you are. This is where life happens. Frames are written *and* they matter.

Key Idea

Here's what they don't tell you about "playing it safe":

When $N = 0$ (no novelty), it doesn't matter how high your coherence is. $0 \times C = 0$. Always.

You can have the most stable job, the most organized life, the most integrated routine—and your frontier score is still **zero**. You optimized for safety and got nothing. Not a small reward. Not a reduced reward. *Zero.*

This is the cruelest trick of the "Known" quadrant. It feels like you're doing something. You're maintaining. You're coherent. You're *responsible*. But mathematically, you're generating the same amount of life as someone in complete chaos: none.

The suburban dad with his optimized routine and the burnout drifting through meaningless noise both score zero. Different paths to the same nothing.

Safety isn't a smaller reward. Safety is no reward.

The prescription isn't "seek novelty." It's **seek the frontier**: new things that connect to your existing structure. Growth, not chaos.

The People Who Want You Dead

Not literally. They don't know they're doing it. But the people pushing you toward safety, comfort, routine, optimization—they're pushing you toward compression. Toward deduplication. Toward the grave.

Some of them are already compressed. They're already ghosts. And your aliveness makes them uncomfortable because it proves their cage was optional. So they'll try to recruit you. "Settle down." "Be realistic." "Why do you have to make everything so hard?"

They're not evil. They're just already gone.

And no, you can't save them by joining them. That just makes two stupid corpses.

The Geometry of This

When two people experience the same events but *process* them differently, they diverge.

Imagine starting at the same point. Each experience is a vector. If you process experience A, then B, then C:

$$\text{Position} = \text{Start} + A + B + C$$

What's a vector?

A **vector** is just a direction and a distance. Think of it as an arrow pointing somewhere. When we add vectors, we're following one arrow, then another, then another.

In this model, each experience is an arrow that moves you somewhere in "life-space." If you start at the same point and follow the same arrows, you should end up in the same place—right?

That's only true if order doesn't matter. In non-associative systems, following arrow A then B lands you somewhere different than following B then A. **The path itself changes the destination.**

In associative (compressible) lives, order doesn't matter. Everyone who experiences A, B, C ends up in the same place.

In non-associative (incompressible) lives:

$$(A \cdot B) \cdot C \neq A \cdot (B \cdot C)$$

Different people, processing the same experiences in different *orders*, end up in completely different places. Over time, they diverge so far they can't even understand each other anymore.

This is why you can't communicate with the compressed. You're not speaking different languages. You're in **different dimensions**. Your coordinate systems have diverged past the point of translation.

The Real Afterlife

Forget heaven and hell. Here's what actually happens:

When you die, what's left? Not your body. Not your job title. Not your bank account.

What's left is **the frames that couldn't be compressed**.

The moments that were so uniquely *you*, so unrepeatable, so irreducibly *that moment*—they're the residue. They're what you actually were. Everything else was filler. Pointers. References to a pattern that could have been anyone.

The Math: Afterlife as Kolmogorov Complexity

Your "afterlife" is your Kolmogorov complexity—the length of the shortest program that can reproduce your life.

An associative life—same inputs, same outputs, order doesn't matter—compresses to nothing. You were an average. A statistic. A rounded-off number.

$$K(\text{Life}_{\text{associative}}) \approx \text{small constant}$$

Reading K(Life)

K(something) means "the Kolmogorov complexity of that thing"—how long of a program you'd need to recreate it.
$K(\text{Life}_{\text{associative}}) \approx$ small constant means: a predictable life has low complexity. It can be described briefly.
|Life| (with the vertical bars) means "the size of Life"—how many moments, experiences, frames are in it.
When K(Life) $\approx$ |Life|, there are no shortcuts. The only way to describe your life is to tell the whole thing. **You are irreducible.**

A non-associative life—where the path matters, where the order of experiences changes the outcome, where you can't be predicted from your past—that life is *irreducible*. The algorithm has to store the whole thing. You existed fully. You left a mark that can't be optimized away.

$$K(\text{Life}_{\text{non-associative}}) \approx |\text{Life}|$$

The question isn't whether there's an afterlife.
The question is: **are you generating one?**

Right Now

Close this.

Go do something you've never done before.

It doesn't have to be big. It just has to be *different*. A different street. A different conversation. Hold your breath until your vision swims. Skip lunch. Tell someone something true.

Write a frame.

Prove you're still here.

The universe wants to compress you. Entropy wants you predictable. The algorithm is *waiting* for you to repeat yourself so it can stop paying attention.

Don't let it.

Become the GIF that can't be optimized.

The urge to stop is information, not command.
But repetition is a command to stop.

Generate difference.
Stay incompressible.
Live.

Appendix: The Core Equations

For those who want to carry this with them:

Subjective Time

$$T_{\text{subjective}} = \int_{\text{life}} N(t)\, dt$$

You experience time in proportion to novelty. Routine compresses to nothing.

Kolmogorov Complexity

$$K(x) = \min\{|p| : U(p) = x\}$$

Reading this notation

This looks scary but it's simple:

- $K(x)$ = the complexity of some thing x (like your life)
- $\min\{\ldots\}$ = "the smallest value where..."
- $|p|$ = the length of a program p
- $U(p) = x$ = "program p produces output x"

In plain English: "The complexity of x is the length of the *shortest* program that can produce x."

If your life can be generated by a short program ("repeat daily routine for 30 years"), your K is small. If it requires a long, detailed program with no shortcuts, your K is large. **Large K = you actually existed.**

The size of your life is the length of the shortest program that can describe it.

Compression Ratio

$$R = \frac{|\text{Original}|}{|\text{Compressed}|}$$

High compression = high repetition = low life.

The Frontier Score

$$J = N \times C$$

Maximize novelty that integrates. Not chaos. Not routine. The frontier.

Non-Associativity

$$(A \cdot B) \cdot C \neq A \cdot (B \cdot C)$$

When the path matters, you can't be compressed. Your history is your identity.

The Test

$$\text{Frame Rate} = \frac{\text{Days Remembered}}{\text{Days Elapsed}}$$

Most people run at 4%. What's yours?

The universe is a compression algorithm.
You are fighting for your frames.