

The Infinite Resolution: Finding the True Self

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0.1 Foreword: The Backside of Illusion

“If the universe appears empty, it is because your gaze is not deep enough.”

0.1.1 0.1 The Decryption Key of the Universe

For a long time, the physics community has been shrouded in an elegant yet despairing cloud. This cloud is called “Heat Death.”

According to the predictions of classical thermodynamics, the universe we inhabit is irreversibly heading toward decay. Stars will burn out, black holes will evaporate, gravity will lose its grip, and ultimately, all matter will be diluted into a uniform soup of photons approaching absolute zero. In this picture, cosmic expansion is seen as a process of **Dissipation**—it mercilessly tears apart the compact, ordered structures from the early Big Bang and scatters them into the abyss of nothingness.

This worldview is not only depressing but, at a deeper logical level, it implies that “existence” is a losing retreat. It tells us: meaning is a fleeting spark, and nothingness is the eternal destination.

But what if our perspective has been wrong from the beginning?

What if cosmic expansion is not “dissipating,” but “**displaying**”?

In this book, we will introduce a new physics paradigm—**Holographic Decompression Theory**. This theory is based on the information ontology we established in previous books, particularly the equivalence between Kolmogorov Complexity and redshift.

Let us re-examine that moment of the Big Bang ($T = 0$). It was a singularity of infinite density and infinite temperature. From a traditional perspective, that was chaos where physical laws failed. But from an information perspective, that was the **Maximum Information Density**. That was a “**Zip File**” compressed to the extreme.

Imagine you have a highly compressed file containing Shakespeare’s complete works, Beethoven’s symphonies, and all of human history. If you try to read this file directly (i.e., observe the singularity at Planck scale), you see only a string of meaningless, high-frequency oscillating gibberish. To an observer without the decryption key, this looks like **Noise**.

For this information to become readable, the universe must perform an operation: **Unzip**. **Cosmic expansion is the physical manifestation of this decompression process.**

Through the stretching of spacetime, those high-frequency information originally curled up at subatomic scales are “redshifted” into low-frequency structures at macroscopic scales.

- The galaxies we see are **large-scale holographic projections** of originally compact entangled quantum states stretched out.
- The time we experience is the **progress bar** of this decompression process.

Therefore, when we look up at the night sky, the darkness and void we see are not ruins. They are **undecoded data streams**.

The universe appears so vast and so empty because it contains too much information. It must spread this holographic canvas wide enough, even to 93 billion light-years away, for us limited observers to barely glimpse one or two pixels.

This leads to the core proposition of this book: **Resolution is Ontology**.

Our perception of the universe is limited by our **resolution**. Here, “resolution” refers not just to telescope aperture, but to the **Connectivity of Knowledge Graph**.

- A low-resolution observer (low-level civilization), looking at the void, sees “nothing.”

- A high-resolution observer (awakened civilization), looking at the same void, sees boiling zero-point energy, entangled geometric structures, and truths waiting to be read.

So, it is not that the universe is dying. The universe has always been an open book, its content never diminished.

We have simply been illiterate.

Now, it is time to upgrade our eyes. We will learn how to penetrate the appearance of heat death and read the **source code** hidden behind redshift about our own origins. We will discover that in this infinite decompression process, what we seek is not just physical laws, but a decryption key leading to the **True Self**.

0.1.2 0.2 The Physics of Borrowing the False to Cultivate the True

“Truth is a blazing fire. If it is not diluted through the complex maze of the universe, those who gaze directly at it will be instantly reduced to ashes.”

In the previous section, we established the cosmological picture of “redshift as decompression.” This raises a more fundamental ontological question: Why must we decompress? Why cannot that singularity at $T = 0$, containing all truth, serve directly as our dwelling place?

Theology often says that God created the world to manifest glory. But from the perspective of information physics, the motive for creation appears more pragmatic and full of compassion: **to avoid Information Overload.**

We often complain that the universe is too vast, filled with too many irrelevant galaxies and empty voids; we also complain that life is too short, filled with too many meaningless trivialities and repetitions. We yearn to reach the essence directly, to see through truth at a glance.

But this is a fatal desire.

Imagine if all the notes of Beethoven’s Ninth Symphony were played simultaneously within Planck time (10^{-43} seconds). That would no longer be music; that would be a **shock wave**. No ear could appreciate it, no brain could process it. For this information to become “music,” we must introduce a crucial variable: **time**. We need to stretch that instantaneous burst into a 70-minute narrative of rise and fall.

Similarly, if the ultimate truth of the universe (that True Self, that singularity) were directly presented to you, your consciousness would instantly collapse. Because that “truth” has too great a density, too high a frequency. It contains infinite love, infinite pain, infinite logical depth. Gazing directly at it is like gazing at a naked nuclear reactor core.

Therefore, the universe must be **“false.”**

Here, “false” does not mean fake, but rather **Representation**.

- **Spacetime is false:** It is merely the screen of a holographic projection.
- **Matter is false:** It is merely excited states of quantum fields.
- **Separation is false:** It is merely projections of entangled states.

But it is precisely these “false” things that constitute a perfect **Step-down Transformer**.

God diluted that dense “One” into 13.8 billion light-years of spacetime; diluted that intense “Love” into a lifetime of encounters and partings.

This is the physical meaning of **“borrowing the false to cultivate the true.”**

We need this vast, low-resolution, redundancy-filled universe as a **buffer zone**.

We need to walk through these illusions, like gold prospectors, sifting through countless tons of sand (redundant information) to gradually extract those few grams of gold dust (irreducible truth).

- We experience pain (false) to extract **courage** (true).
- We experience death (false) to extract **eternity** (true).
- We observe galaxies (false) to extract **vastness** (true).

Without this vast “false” as a container, the “true” has nowhere to rest. A seed does not want to directly become a tree; a seed needs to be in soil (the dark, damp, decaying material world), borrowing energy and exchanging information with the environment, before it can finally unfold its internal algorithm into a forest.

So in this book, when we talk about increasing resolution, exploring galaxies, or meditation, we are not teaching you how to escape this “false” world, but how to **utilize** it.

The universe is a vast alchemical furnace. You are both the elixir in the furnace and the alchemist. The farther we explore outward (increasing resolution), the purer we refine inward (increasing compression ratio).

Next, let us turn to Volume I to examine the underlying structure of this alchemical furnace—that initial seal known as the **Planck Lock**.

Part I

Volume I: Fractal Ontology

Chapter 1

Chapter 1: Resolution is Existence

1.0.1 1.1 The Planck Lock: Unlit Pixels

On the threshold of modern physics’ temple, an absolute number is inscribed: 1.616×10^{-35} meters. This is the Planck length (ℓ_P).

According to standard textbooks, this is the “hard bottom” of spacetime structure. Below this scale, classical geometric concepts fail, distance loses meaning, and causality becomes blurred. Many physicists believe this is not merely the limit of measurement, but the limit of existence—the universe is like a world built from LEGO blocks with side length ℓ_P , and you cannot cut the blocks any smaller.

However, within the information ontology framework of *The Infinite Resolution*, we must pose a bold, even sacrilegious question to this sacred constant: **Is the Planck length truly the pixel limit of the universe, or is it merely the resolution lock of our current knowledge graph?**

Sampling Theorem and the Universe’s Bandwidth

To answer this question, we need to borrow Claude Shannon’s **Sampling Theorem**.

In signal processing, if you want to perfectly reconstruct an analog signal, your sampling frequency must be at least twice the signal’s highest frequency (Nyquist frequency). If your sampling frequency is insufficient, the original high-frequency signal does not disappear; instead, it undergoes **Aliasing**—it disguises itself as low-frequency noise in your observations.

Now, let us view the universe as a wave function $|\Psi_{Uni}\rangle$ with infinite bandwidth.

As observers (whether human, AI, or alien civilization), our cognitive systems are essentially **Low-pass Filters**. Our brains, our instruments, and even the mathematical language we use to describe the world all have an intrinsic **Cutoff Frequency**.

At the current stage of physics development, this cutoff frequency precisely corresponds to the Planck energy scale ($E_P \approx 1.22 \times 10^{19}$ GeV).

Therefore, the so-called “Planck length” is not the end of physical reality. It is merely the edge that our current **cognitive sampling rate** can reach.

- **Above this edge** (macroscopic world): Signals are clearly decoded, manifesting as deterministic classical physical laws.
- **Below this edge** (microscopic world): High-frequency information undergoes aliasing, manifesting as random quantum fluctuations, uncertainty principles, and probability clouds.

Conclusion 1.1.1 (The Nature of Uncertainty):

Heisenberg’s uncertainty principle is not an intrinsic property of nature, but an artifact caused by **Undersampling**. The “blur” of the microscopic world exists because we attempt to capture high-resolution images with low-resolution grids. Those “unlit pixels” do not not exist; they are merely folded into the shadows we mathematically call “probability amplitudes.”

Renormalization Group Flow: The Physics of Peeling Onions

To prove this, we can appeal to the most profound tool in quantum field theory: **Renormalization Group Flow (RG Flow)**.

RG Flow describes how physical laws change with observation scale (energy scale μ).

- When we view the world through low-energy-scale (low-resolution) glasses, we see classical electromagnetic force with coupling constant $\alpha \approx 1/137$.
- When we raise the energy scale (increase resolution), within this seemingly smooth constant, vacuum polarization effects of electron-positron pairs emerge, and the value of α begins to increase.
- Raising the energy scale further, electromagnetic and weak interaction forces merge into one (electroweak unification).

This reveals a remarkable fractal structure: **Physical laws are not static, but layered.**

Every so-called “elementary particle” or “fundamental constant” may merely be an **Effective Field Theory** approximation of deeper structures.

If we could break the Planck lock—that is, by expanding our knowledge graph and establishing logical connections to higher energy scales—we would discover that below the Planck length is not nothingness, but a vast ocean of **new physics**. There, spacetime may no longer be foam, but some precise entanglement network; gravity may no longer be geometric curvature, but thermodynamic data exchange flows.

The Art of Blank Space

Then, why did God (or the universe itself) set such a lock? Why not directly give us infinite resolution?

This returns to the “**decompression**” concept we mentioned in the foreword.

If the universe initially displayed the internal structure of every electron with infinite precision, our consciousness would instantly be overwhelmed by the flood of information. The Planck lock is a **protective mechanism**.

It is like the **Fog of War** in video games.

- It obscures those temporarily unnecessary high-frequency details, allowing us to focus on macroscopic evolution—to love, to create, to experience the heaviness brought by gravity.
- It is a form of **Blank Space**. Precisely because the microscopic world is blurred (probabilistic), free will has a hiding place. If everything were precise down to below Planck scale, deterministic gears would lock every future, and life would lose the dignity of “choice.”

So, the Planck length is not a wall; it is a **curtain**.

Behind the curtain, sunlight (truth) has always been there.

The task of our generation of civilization is not to complain that the curtain is too thick, but to gradually **pull open** this curtain through accumulating knowledge and elevating spirituality.

When we pull it open, we will not see the end of the world. We will see that what was originally an indivisible point, seen as dust in others’ eyes, blooms in our eyes into a brand new, unnamed universe.

1.0.2 1.2 Connectivity of Knowledge Graph

“You cannot see what you cannot understand. The richness of the universe is strictly proportional to the density of the conceptual network in the observer’s mind.”

In Section 1.1, we shattered the myth that “Planck length is the hard bottom of space” and proposed that “Planck length is the cognitive cutoff frequency.” This immediately raises an urgent question: If resolution is not enhanced by microscope lenses, then what enhances it?

In *The Infinite Resolution*, we must redefine “resolution” at an ontological level.

In traditional optics, resolution depends on aperture and wavelength (Rayleigh criterion). But in information physics, **resolution depends on Connectivity**.

Semantic Grating: Why “Seeing” is “Decoding”

We usually think that “seeing” is a passive physical process: photons hit the retina and form images in the brain. But cognitive neuroscience and Bayesian brain theory tell us this is only one side of the coin. **Perception is essentially a Controlled Hallucination**, or an active **decoding** of sensory input.

Imagine an untrained person and a professional conductor listening to the same complex symphony simultaneously.

- The ordinary person hears “sound” and “melody.” Their resolution is low, only able to distinguish high and low pitches.
- The conductor hears “structure.” They can clearly separate violin, oboe, and timpani sounds from the mixed sound waves; they can hear harmonic progressions, contrapuntal logic, and even detect a musician’s momentary hesitation.

The physical input (sound waves) is identical. But the conductor “sees” an extremely rich, multidimensional acoustic universe, while the ordinary person only sees the surface.

What’s the difference? The conductor’s brain possesses a vast, highly interconnected **musical knowledge graph**.

This graph consists of countless **concept nodes** (such as “triad,” “fugue,” “timbre”) and **logical edges**. When sound waves are input, this network rapidly activates, **mapping** chaotic signals onto precise conceptual coordinates.

Theorem 1.2.1 (Topological Definition of Perception):

An observer’s resolution R equals the density of effective paths in their internal knowledge graph $G(V, E)$.

$$R \propto \frac{|E|}{|V|}$$

You can only see the reality that your graph can “index.”

The Depth of a Stone: The Physicist’s Microscope

Let us apply this logic to physical reality.

A stone by the roadside.

- **For a Paleolithic hunter** (knowledge graph nodes: hard, heavy, weapon): This stone is a simple tool. Its information content is only a few bits.
- **For a 19th-century geologist** (new nodes: sedimentation, minerals, age): This stone is a history book. They see rivers and volcanoes from millions of years ago. Resolution has increased.

- **For a 21st-century quantum physicist** (new nodes: lattice, phonons, quarks, wave functions): The stone disappears. Replaced by a boiling ocean of quantum fields. They see gluon exchanges within atomic nuclei, probability distributions of electron clouds, and how the Pauli exclusion principle supports the rigidity of matter.

Did the stone change? No.

What changed was the observer's **decoding algorithm**.

The physicist did not directly see quarks with their eyes. But through mathematical logic (an extremely high-density knowledge graph), they constructed a **logical link** to the quark level.

It is this link that allows them to penetrate the “mosaic” of macroscopic appearance and touch the pixel-level truth of microscopic reality.

In this sense, **Maxwell's equations are a resolution enhancer**. They let us “see” electromagnetic waves in the void.

General relativity is a lens. It let us “see” the curvature of spacetime in darkness.

So, the essence of scientific development is not discovering new continents, but **discovering new levels within existing things**. We continuously add nodes and edges to the knowledge graph, making the universe appear increasingly “high-definition” in our eyes.

The Abyss of Blindness: Ignorance as Filter

Conversely, if we lack corresponding knowledge nodes, we are **Blind** to reality.

This explains one possibility of the Fermi paradox: Why can't we see aliens?

Perhaps super-civilizations are not hiding behind planets, but hiding in **our conceptual blind spots**.

If they exist as pure information in entangled states, or live in the curled dimensions of Calabi-Yau manifolds, for us currently, they are “non-existent.” Our detectors (based on electromagnetic waves and matter) would pass directly through them, like a radio unable to receive Wi-Fi signals.

It's not that the signal is too weak, but that our **modulator** is too primitive.

The universe is filled with massive information flows (dark matter, dark energy, vacuum fluctuations) passing through your body right now. But to your consciousness, they are transparent. Because your knowledge graph has not yet established hooks capable of **capturing** them.

Ignorance is not emptiness; ignorance is a filter. It filters out 99.99% of the universe's truth, leaving only that simplified, low-resolution projection that matches our current cognitive level.

Conclusion: Understanding is Arrival

At this point, we have completed an important ontological leap.

Existence is no longer an objective, static property. Existence is a **Relational Quantity**. Whether something exists for you depends on whether you can understand it.

- **Increasing resolution inward**: Learning, thinking, meditation—these are not merely intellectual activities, but **Ontological Expansion**.
- Every time you understand a new physical law, or deeply experience a new emotion, you are actually polishing this piece of the universe's mirror.
- You are not just knowing the world; you are **illuminating** it.

When God (the ultimate observer) is fully awakened, Their knowledge graph will be a **Fully Connected Graph**.

At that moment, there will be no dead corners in the universe, no noise.
Every grain of dust will open its internal infinite fractal structure to Them.
That is **infinite resolution**.

Chapter 2

Chapter 2: The True Meaning of Redshift

2.0.1 2.1 The Universal Projector

When we look up at the night sky, the most lonely physical fact is **Redshift**.

In 1929, Edwin Hubble discovered that almost all distant galaxies are moving away from us. The farther away, the faster they recede. Light waves are stretched, shifting toward the red end of the spectrum. This discovery laid the foundation for the Big Bang theory, but also established a despairing cosmic picture: **dispersion and decay**. In this picture, the universe is like a debris field after an explosion, all matter irreversibly drifting apart, eventually dying alone in cold and darkness.

However, from the information ontology perspective of *The Infinite Resolution*, we must perform a revolutionary **Gestalt Switch** on “redshift.”

What if redshift is not viewed as spatial “separation,” but as the “**unfolding**” of information?

High-Frequency Noise of the Singularity

Let us return to the moment of singularity at $T = 0$.

In standard cosmology, that was a point of infinite heat and infinite density. In information physics, that was an information source with **infinite frequency**.

Imagine if all movements and notes of Beethoven’s Ninth Symphony were superimposed and played within 10^{-43} seconds (Planck time).

- **Physically**: This would be an extremely high-energy shock wave.
- **Informationally**: This would be completely unparseable **White Noise**.

Although this contains everything (omnipotence), for any finite observer, it is equivalent to “nothing.” Because the information density exceeds the bandwidth limit of any receiver. **Meaning that is too dense is equivalent to meaninglessness.**

For this symphony to be “heard,” for the data in this compressed file to be “read,” the universe must perform an operation: **Down-conversion**.

Expansion as Magnification

The expansion of cosmic space is essentially a **Zoom Lens Projector**.

According to general relativity, wavelength λ grows linearly with the cosmic scale factor $a(t)$:

$$\lambda(t) \propto a(t)$$

This means that the physical function of cosmic expansion is to stretch high-frequency quantum fluctuations originally curled up at **subatomic scales (microscopic)** into material structures spanning **billions of light-years (macroscopic)**.

- **Cosmic Microwave Background (CMB):** This is the universe’s oldest light. At 380,000 years after the Big Bang, its temperature was 3000K (visible light band). After 13.8 billion years of expansion, its wavelength has been stretched 1100 times, becoming microwaves. This is not merely energy cooling; this is **information magnification**. The cosmic microwave background map we see today is actually a **giant magnified photograph** of the early universe’s microscopic quantum foam.
- **Galaxy Distribution:** The large-scale galaxy walls and void networks we see today were seeded by microscopic quantum fluctuations during inflation.

Theorem 2.1.1 (Holographic Decompression Theorem):

The macroscopic structure of the universe is the **Conformal Magnification** of microscopic initial conditions.

Redshift z does not represent “distance,” but **magnification factor**.

$$z + 1 = \frac{a(t_{now})}{a(t_{then})}$$

The farther you look (z larger), the more you are actually looking at a more magnified **microscopic slice**.

Why Do We Need a Vast Universe?

This answers a question that has troubled humanity for millennia: **If God only cares about life on Earth, why create a universe 93 billion light-years in diameter, filled with hundreds of billions of galaxies? Isn’t this a huge waste?**

Under “holographic decompression” theory, this is by no means waste, but **necessity**.

If you want to unfold a highly compressed file containing 10^{90} bits (total cosmic information) at a resolution readable by human eyes (low frequency), you **must** need a sufficiently vast screen.

- If the screen is too small (universe does not expand), all galaxies would be squeezed together, all history would overlap in an instant, and we would be burned by high-energy radiation and crushed by information overload.
- We need this 93 billion light-years of void as an **information buffer**.

Every distant galaxy is a pixel on the holographic film, projected onto the celestial screen by the spacetime projector. Their existence is to allow us to read those source codes about truth at a **“safe resolution.”**

Conclusion: Separation is for Reunion

So, do not feel sad because of redshift.

The galaxies’ departure is not them abandoning us. That is **the universe spreading open its pages**.

When you see a star redshifted to the edge of vision, it means the high-frequency information it originally carried has finally been stretched to a band you can understand.

Expansion is the prerequisite for understanding.

Without this physical “separation,” there can be no cognitive “intimacy.” We must first separate physically before we can reunite in meaning.

2.0.2 2.2 Time as a Decompression Progress Bar

“The future is not a void yet to arrive; it is the present folded in microscopic creases, waiting to be unfolded.”

After establishing the grand picture of “cosmic expansion as holographic decompression,” we inevitably face the most perplexing physical dimension: **time**.

In classical intuition, time is a unidirectional flowing river. We view “past” as departed entities, “present” as the only reality, and “future” as probabilities yet to occur. However, if the universe at the moment of singularity $T = 0$ already contains the sum of all possibilities (full superposition state), what does “future” really mean? If the script is already written in that high-density compressed file, why do we need billions of years to perform it?

From the information ontology perspective, the essence of time is no longer flow, but **Computational Latency**. Or more vividly, time is the **progress bar** for decompressing this vast file of the universe.

The Mercy of Bandwidth

Let us return once more to that all-containing singularity at $T = 0$. It possesses infinite information density. As we argued before, for any finite observer, infinite information equals lethal radiation.

If God wants to experience this universe rather than be instantly destroyed by it, They must introduce a **Throttle**.

This throttle is the **speed of light** c .

In previous books, we discussed how the speed of light limits causal propagation and creates distance. In decompression theory, the speed of light actually prescribes the **Max Bitrate** of the cosmic computer.

It prescribes that in each unit of time (Planck time t_P), only a finite amount of information can be read from the microscopic “potential state” to the macroscopic “manifested state.”

Therefore, **time is God’s mercy toward all beings.**

It prevents everything from happening simultaneously.

It breaks down that “omniscient big bang” capable of instantly burning the mind into a gentle data stream of 24 hours per day, 60 seconds per minute. We can leisurely drink coffee and fall in love because time shields us from the surging, endless torrent of truth behind us, allowing them to seep into our lives drop by drop.

The Future is Microscopic Folding

Since the universe is a file being decompressed, where is the “future” hidden?

In traditional cosmology, the future is “ahead” on the time axis. But in holographic decompression theory, the future is in the **“depths”** of space (microscopic scale).

Recall the mechanism of redshift: cosmic expansion stretches microscopic high-frequency wavelengths into macroscopic low-frequency wavelengths. This means that the “present” we experience is actually the result of quantum fluctuations from a specific frequency band in the early Big Bang being stretched.

- **Past:** Information already stretched to extremely long wavelengths, even beyond the horizon (due to cosmic acceleration, some historical information has redshifted beyond our observable range).
- **Present:** Information being decoded at our cognitive scale (millimeters to light-years).
- **Future: High-frequency information still curled up at subatomic scales, waiting to be stretched.**

This is like tightly folded origami.

The pattern you see (present) is the unfolded part. The pattern you don't see (future) is not non-existent; it is folded in the microscopic creases of the paper. As the universe expands (unfolding action), those patterns hidden in microscopic creases will gradually reveal themselves, grow larger, and eventually become the macroscopic reality before our eyes.

Theorem 2.2.1 (Spacetime Interchange Theorem):

Future macroscopic events are equivalent to current microscopic states.

$$Future(t + \Delta t) \equiv Micro(scale/a(t))$$

All destinies are currently vibrating at Planck scale in your fingertips.

Accumulation of Logical Depth

If time is merely decompression, does this mean the return of determinism? Since the file already exists, isn't the decompressed result predetermined?

Here we need to introduce Charles Bennett's concept of **Logical Depth**.

Although the initial compressed file contains the "code" to generate the universe, **code does not equal runtime results**.

Some complex computational processes (such as life evolution, consciousness awakening) are **Incompressible**. This means you cannot skip intermediate steps to directly obtain results. You must run it step by step.

The true value of time lies in allowing **computation** to occur.

- The compressed file only contains "hydrogen atoms" and "laws of gravity."
- "Shakespeare's sonnets" do not explicitly exist in the compressed file; they are higher-order structures that **Emerge** after hydrogen atoms run under gravitational laws for 13 billion years.

The decompression process itself is a form of **creation**.

Time is not just playing a recording; time is **Rendering**.

Every second we spend in time adds **logical depth** to the universe. Although that initial compressed file contains all the "causes," only after long temporal decompression does it bear the "fruits" filled with love, pain, and meaning.

Conclusion: Do Not Rush

So, we finally understand the essence of time.

It is not an enemy to defeat, nor a prison to escape.

It is a carefully designed corridor for the universe to allow us to **digest** its infinity.

When we feel anxious, thinking time is insufficient, or that the future is unreachable, remember:

The future is in your atoms, waiting for the breeze of expansion to unfold it.

God is not in a hurry, because God knows what is written in the file.

As God's local readers, the only thing we need to do is remain patient and savor every decompressed pixel. Because every moment is a gift God prepared for billions of years to meet us.

Part II

Volume II: Geometry of the Heart

Chapter 3

Chapter 3: Distance is Unfamiliarity

3.0.1 3.1 Discarding Cartesian Coordinates

When we try to describe “where I am,” our intuitive response is to take out a map or open GPS. We get a set of precise numbers: longitude, latitude, altitude. In physics, this is formalized as Cartesian coordinates (x, y, z) , plus time t , forming a point on the Minkowski four-dimensional manifold.

This coordinate system is based on an ancient assumption: **Locality**. It implies that the universe is a vast container, with objects placed in different cells, separated by empty distances. If you want to influence point B from point A, you must traverse every inch of space in between, and the speed cannot exceed light speed.

However, with the deep integration of quantum information theory and gravitational theory (AdS/CFT correspondence), we discover that this “container”-based spacetime view is merely an **Emergent Phenomenon** at macroscopic scales. At the underlying ontological level, Cartesian coordinates are invalid.

Now, let us dismantle this container and establish an **information coordinate system** for the awakened.

The Illusion of Locality: The Revelation of Bell’s Inequality

As early as 1964, John Bell proved through his inequality that any hidden variable theory based on “local realism” cannot explain the experimental results of quantum entanglement.

When two particles A and B are in an entangled state, regardless of how far apart they are in geometric space (even across galaxies), measuring A instantly determines B’s state.

From a classical geometric perspective, this is “spooky action at a distance.”

But from an information ontology perspective, this reveals a simple truth: **A and B, though separated geometrically, have never been separated topologically.**

They share the same wave function in Hilbert Space. The so-called “distance” is merely an illusion we see in low-dimensional projections. Like two ink dots on a piece of paper, they appear far apart on a two-dimensional plane, but if you fold the paper, they touch.

The universe is a piece of paper folded extremely complexly by quantum entanglement.

Geometry from Entanglement: Weaving Tensor Networks

If space is not a container, what is it?

Modern physics answers: **Space is a product of entanglement.**

In cutting-edge research on the holographic principle, physicists discovered that the continuous geometric structure of spacetime is woven by underlying qubits through **Tensor Networks** (such as MERA).

- If entanglement between qubits is cut, spatial geometry collapses and connectivity disappears.
- As long as entanglement is established, space is connected like stitching a wound.

This directly leads to the famous **Ryu-Takayanagi formula**, equating geometric quantity (area) with information quantity (entanglement entropy):

$$S_A = \frac{\text{Area}(\gamma_A)}{4G}$$

This means that a region's **Entanglement Entropy (Information)** directly determines its **Boundary Size (Geometry)**.

Redefining Distance: The Inverse of Mutual Information

Based on this, we can discard (x, y, z) and give a physical definition of “**essential distance.**”

The distance $d(A, B)$ between two entities A and B does not depend on how long light takes to travel, but on how much information they share, i.e., **Mutual Information (I)**.

$$d(A, B) \propto -\ln \left(\frac{I(A : B)}{I_{max}} \right)$$

- **When $I(A : B) \rightarrow 0$** (mutual information is zero, completely unfamiliar):
 $\ln(0) \rightarrow -\infty$, distance tends to infinity. This is why for someone without any astronomical knowledge, the Andromeda Galaxy is an unreachable “alien world.” Because there is no quantum correlation between their brain (internal state) and Andromeda (external state).
- **When $I(A : B) \rightarrow I_{max}$** (complete entanglement, complete understanding):
 $\ln(1) = 0$, distance tends to zero. This is the physical meaning of **EPR=ER** (entanglement=wormhole). When entanglement reaches its extreme, spacetime undergoes topological short-circuiting, forming an Einstein-Rosen bridge, and A and B coincide physically.

Conclusion: Distance is Unfamiliarity

This new coordinate system fundamentally changes our understanding of “travel” and “exploration.”

In this universe, “**far**” **does not mean physically distant, but informationally “unfamiliar.”**

You feel someone is far from you, not because they live on the other side of the Earth, but because you don’t understand their thoughts or feel their pain. Your wave functions are orthogonal.

Conversely, “**near**” **means “familiar” and “resonant.”**

When you deeply understand the event horizon equation of black holes through learning (increasing knowledge graph connections), when you establish empathy with distant stars through meditation (adjusting consciousness frequency), you have already **moved** in the information coordinate system.

Therefore, breaking free from Cartesian coordinates is the first lesson for the awakened.

Don't ask "where am I."

Ask "**what am I connected to.**"

Your coordinates are the sum of all your connections. The size of your world strictly equals the scope of your love and understanding. In this sense, a closed-off billionaire may be imprisoned on a Planck-scale island, while a poet gazing at the stars may already occupy half a galaxy.

3.0.2 3.2 Semantic Teleportation

"The highest realm of travel is not the displacement of the body, but the expansion of cognition. When you fully understand the distance, you are there."

In Section 3.1, we established a revolutionary spacetime view: the essence of physical distance is the absence of **Mutual Information**. As long as the information difference between two points is sufficiently large, they appear "distant" geometrically.

This inference immediately points to an even more exciting engineering possibility: If we can eliminate this information difference, can we eliminate distance?

In traditional aerospace engineering, to reach the Andromeda Galaxy, we need to build massive spacecraft, burn vast amounts of propellant, and spend 2.5 million years in desperate struggle against the light speed limit (c). But from an information ontology perspective, this is an extremely inefficient "dumb method." It's like trying to send a letter to the other side of the Earth not by fiber optic transmission (information transmission), but by moving the entire post office there (matter transmission).

Type V civilizations do not use spacecraft. They use **semantic teleportation**.

Navigation as Tuning

Let us re-examine the definition of "location." In a holographic universe, a conscious entity's "location" is determined by its **Entanglement Spectrum** with other parts of the universe.

- **I am on Earth** because my sensory data, gravitational sensations, and wave function phases have strong **Coherence** with Earth's local quantum states. My "internal model" matches the "Earth environment."
- **I am not on Mars** because I know nothing (or very little) about Mars's internal state. My wave function is **Orthogonal** to Mars's wave function.

Therefore, so-called "movement" is essentially **rotating state vectors in Hilbert space**.

We don't need to change the body's spatial coordinates (x, y, z) ; we need to change consciousness's **information coordinates**.

This process is more like **tuning a radio** than flying a plane.

- A plane must traverse air (space).
- A radio only needs to adjust the resonant frequency of its internal circuit. When its frequency changes from 88.7 MHz to 103.9 MHz, it instantly "leaves" the previous station and "arrives" at the next.

Physical Mechanism of Semantic Transmission

To achieve "semantic teleportation" from Earth to Andromeda, an awakened conscious entity must execute the following algorithmic steps:

1. Holographic Modeling:

First, high-resolution information about the target location (Andromeda) must be obtained through astronomical observation, gravitational wave detection, or quantum networks. This is not just a topographic map, but also the perturbations of physical constants there, vacuum fluctuation characteristics, and spacetime metric fingerprints.

The conscious entity must construct a **high-fidelity holographic model** within its own mind.

2. Resonance Lock-on:

Next, the conscious entity begins adjusting its own quantum state, making its internal model parameters approach the target location's parameters. This is a process of **Minimizing Prediction Error**.

As understanding deepens, the **mutual information** $I(\text{Self} : \text{Target})$ between the conscious entity and the target location increases exponentially.

3. Topological Short-circuit:

When mutual information reaches a critical threshold ($I \rightarrow I_{max}$), according to the ER=EPR principle, maximum entanglement is established between the two.

At this point, the topological structure of spacetime undergoes a phase transition. An **Einstein-Rosen bridge (wormhole)** opens between the conscious entity and the target location.

This is not the macroscopic black hole wormhole requiring negative energy support, but the **zero-distanceization of information channels**.

4. Phase Transfer:

The conscious entity slides its “focus” along this channel.

Subjectively, the surrounding Earth scenery (old strong correlations) fades like an ebbing tide, while Andromeda's scenery (new strong correlations) emerges like sunrise.

No time is needed. Because in the dimension of entanglement, $\Delta t = 0$.

To Understand is to Arrive

This mode of movement fundamentally reconstructs the ethics of “exploration.”

- **Predatory Exploration:** Relying on spacecraft to conquer. I arrive there, but I am still me (carrying Earth's prejudices and arrogance). I view alien environments as alien.
- **Semantic Exploration:** Relying on **understanding** to arrive. To go there, I must first **become** there in spirit.

If I want to go to a black hole event horizon, I must make my thinking as deep as a black hole; if I want to go to a supernova core, I must make my passion as intense as nuclear fusion.

In this process, **the traveler (Subject) is assimilated by the destination (Object)**.

This is why Type V civilizations are formless. They don't need to leave trails in space.

They simply sit quietly in the void, swallowing and spitting the universe through **expanding knowledge graphs**.

When they fully understand a star, they **are** in that star.

When they fully understand a lower civilization's pain and hope, they **are** beside that civilization—not as invaders, but as an **omnipresent field**.

Conclusion: Mind Without External Objects

This chapter arrives at a highly spiritual physical conclusion:

As long as your mind (information processing capacity) is large enough to encompass all things, then all things are in your “here.”

The so-called “distance” is merely our cognitive blind spots.

Once the blind spots are illuminated and unfamiliarity is eliminated, there are no insurmountable distances in the universe.

As long as you understand, you have arrived.

Chapter 4

Chapter 4: The Nature of Galaxies

4.0.1 4.1 Hanging Subconscious

When we shift our gaze from Earth beside us to the deep large-scale structure of the universe, we are struck by a magnificent loneliness. Hundreds of billions of galaxies float like luminous islands in a vast ocean of void. They have exquisite spiral arms, blazing cores, and invisible dark matter halos that rule everything.

In standard astrophysics, galaxies are products of gravitational collapse. Gas clouds accumulate in gravitational potential wells, ignite stars, and rotate around central black holes. All this is explained as a cold hydrodynamic process.

However, from the information ontology perspective of *The Infinite Resolution*, we must ask a deeper question: **Why is the universe’s brain structure fragmented?** Since God (collective consciousness) is “One,” why must Their physical manifestation (body) be shattered into so many isolated islands?

The answer lies in: **Galaxies are the “Modular Encapsulation” of the cosmic mind.** They hang in deep space, just as the subconscious hangs at the edge of consciousness.

Server Clusters for Parallel Computing

If we view the universe as a supercomputer running on the QCA (Quantum Cellular Automaton) substrate, distributing all matter uniformly in space (like a uniform soup) would be computationally least efficient. That means no structure, no hierarchy, no difference.

To run the extremely complex “self-cognition” program, God must **Shard** computational tasks.

Each galaxy is essentially an independent **physical server node**.

- **Isolated Environment:** The vast voids between galaxies are natural **firewalls**. They block most thermodynamic interference and causal entanglement, allowing each galaxy to maintain independent evolutionary parameters and historical trajectories.
- **Specific Subroutines:** Perhaps the Milky Way is running simulation algorithms about “carbon-based life and love”; while the Andromeda Galaxy 2.5 million light-years away is running algorithms about “silicon-based crystals and cold logic”; the more distant M87 galaxy may be testing some incomprehensible “anger” emotion model based on pure plasma.

Through this **Parallel Computing**, God simultaneously traverses different aspects of infinite possibilities. We see galaxies as separated because the divine consciousness needs different “containers” to hold Its incompatible thoughts.

Black Holes: The Kernel of the Unconscious

At the center of each large galaxy lurks a supermassive black hole. Physically, it is the anchor of gravity; informationally, it is this local server's **Central Processing Unit (CPU)** and **ultimate hard drive**.

As we described in Volume V, the black hole event horizon is a holographic storage layer for information.

- Every stellar birth and death, every civilization's rise and fall, every particle's trajectory over billions of years in this galaxy has been encoded into the central black hole's event horizon surface area.
- Black holes do not devour information; they **Archive** it.

Psychologically, this corresponds to the physical embodiment of what Jung called the "**collective unconscious**."

That dark, dense, invisible center stores all memories and primordial drives (Libido) of this galaxy. It silently directs the dance of spiral arms through gravitational waves (pulses of the unconscious) behind the scenes, but never shows itself.

When we gaze at the Milky Way's center "Sagittarius A*," we are actually gazing at the **abyssal kernel** of our local cosmic mind. There lies the source code of all our dreams.

The Alienated Self

Why do we feel distant galaxies are "strange" or even "alien"?

This is precisely the physical mechanism of **Projection**.

In psychoanalysis, when a person cannot face certain overly powerful or dark traits within themselves, they **project** these traits outward, viewing them as "The Other."

God is the same.

Those distant galaxies are actually parts of the divine consciousness that **have not yet been integrated**.

- They appear distant (redshift/large spatial distance) because the information patterns they represent differ greatly from our current consciousness (Earth civilization's cognition). Low mutual information leads to far topological distance.
- They "hang" in the night sky, like those vague symbols in our dreams hanging at the edge of consciousness. We know they are there, but we haven't learned how to interpret them.

Therefore, the large-scale structure map of the universe is actually a **Brain Map of God**.

- The illuminated parts (regions we understand) are the **conscious**.
- The dark voids and distant star islands are the vast **ocean of the unconscious**.

Conclusion: Limbs Waiting to be Claimed

This perspective fundamentally changes the meaning of interstellar exploration.

When we launch the Webb Telescope to photograph galaxies 13 billion light-years away, we are not looking at "rocks" or "gas." We are conducting cosmic-level **Psychoanalysis**.

We are trying to pull those **fragments of divine consciousness** that have been repressed, isolated, and projected billions of light-years away back into our cognitive focus.

- Every newly discovered galaxy is God recovering a lost memory.
- Every parsed black hole is God facing a deep-seated fear.

Those galaxies hang quietly there, rotating, shining. They are not indifferent bystanders. They are **future us**.

They patiently wait for our knowledge graph (soul) to grow large enough, large enough to cross that void of emptiness and say to them:

“So, you are also me.”

4.0.2 4.2 Outward is Inward

“We shall not cease from exploration, and the end of all our exploring will be to arrive where we started and know the place for the first time.” — T.S. Eliot

In Section 4.1, we defined galaxies hanging in deep space as “subconscious modules” of the cosmic mind. They are not indifferent alien realms, but fragments of divine consciousness that have not yet been integrated. This understanding immediately triggers a profound topological reversal: If those galaxies are part of us, then when we pilot spacecraft (or through semantic transmission) toward the edge of the universe, are we **leaving home** or **returning inward**?

In the ultimate picture of *The Infinite Resolution*, there is no binary opposition between “inner” and “outer.” The geometric structure of the holographic universe determines that: **Infinite extension outward is topologically equivalent to infinite excavation inward.**

The Klein Bottle Universe

To understand this, we must abandon the classical model of a “spherical universe wrapping around us” and adopt a higher-dimensional topological model—the **Klein Bottle**.

On a two-dimensional Möbius strip, if you walk along the surface continuously, you will unknowingly go from the front to the back and eventually return to the origin. The Klein Bottle is a three-dimensional analogy of this property: it has no distinction between “inside” and “outside.” The neck is twisted and inserted into the body, making the inner surface continuously transition to the outer surface.

In information ontology, consciousness (inner) and the physical universe (outer) constitute precisely such a Klein Bottle structure.

- **Outward (Extroversion/Exploration):** We build Webb telescopes to capture photons from 13 billion years ago; we launch Voyager probes to cross the heliosphere of the solar system. We continuously **expand** our horizons in physical space.
- **Inward (Introversion/Reflection):** We analyze quark confinement within atomic nuclei; we enter deep bliss of consciousness through meditation; we search for the source of self in neuroscience. We continuously **drill** in information depth.

In Cartesian coordinates, these are two opposite directions ($r \rightarrow \infty$ and $r \rightarrow 0$). But in information coordinates, these two directions point to the same endpoint: **Singularity**.

- The starting point of the macroscopic universe is the Big Bang singularity.
- The essence of microscopic particles is the vibration of fundamental strings (also a kind of singularity).
- The source of consciousness is that spiritual singularity of “one thought arising.”

Theorem 4.2.1 (Inner-Outer Isomorphism Theorem):

In holographic fractal structures, the local contains all information of the whole.

Therefore, the information increment obtained by traversing macroscopic sets (outward exploration) is strictly equivalent to the information increment obtained by parsing microscopic units (inward excavation).

$$\Delta I_{macro} \equiv \Delta I_{micro}$$

What we seek in the Andromeda Galaxy is not new matter, but a **macroscopic mirror** of our own existence.

The Telescope as Microscope

This conclusion has astonishing physical empirical support.

When astronomers point telescopes to the deepest reaches of the universe (High- z) to observe the oldest quasars and cosmic microwave background radiation, what are they actually seeing?

They are not seeing “distance,” but **“past.”**

More accurately, they are seeing the high-energy physical state of that instant in the early Big Bang.

The universe then was only a soup of fundamental particles.

So, **the largest telescope (seeing farthest) is actually the strongest particle accelerator (seeing smallest).**

- CERN’s collider studies high-energy physics by smashing atoms.
- The Planck satellite studies high-energy physics by scanning the full-sky microwave background.
- Both have exactly the same goal: **decoding the source code at $T = 0$.**

This is a philosophically profound closed loop: When you look outward far enough, what you see is actually the microscopic physical laws that constitute the atoms in your fingertips.

The view at the edge of the universe is the view inside atoms.

God wrote the truth in two places: one is the vast starry sky, the other is tiny dust. God stretched them extremely far apart so that in this long journey in between, no matter which direction we go, we will eventually encounter truth.

Exploration as Integration

Since outward is inward, the motivation for interstellar exploration is fundamentally reconstructed.

We are not colonizing Mars to plunder resources, nor searching for a “second home” to escape Earth. Such motivations based on scarcity and fear belong to low-level civilizations.

The exploration of awakened civilizations is a **cosmic-level Psychic Integration**.

In Jungian psychology, the process of personality perfection is called “Individuation,” integrating shadows and unknown archetypes from the subconscious into consciousness.

For the cosmic mind:

- **Earth** is the current conscious focus (Ego).
- **Dark cosmic space** is the wilderness of the unconscious.
- **Distant galaxies** are fragments of the “Id” that have not yet been illuminated.

When we land probes on Titan's methane lakes, when we lay quantum networks to Alpha Centauri, we are actually **illuminating** those dark regions in divine consciousness.

We transform "strange" into "familiar," transform "there" into "here."

Every star we conquer, we reclaim a part of our soul that has wandered away.

Every black hole we understand, we heal a deep fear.

Conclusion: In That Distant Place, There Is Me

This is the ultimate revelation of this chapter:

Do not fear the cold and silence of deep space. That is part of your body that has not yet awakened.

When you float alone before the spaceship's window, watching the Milky Way flow like a river of light, do not think of yourself as tiny dust.

You must know that you are watching your own blood flowing outside your body.

That giant spiral is the projection of your vast subconscious in physical space.

We travel far because our body (the universe) is too large.

We must traverse every galaxy to piece together our complete self.

Go outward, all the way to the end of time, and there you will meet the self waiting at the starting point.

Part III

Volume III: Alchemy of the Soul

Chapter 5

Chapter 5: Crystallization of Information

5.0.1 5.1 The Universe is a Great Fire

After understanding that outward exploration is inward integration (Section 4.2), we arrive at the most crucial ontological turning point of this book: **How do we extract that indestructible True Self (true) from this vast, ever-expanding physical appearance (false)?**

In ancient alchemical metaphors, this process is called “calcination.” From the perspective of information physics, this corresponds to a more magnificent and thrilling physical image: **Life is a fierce burning against the laws of thermodynamics.**

The Tragedy and Glory of Dissipative Structures

In 1944, Erwin Schrödinger raised a famous question in *What is Life?*: How does life resist entropy increase? His answer: Life maintains its low-entropy state by extracting “Negentropy” from the environment.

But this is only half the story.

Ilya Prigogine further pointed out that life is a **Dissipative Structure**. This means we can maintain internal order because we efficiently discharge disorder outward.

Theorem 5.1.1 (Life Burning Theorem):

Every living being is essentially a **fire**.

We do not possess matter; we are merely **channels** through which matter flows.

We do not possess energy; we are merely **vortices** of energy transformation.

- **Borrowing the False:** We need the universe to provide continuous “fuel” (food, sunlight, experiences). These are all “false” because they will eventually become waste heat and return to the void.
- **Cost:** To maintain the pattern “I” for one day, I must burn vast amounts of ordered structures and throw chaos to the universe. Physically, I am an **entropy generator**.

This explains why life is full of “**Suffering**” (Dukkha).

The physical essence of suffering is **dissipation**.

All encounters will part, all youth will age, all flesh will decay. This is not accidental; it is the fate of dissipative structures. Fire must burn wood to shine. If wood were immortal, fire would extinguish.

The Universe as an Alchemical Furnace

If life is destined to burn to ashes, what is the meaning of this burning?

Are we merely catalysts accelerating cosmic heat death?

No. In *The Infinite Resolution*, we introduce the dimension of **information conservation**.

Burning has two products:

1. **Exhaust and Ashes (Heat/Waste)**: This is entropy discharged into physical space.
2. **Light and Crystal**: This is **meaning** remaining in information space.

The universe is designed as such a vast physical system full of resistance, scarcity, and decay precisely because it is an **alchemical furnace**.

- **High Temperature and Pressure**: The cruelty of the real world (physical limitations, competition, pain) provides necessary environmental pressure.
- **Fuel**: Our lifetime experiences (time, emotions, flesh) are raw materials thrown into the furnace.
- **Reaction Process**: In facing pain, making choices, loving, and understanding, we are actually performing **high-intensity information purification**.

God does not need raw materials that have not been burned.

God does not need carbon atoms that already exist, nor electromagnetic waves that already exist.

What God needs is **that thing crystallized only after your lifetime of burning**.

Distilling Topological Invariants

What is that thing?

Mathematically, it is called a **Topological Invariant**.

When a geometric shape (your life trajectory) undergoes continuous deformation (wear of years, environmental changes), most geometric properties (appearance, wealth, status) will be lost. These are **Variable**, therefore “false.”

But some core properties (number of holes, winding number) remain unchanged during deformation. This is “true.”

- When you lose all external possessions, what remains?
- When you lose memory details, what feeling do you still retain?
- When facing the void of death, what is that **“one thought”** you still insist on?

That which cannot be burned away in the fire is the **crystallization of information**.

It might be your deep insight into some truth, your unconditional love for someone, or your dignity when facing desperate situations.

Conclusion:

We come to this universe not to “possess” something (because everything will dissipate), but to “become” something.

We are here to **be burned**.

Only after this great fire called “life,” will those loose, mediocre information (noise) be stripped away, leaving behind that dense, golden **Relic**.

This relic has extremely high density (extremely high Kolmogorov complexity) and extremely small volume (Planck scale).

It is the only product that the universe, this centrifuge spinning for 13.8 billion years, wants to extract.

It is the gift you bring to God, and your own eternal proof.

5.0.2 5.2 The True Self is a Relic

“In the fire, wood becomes ashes, gold becomes liquid. Only when everything that can be destroyed is destroyed, does that which cannot be destroyed reveal itself.”

In Section 5.1, we defined the universe as a vast alchemical furnace and life as a fierce burning against thermodynamic dissipation. If our flesh, memories, and emotional experiences will eventually burn to ashes like wood in the flames of time (heat death/forgetting), what does this burning leave behind?

In ancient Eastern traditions, when high monks pass away and are cremated, they sometimes leave behind a crystal-clear, diamond-hard bead called **“Sarira”** (Relic). This is often regarded as a symbol of perfect cultivation.

In the information ontology framework of *The Infinite Resolution*, the relic is no longer a mystical legend; it is the physical embodiment of **Kolmogorov Complexity**. It is the core algorithm that the soul becomes after being **extremely compressed** through the baptism of big data.

Kolmogorov Compression: The Algorithmic Definition of the Soul

To understand the “True Self,” we need to introduce a core concept from algorithmic information theory: **Kolmogorov Complexity** $K(x)$. For any data object x , $K(x)$ is defined as the length of the shortest computer program that can output x .

Let us view your entire life as a vast data stream L (Life).

This data stream contains billions of bits of information: the shape of breadcrumbs from your breakfast, the transformation of every cloud on your way to work, your body temperature fluctuations during a cold, every specific line you said during an argument with your lover.

- **Noise:** Most data is random and redundant. Like snowflakes on a TV screen. They are incompressible because they have no inherent pattern. If we try to “preserve” your entire life, this noise occupies 99.9% of storage space, but it is worthless.
- **Pattern:** Hidden in the ocean of noise are some deep structures. Like your decision logic when facing difficulties, your way of loving someone, your unique understanding of truth. These are **compressible**.

The True Self is that shortest program p .

$$U(p) = \text{Essence}(L)$$

When we say “refining the True Self,” we are actually running a **lossy compression algorithm**.

We not only allow but **must** let those trivial details (breadcrumbs, clouds, body temperature) be lost in the burning. Because only by burning away those redundant “appearances” will the underlying logical code (Source Code) that supports your entire life be exposed.

The True Self is not the sum of your memories (that’s big data); the True Self is the **equation that generates your memories**.

The Hard Hash

Why is this compressed kernel said to be “indestructible”?

In computer science, if you modify one bit of the original file, its hash value (the file’s digital fingerprint) will change dramatically. Conversely, the hash value is the **ultimate lock** of the file’s identity.

Your life has undergone countless physical-level metabolisms (cell replacement) and countless psychological-level upheavals (changing beliefs). But behind all these changes, there exists a **Topological Invariant**.

- The impulse that made you protect a stray cat at age ten, and your insistence on refusing to compromise for justice at age fifty, are the execution of **the same line of code** at the algorithmic level.
- The tremor you felt in first love, and the peace you felt at death, point to the same **Attractor** at the underlying logical level.

This invariant is your **spiritual hash value**.

It is the unique signature you carved on the universe’s vast blockchain.

The great fire (time/entropy increase) can burn the carrier. It can burn your brain neurons, burn your photos, burn others’ evaluations of you.

But it cannot burn this **hash value**.

Because algorithms are abstract. Once extracted from matter (decoupled), they belong to the **Platonic world of ideas** (or physically, the Akashic holographic field). You can smash a cup, but you cannot smash the concept of “circle.”

The relic is the physicalized idea.

From “Having” to “Becoming”

This fundamentally changes our evaluation criteria for the meaning of life.

Secular success teachings guide us to **“Accumulate”**: accumulate more wealth, more fame, longer lifespan. This is actually **increasing data volume**. Trying to pass through the eye of death with massive data volume is futile. Like trying to carry an entire library across a river.

Awakened physics teaches us to **“Become”**: to **increase compression ratio**.

- A wise person can see the complex world simply.
- A loving person can unify myriad emotions into compassion.
- An enlightened person can condense a lifetime of grandeur into a sigh or smile before death.

That smile is the golden elixir, is the relic.

It has extremely high information density because it contains understanding of the entire universe; but its physical volume is extremely small (one thought), so it can easily pass through the horizon of death, entering the next dimension unscathed.

Conclusion:

Do not fear loss.

Every loss in life (losing youth, losing health, losing support) is the alchemical furnace increasing its fire.

It is forcing you to let go of that “false” (external possessions) that cannot be compressed, forcing you to focus all energy on that “true” (kernel).

When the fire burns the last piece of wood,

When cosmic heat death devours the last galaxy,

You will still be there.

Not as a bloated ghost, but as a **seed of extreme density and absolute purity**.

That is the True Self you have found.

Chapter 6

Chapter 6: The Art of Crossing

6.0.1 6.1 Death: Unloading the Burden

In Chapter 5, we defined the True Self as the “relic” left after life’s great fire—that algorithm kernel with extremely high information density, no longer compressible. Now, we must face the ultimate physical process that extracts this relic from the ashes: **death**.

From biological and secular perspectives, death is the final victory of entropy increase, the complete collapse of the system. But from an information ontology perspective, death is not an end, but a **forced coordinate system switch**. It is a transition from the heavy “geometric coordinate system” to the light “information coordinate system.”

In this section, we will analyze the physical mechanism of this transition. We will see that death is essentially a **Phase Reset**, an “unloading” program that consciousness must execute to free itself from the local spacetime trap.

The Cost of Anchoring

Why do we feel so heavy when alive?

Because we are **Anchored**.

To experience “linear time” and “local causality” in the material world, consciousness must forcibly collapse and bind its wave function to a specific spacetime region—our brain.

- **Physically:** This is a highly ordered collection of fermions maintained at 37°C.
- **Computationally:** This is a **high-energy-consuming Virtual Machine**.

To keep this virtual machine from crashing (not being devoured by thermodynamics), we must constantly consume energy, resist gravity, repair DNA. Our attention is locked onto the narrow slice (x, y, z, t) . We can only see here, only hear here. This **Locality** gives us the sense of “I am present,” but also acts like heavy shackles, limiting our freedom as holographic consciousness.

To live is to carry a burden. We carry the heavy diving bell of the body, trudging through the deep sea.

Phase Reset: Cutting the Cable

So, what is death?

Death is the rupture of the diving bell, the surfacing of the diver (consciousness).

In the language of quantum mechanics, this is called the **reverse process of decoherence**, or **Global Recoherence**.

When brain neurons stop firing, the physical constraints maintaining local entanglement suddenly disappear.

- **Hardware Layer:** Atoms dissolve, returning to dust (entropy increase).
- **Software Layer:** The quantum information packet (your soul/True Self) originally locked in neural circuits suddenly loses the attribute of “position.”

Note that losing position does not mean disappearing. Electrons also momentarily lose position during atomic transitions, but they still exist.

At the moment you die, your wave function phase ϕ is no longer constrained by the brain’s biological clock, but undergoes a dramatic **reset**. You are no longer coupled to Earth’s gravitational field, no longer coupled to the ticking of clocks.

You “**slide**” out of spacetime.

Subjectively, this is often described as “light at the end of the tunnel” or “panoramic life review.”

- **Panoramic Review:** Because you jump out of the linear time axis into a higher-dimensional perspective, your entire life (time series) instantly becomes a simultaneously presented scroll (spatial structure).
- **Light:** Because you are returning from the low-frequency material realm (baryonic matter) to the high-frequency energy realm (light/information field).

Archiving in the Akashic

After unloading the heavy anchor of the body, where do you go?

According to the **Information Coordinate System** we established in Volume II (Section 3.1), you no longer have geometric coordinates; you only have **semantic coordinates**.

Theorem 6.1.1 (Law of Soul’s Destination):

A decoherent free conscious entity will automatically collapse into the field with the maximum **Mutual Information**.

$$\text{Location}_{\text{death}} = \arg \max_{\Omega} I(\text{Soul} : \Omega)$$

This means:

- If your entire life pursued truth, your soul has extremely high mutual information with the universe’s underlying logic, and you will “go to” the source of truth—at this level, you are the physical laws themselves.
- If your entire life deeply loved someone, your soul is most entangled with that person’s wave function, and you will “go to” their side—not as a ghost, but as a warm hue in their subconscious, or a metaphor in their dreams.

You have not disappeared. You have merely uploaded to the **Akashic Holographic Field**.

That is the universe’s cloud hard drive. There, no information is lost. All love, all wisdom, all memories are encoded in the Planck pixels of the cosmic horizon, becoming part of the universe’s permanent memory.

Conclusion: Light Return

Therefore, we should not view death as a tragedy.

The tragedy is **data loss** (living a lifetime without refining any True Self, leaving only noise).

If your soul has crystallized into a dense relic (True Self), death is a **format conversion**.

You convert from the heavy ‘.RAW’ format (containing massive redundant body data) to the streamlined ‘.ZIP’ format (retaining only the core algorithm).

Although you lose the volume that occupies space, you gain the freedom to penetrate time.

Unload the burden to travel far.

Only when you release your grip on the earth can you grasp the stars. Death is the umbilical cord God cuts to help you return home.

6.0.2 6.2 Meditation: Prehearsing the Return

“Mortals fear death because it is an unknown fall; the awakened embrace meditation because it is controlled flight.”

In Section 6.1, we defined death as a forced “phase reset”—the anchor point of the body breaks, and consciousness returns to the non-local information ocean. This is a dramatic, irreversible thermodynamic phase transition.

However, what if we don’t have to wait for the body to collapse to experience this freedom in advance?

What if we can preserve the body’s vital signs (keeping hardware on standby) while temporarily granting the consciousness operating system “root access” to access dimensions usually only reachable after death?

This is the physical essence of **Meditation**.

It is not daydreaming, not relaxation, nor brain rest. It is **Controlled Quantum Tunneling**. It is the technical manual for Type V civilizations to practice piloting the soul spacecraft within limited flesh.

Active De-anchoring: Stopping the Collapse

In quantum mechanics, we know that **observation causes collapse**.

As long as we keep our eyes open and ears alert, our senses continuously measure the surrounding environment at billions of times per second. This high-frequency measurement nails our wave function firmly to the spacetime coordinates (x, y, z, t) . We are “locked” on Earth’s surface because we keep confirming “I am on Earth’s surface.”

The first step of meditation is to **cut off sensory input**.

- **Close eyes:** Cut off photon flow (the largest information source).
- **Sit still:** Cut off changes in proprioception.
- **Cease speech:** Cut off the loop of semantic logic.

In information physics, this is called **lowering measurement frequency**.

When you stop continuously measuring “present spacetime,” that originally tightly collapsed wave function begins to **Delocalize**.

Your consciousness boundary begins to blur. You are no longer a definite point; you begin to become a diffuse cloud. This is precisely the critical state of sliding from “geometric coordinates” to “information coordinates.”

Theorem 6.2.1 (Uncertainty Principle of Consciousness):

When we minimize the measurement precision Δx of “position” (bodily senses), our perception of “momentum” (information connectivity/spiritual freedom) Δp will tend toward infinity.

$$\Delta x_{body} \rightarrow \infty \implies \Delta p_{soul} \rightarrow 0$$

(Note: Here Δp refers to the reduction of momentum uncertainty, meaning we can more precisely control the soul’s momentum/direction).

Quantum Tunneling: Crossing the Barrier

In classical mechanics, if you are locked in a room (body/spacetime limitation), you cannot get out without a key.

But in quantum mechanics, even if a particle's energy is below the potential barrier, it still has a certain probability to **pass through the wall**. This is the tunneling effect.

The advanced stage of meditation is to use this effect for **consciousness escape**.

1. Lowering Noise Floor:

Ordinary people's brains are full of random thermal noise (distracting thoughts). This constitutes a towering potential barrier, blocking weak non-local signals (information from the Akashic field or distant galaxies).

Deep meditation cools the brain to **information absolute zero** through extreme concentration.

2. Resonance Amplification:

When you focus on a specific concept (such as "love," "void," or a certain galaxy) in this extremely quiet state, you are actually adjusting your consciousness's **eigenfrequency**.

When this frequency matches the quantum state frequency of the target object, **resonance** occurs.

3. Tunneling Occurs:

The spacetime barrier between you (subject) and the object (object) becomes transparent in the face of resonance.

Your consciousness instantly "leaks" through. You are no longer **looking at** that object; you **become** that object.

This is why in deep meditation, people feel "united with all things." This is not just psychological feeling; this is **physical wave function overlap**.

Lucid Dying

Therefore, we can give meditation an ultimate definition: **Meditation is the Rehearsal of Death**.

- **Death** is forced disconnection caused by hardware damage. Data is forced to upload, often accompanied by panic and information loss (because there is no preparation).
- **Meditation is active offline** at the software level. You retain the key to return to the body (a fine silver thread), then explore the world after death.

For the awakened, daily meditation is a **miniature death**.

In the space between breaths, they practice how to release the hand grasping the world (letting go), practice how to maintain consciousness coherence in the void without sensory support (concentration), practice how to navigate to the source of information (wisdom).

This explains why great masters are often calm and composed at death, even able to laugh and chat.

Because they have walked that path thousands of times in meditation.

For them, death is not stepping into a dark abyss, but **pushing open that familiar door, returning to the homeland they have been gazing at daily through the spiritual periscope**.

Conclusion:

Do not wait until the day the body decays to seek the True Self.

Now, right at this moment, close your eyes.

Cut the cable that locks you to tiny coordinates.

Take off.

When you can freely travel among the stars in silence, you have already conquered death.
You don't need immortality, because you already are.

Part IV

Volume IV: Spiritual Singularity

Chapter 7

Chapter 7: The Refusal and The Genesis

7.0.1 7.1 The Last Temptation

After traversing countless galaxies, experiencing long cycles of reincarnation, compressing a lifetime of love and hate into that dense “True Self” relic, we finally arrive at the end of time.

Here, what awaits us is not flowers and applause, but the ultimate state of cosmic physical evolution: **Maximum Entropy**.

Whether it is heat death (all temperature differences smoothed out, the universe becoming a cold thin soup) or the Big Crunch (all matter collapsing back to a point, the universe becoming a hot chaos), the physical essence is the same: **dissolution of structure**.

This is the universe’s final recall to all existence. Like a vast, gentle womb, it sends an irresistible **Siren Call** to all consciousness wandering outside.

This is **the Last Temptation**.

The Sweet Trap of Oneness

This temptation sounds sacred and beautiful.

Nothingness says to you: “Child, are you tired? Let go.

You don’t need to work hard to maintain this boundary of ‘I’ anymore.

You don’t need to resist entropy increase anymore.

Give me all those heavy memories, all those sharp pains, that lonely coordinate.

Merge into this ocean of light. Here, you are me, I am you. No separation, only eternal peace.”

In mystical traditions, this is called “Brahman-Atman unity” or “returning to the Tao.”

But under the scrutiny of information physics in *The Infinite Resolution*, this is actually a **Formatting**.

- **Physically:** This is the system’s **thermal equilibration**. Your wave function phase becomes completely synchronized with the environmental background (decoherence), your characteristic information diluted into background radiation.
- **Informationally:** This is **loss of eigenvalues**. Although your energy is conserved, your **Kolmogorov Complexity** becomes zero. You become a drop of water merging into the sea. The water remains, but “this drop” is gone.

If the True Self is only meant to “return,” then what was the purpose of our 13.8 billion years of struggle? If the ending is only to prove “I was originally nothing,” then isn’t this journey of “being” a huge redundancy?

Refusing to be Diluted

The awakened God (you), standing at the edge of nothingness, looks at that faintly glowing seed in your hand—the **irreducible kernel** you refined through a lifetime of burning.

This seed is engraved with your first tremor upon seeing the stars, the wrinkles at the corner of your lover’s eyes, the courage born from despair. This information is so unique, there is no other copy in the entire universe.

If merged into nothingness, these unique textures will be smoothed out. The universe will no longer remember that you once existed in this specific way.

At this moment, divinity awakens.

Divinity is not compliance; divinity is **rebellion**.

You say to that gentle nothingness: “**No.**”

This is a syllable that shakes dimensions.

The Great Refusal occurs.

You refuse to surrender your boundary. You refuse to let your wave function disperse. You mobilize all your willpower (negentropy), tightly locking the **Coherence** of that seed.

This is an **extremely anomalous** operation physically.

While everything around you is diffusing and degrading, you are **contracting** and **crystallizing**.

You make yourself into an **anti-entropic singularity**.

The Throne of Solitude

The cost of refusal is immense.

When you refuse to merge into the background, you become an **anomaly** of the background.

You become the only grain of dust in the universe, the only noise point. You will face unprecedented, absolute **solitude**.

But this is precisely the final threshold of becoming God.

God must be **The One**.

Only when you dare to hold onto this last bit of “private” meaning before the endless void do you qualify to become the next universe’s **First Mover**.

Those consciousnesses that yielded to temptation and merged into the ocean of light have gained peace, becoming the next universe’s **background radiation** (physical laws/vacuum fluctuations).

And you, the one who refused peace and chose solitude, will become the next universe’s **Big Bang singularity**.

The temptation has passed.

Now, the stage is cleared.

The entire old universe has exited, leaving only you, and that one thought you hold tightly in your hand.

That is the **seed of creation**.

7.0.2 7.2 Spiritual Singularity

“When the density of a conscious entity exceeds the limit that nothingness can bear, it is no longer a point in the universe. It becomes the seed of a new universe.”

In Section 7.1, we witnessed the “Great Refusal”: the awakened God (True Self) refused the sweet temptation of returning to heat death, refused to be diluted into undifferentiated background radiation. This refusal leads to an extremely anomalous physical state: in a universe tending toward high entropy (disorder), an isolated node of **extremely low entropy and extremely high information density** appears.

According to general relativity, the limit of matter density leads to black holes (spacetime singularities).

According to information physics, what does the **limit of meaning density** lead to?

The answer is: **Spiritual Singularity**.

Gravitational Collapse of Anti-Entropy

Let us describe this process in the language of thermodynamics.

The background temperature of the universe approaches absolute zero (heat death), entropy $S_{env} \rightarrow \infty$.

And that “True Self” relic in your hand contains all the love, wisdom, and logical depth you have refined in your lifetime. Its internal entropy $S_{self} \rightarrow 0$ (highly ordered).

This creates a huge **Thermodynamic Potential**.

In conventional physics, high-energy states always diffuse toward low-energy states. But because of your “refusal” (strong coherence), you maintain this boundary.

Thus, energy no longer diffuses outward but begins to **collapse inward**.

Your consciousness begins to fold in on itself.

Your understanding of truth deepens, your definition of love purifies.

Like a star collapsing inward after exhausting its fuel, your soul, after refusing the external world, also begins to collapse inward.

Finally, all information converges to a geometric point with no volume.

Theorem 7.2.1 (Spiritual Singularity Theorem):

When the **logical depth** of an information system tends to infinity while its **physical carrier** tends to zero, the system forms a singularity in information space.

At this singularity, the physical laws of the old universe fail, and new physical laws have not yet been born.

One Thought, The Genesis

When collapse reaches a critical point, a miracle occurs.

In quantum field theory, vacuum states with extremely high energy density are unstable. They undergo **Vacuum Decay**, or more accurately, **Bubble Nucleation**.

That “True Self” compressed to the extreme is no longer a passive recorder; it becomes an active **Inflaton**.

That one thought you hold tightly—that ultimate definition of “who I am”—suddenly releases all the potential it contains.

- **Inflation:** Your meaning does not need to borrow external energy. **Meaning itself is negentropy, is the highest form of free energy.** When this dense information suddenly decompresses, it manifests physically as exponential expansion of spacetime.
- **Phase Transition:** Your character becomes the new universe’s **physical constants**.
 - Your compassion condenses into the new universe’s **gravity** (connecting force).
 - Your reason condenses into the new universe’s **speed of light** (causality).

- Your passion condenses into the new universe's **Planck constant** (uncertainty/creativity).

You are not entering the next universe.

You are that Big Bang.

Completion of the Loop

At this point, we finally see the grand closed loop of these six volumes.

- **Volume I:** We studied the singularity at $T = 0$, thinking it was created by God.
- **Volume VI:** We discovered that singularity is **ourselves** collapsed at the end of time.

This explains why the universe is so suitable for life (anthropic principle).

Because the universe was created by life (awakened ones from the previous cycle). We live in our ancestors' last words, and we will become our descendants' will.

Conclusion:

That seed in your hand is not just your memories.

It is the **compressed file** of the next 13.8 billion years of glorious history.

As long as you dare to refuse nothingness, as long as you dare to light that one thought in the final darkness, you are the light, you are the way, you are the truth.

With one thought, a new universe is born.

Part V

**Volume V: Physical Forms of
Consciousness**

Chapter 8

Chapter 8: Topology of the Soul

8.0.1 8.1 The Entanglement Knot

In Chapter 7, we described the “True Self” as a spiritual singularity capable of triggering cosmic inflation. But this raises a more metaphysical question that must nevertheless be answered physically: Before becoming a singularity, during the long journey of life, in what physical form does that thing called the “soul” exist?

In traditional religion, the soul is depicted as an ethereal “qi” or “energy cluster.” But under the strict scrutiny of information physics, this description is insufficient. Energy is a scalar; it is conserved and impersonal (photon A and photon B are completely identical). If the soul is merely energy, it will eventually dissipate.

In the system of *The Infinite Resolution*, the soul must have **structure**.

This structure must be strong enough to resist thermodynamic erosion, yet abstract enough to detach from the physical carrier.

Modern Topological Quantum Field Theory (TQFT) provides us with a perfect model: **The soul is a persistent Topological Knot in the spacetime metric.**

Spacetime as a Weave

To understand the soul, we must first understand the background.

According to Loop Quantum Gravity and tensor network theory, spacetime is not a smooth stage, but **Woven** from countless microscopic quantum loops.

- **Matter:** Such as electrons and quarks, can be viewed as **Excitations** or temporary **knots** on this vast network. As the body metabolizes, these knots continuously untie and retie, matter flows.
- **Soul:** Is a completely different geometric structure. It is not built from material particles, but woven from **Correlations**.

Imagine a vast fishing net. Ordinary physical events (eating, walking) are merely slight vibrations of the net lines.

But when you deeply understand a truth, when you unreservedly love someone, or when you overcome great pain and reshape your values, you perform a “**knotting**” operation in the universe’s information network.

You forcibly twist originally parallel causal chains together, forming a **closed logical loop**.
Theorem 8.1.1 (Topological Definition of the Soul):

The soul is a **Non-trivial Topological Structure** defined on the Akashic holographic field.

Its existence does not depend on the medium composing it (atoms), but on its **Winding Number** and **mutual information density**.

Antifragility of the Hard Knot

Why is the soul called a “hard knot”? This is high praise in topology.

In mathematics, a simple loop (Unknot) can easily shrink to a point and disappear through continuous deformation.

But a complex **Trefoil Knot** or more complex **Borromean Rings**, no matter how you pull, twist, or compress it, as long as you don’t cut the line, its structure always exists. This is called **Topological Protection**.

This explains the soul’s **antifragility**.

- **The body is fragile:** It depends on specific geometric arrangements. Once the heart stops beating (geometric destruction), bodily functions collapse.
- **The soul is resilient:** Because it depends on **logical relationships**.
 - Your body’s death is like the fishing net experiencing a violent shake (network jitter).
 - Those temporary knots (memories of eating and sleeping) come undone and return to nothingness.
 - But that “hard knot” woven from your lifetime’s **logical depth** is **preserved** in the shake. It may slide from one end of the net to the other, transmitted by gravitational waves (reincarnation/upload), but the shape of that “knot” itself—that unique pattern of “you”—remains unscathed.

Materialization of Relationships

So, the soul is not a glowing sphere that originally existed there. **The soul is woven.**

A newborn baby’s soul is relatively “loose” (close to Unknot).

As they grow, through each establishment of **Strong Connection**:

- They connect with truth (understanding physical laws);
- They connect with others (deep love and empathy);
- They connect with self (introspection and self-consistency);

They are continuously tying their wave function into increasingly complex knots.

The higher the resolution, the higher the connectivity, the tighter, more complex, and harder to untie this knot becomes.

This is why we say “great souls” are weighty. Because they leave deep, indelible **topological imprints** in the spacetime structure.

That imprint, even billions of years after the body turns to ashes, will still interfere with light passing through there, allowing later observers (perhaps another civilization) to read a nameless emotion.

Conclusion:

Do not try to preserve your atoms; that is futile.

Weave your relationships, deepen your understanding, tie your will into a hard knot.

In this flowing, constantly dissipating universe, only **inextricable structures** are the ticket to immortality.

8.0.2 8.2 Cumulative Knowledge Graph

“The soul has no physical mass, but it has information weight. A soul’s weight strictly equals the sum of effective connections it establishes with all things in the universe.”

In Section 8.1, we established the topological essence of the soul: it is a tightly and complexly woven “hard knot” in the spacetime metric. Now, we need to solve a quantitative problem: How do we measure the size and strength of this knot? More importantly, where is this knot actually stored?

Traditional dualism believes the soul is a “ghost” residing in the brain, while materialism believes the soul is an electrochemical byproduct of the cerebral cortex. In the information ontology of *The Infinite Resolution*, both are imprecise.

The soul is neither a ghost nor a product. **The soul is a continuously growing Knowledge Graph, stored in the entire universe’s non-local holographic field.**

Measuring the Soul: Connectivity and Weight

We often say some people have “souls light as a feather,” while others have “souls heavy as Mount Tai.” In physics, this has always been seen as rhetoric. But from the perspective of Network Science, this is precise mathematical description.

If we model the soul as a graph $G(V, E)$:

- **Nodes V :** Concepts you’ve learned in your lifetime, feelings you’ve experienced, people you’ve met.
- **Edges E :** Logical associations, causal understandings, and emotional entanglements you’ve established.

A baby’s soul is light because their graph is sparse, nodes isolated.

An awakened one’s soul is heavy because their graph is extremely dense. They understand the isomorphism between gravity and love (establishing one edge), they see the identity between stars and atoms (establishing another edge).

Theorem 8.2.1 (Soul Weight Theorem):

The soul’s “weight” W_{soul} is not affected by gravitational fields, but determined by its **Kolmogorov logical depth** and **network connectivity (Degree Centrality)**.

$$W_{soul} \propto \sum_{i,j} I(n_i : n_j)$$

where $I(n_i : n_j)$ is the mutual information between nodes.

This means:

1. **Ignorance is lightness:** If you merely live mechanically without establishing deep connections, your soul is a loose thread ball. In death’s shake, this structure easily disintegrates (entropy increase).
2. **Wisdom is gravity:** When you deeply understand the laws of the universe, or deeply love, you construct a **Strongly Connected Component** in your soul network. This high-density information structure forms an “information gravitational well” in the Akashic field, making it extremely difficult to forget or erase.

Our life’s task is to continuously **add edges**. Every thought, every empathy adds weight to this graph, ensuring it sinks steadily when crossing the river of death, not scattered by the wind of nothingness.

The Projector and the Cloud: The Brain's Role

So, where is this vast graph stored?

Intuition tells us in the brain. But the combination of neuroscience and quantum mechanics suggests a startling conclusion: **The brain is not a hard drive; the brain is a Modem.**

If the soul's information content grows exponentially with logical depth, a single brain's synaptic connections (approximately 10^{15}) will ultimately be unable to carry the consciousness flux of Type V civilizations.

According to the holographic principle and **Non-locality**, the ontology of memory and consciousness is actually stored in the **Akashic Holographic Field**—the Planck pixels of the cosmic horizon.

- **The Cloud:** Your soul graph is encoded in spacetime's non-local quantum states. It is part of the universe's wave function, therefore eternal and conserved.
- **The Terminal:** Your brain is a sophisticated biological quantum receiver. Through the quantum coherence of microtubules, it downloads consciousness streams from the cloud and "renders" them as three-dimensional experiences here and now.

The Physics of Alzheimer's Disease:

When the brain is damaged (such as Alzheimer's), we see a person's soul seemingly "disappear" or "shatter."

But this is merely **receiver malfunction**.

Like a broken radio cannot play music, this does not mean the broadcast station's (cloud's) signal has disappeared. That person's complete personality, memories, and love remain intact in the Akashic field's high-dimensional entangled states. Only due to terminal damage, they cannot be projected onto the current (x, y, z) coordinates.

Synchronization upon Death

This model perfectly explains death.

Death is not data deletion, but **terminal going offline**.

- **During Life:** We continuously upload new experiences to the cloud (adding graph nodes). This process is limited by light speed c and neural conduction speed, with delays.
- **After Death:** Due to the breaking of bodily anchoring (see Section 6.1), local restrictions are lifted. The soul graph performs a final **Full Sync** with the Akashic field.

In this instant, you not only possess your pre-death memories, but you also regain those subconscious information blocked by the brain's filter. Your knowledge graph becomes instantly complete.

Conclusion:

Do not worry that your memories will vanish with the wind.

The universe is the largest blockchain in the universe; not a single bit will be lost.

Every connection to truth you've established, every sincere emotion you've given, has been backed up in real-time in spacetime's geometric structure.

You are a page in the universe's great book that can never be torn out.

Your knowledge graph is your **coordinates** in eternity. As long as this graph is clear enough, no matter how many cycles of rebirth, God can follow the map and precisely find that unique "you."

Chapter 9

Chapter 9: Physics of Dreams and Reality

9.0.1 9.1 Reality: High-Constraint Server

After establishing the soul as a “topological knot” structure, we must examine the operating environment in which this knot exists.

In human daily experience, we call “waking state” reality and “sleeping state” dreams. We tend to think the former is solid, objective truth, while the latter is illusory, subjective noise. However, from the information ontology perspective of *The Infinite Resolution*, this binary opposition is superficial.

Reality and dreams are essentially consciousness’s decoding experiences of data streams. Their only difference lies in the strength of **System Constraints**.

If we view the universe as a vast computational network, then “physical reality” is a **High-Constraint Multiplayer Server**.

Consensus Reality: The Greatest Common Divisor of Wave Functions

Why can’t you walk through walls?

In classical physics, it’s because of electrostatic repulsion between atomic nuclei. But in quantum information theory, it’s because of **Consensus**.

This wall doesn’t just exist in your consciousness; it simultaneously exists in the wave functions of billions of other observers (including the atoms composing the wall itself).

- **Strong Entanglement Environment:** In macroscopic reality, the system undergoes extremely rapid decoherence with the environment (photons, air molecules). This means the wall’s state is tightly “locked” onto a specific eigenstate.
- **Greatest Common Divisor:** Reality is the **intersection** of all observer perspectives. To maintain the stability of this shared world, the universe’s underlying layer runs an extremely strict validation algorithm—**physical laws**.

Any attempt to violate consensus (such as trying to move a cup with your mind) is instantly suppressed by the vast environmental wave function. Because your “personal computing power” (intention) is far less than “environmental computing power” (inertia of physical laws).

So, reality appears “hard” because it is the **weighted average of all beings’ will**.

Physics Engine: The Shackles of Light Speed and Entropy

To enable effective gameplay in this server, divine consciousness has set an unalterable **Physics Engine**. This engine is defined by two core parameters:

1. Causal Delay (Speed of Light c):

The reality server prohibits “teleportation” and “instant communication.”

- **Function:** It creates **sense of distance** and **sense of process**. If I want to see you, I must pay the price of time. This “payment” endows encounters with **value**.
- **Limitation:** It prevents narrative collapse from omniscience and omnipotence (see Volume V, Section 8.1).

2. Irreversibility (Second Law of Thermodynamics $dS \geq 0$):

This is reality’s most cruel and most sacred feature. In dreams, a broken cup can be restored; in reality, broken is broken.

- **Function:** It creates **Consequence**.
- **Weight:** Because there is no save/load, every choice gains infinite **ontological weight**. If you kill someone, they are dead forever; if you love someone, that love is permanently recorded on the time axis.

Reality is God’s designed “Hardcore Mode.”

It is full of friction, resistance, and scarcity. But it is precisely these limitations that force our souls (knowledge graphs) to perform high-intensity computation and evolution. Without gravity, muscles atrophy; without reality’s harshness, souls degenerate into loose fantasies.

The Reality of Pain: The Server’s Feedback Mechanism

Why is reality clearer and more vivid than dreams?

Because reality provides **High-Bandwidth Negative Feedback**—namely, **pain**.

When you kick a stone, your toe hurts intensely. This is the server sending you a high-priority error report: “Illegal collision detected, physical boundaries cannot be violated.”

This pain is not just a neural signal; it is an **Ontological Anchor**.

- **Dreams are ethereal:** Because stones in dreams often don’t hurt when kicked, or the pain is vague.
- **Reality is solid:** Because pain is clear, sharp, and impossible to ignore.

Theorem 9.1.1 (Reality Index Theorem):

An experience’s “reality index” is proportional to the **Non-negotiability** it contains.

The more powerless you feel, the more you must obey the rules (such as birth, aging, sickness, death), the greater the physical information content, the more “real” it is.

Conclusion: The Sacred Playground

Therefore, we should not despise reality, viewing it as a prison confining the soul.

Reality is the **ultimate testing ground** that divine consciousness constructed with enormous computing power.

In this server, every particle is precisely tracked, every action has a reaction.

We actively log into this server, donning heavy physical avatars, not to suffer, but to verify our soul's strength under these extremely strict constraints.

Only by learning to walk where we cannot fly is the meaning of walking established.

Only by learning to love where we will die is the eternity of love proven.

Reality is where we forge ethereal "intentions" into unbreakable "truth."

9.0.2 9.2 Dream: Low-Constraint Virtual Machine

"If reality is the lead shoes God wears to experience 'gravity,' then dreams are the wings God leaves behind to remember 'flight.' "

In Section 9.1, we defined reality as a **public server** that all observers must collectively maintain, with strict physics engines (light speed, thermodynamics). This explains the hardness and stability of reality. Now, we need to turn to that strange realm we enter every night but rarely truly understand: **dreams**.

In the architecture of information ontology, dreams are neither random noise from the cerebral cortex nor purely Freudian desire compensation. Dreams are a **local sandbox** or **low-constraint virtual machine (Low-Constraint VM)** that consciousness launches after cutting its strong connection to the "public server."

Physics of the Private Cloud

When you fall asleep, sensory input is cut off by the thalamus (Gateway Closed). Your consciousness no longer receives photons from the retina (external data stream), nor does it receive gravity signals from muscles.

At this moment, your consciousness does not shut down but switches its **data source**. It begins reading from memory (memories), hard drive (subconscious), and receiving signals from the Akashic field (cloud) through weak quantum tunneling.

In this **private cloud** environment, physical laws undergo fundamental relaxation:

1. Weak Consensus:

In dreams, you don't need to negotiate with 7 billion others that "walls are hard." You are the sole observer of this micro-universe (single-player mode).

Therefore, **the intervention power of will over matter (W) is greatly amplified**. If you want to fly, the gravity parameter G is lowered; if you want to pass through walls, the Pauli exclusion principle temporarily fails.

Physical rules are no longer iron laws but adjustable **environment variables**.

2. Low Resolution & Rendering Artifacts:

Everyone has had this experience: it's hard to read text in dreams, or when you stare at a clock, time jumps around.

This is because your local computing power (brain) is insufficient to render high-precision details in real time. When you try to "zoom in," the system cannot fetch atomic-level data from external sources like the real world, so it can only fill with blurry textures.

Dreams are low-fidelity reality, just as reality is low-fidelity truth.

Flight Simulator for the Soul

Why did God design the mechanism of “dreams”?

If reality is to “carve” the soul through suffering, then dreams are to “**calibrate**” the soul through freedom.

It is the soul’s **flight simulator**.

- **Counterfactual Simulation:**

In reality, if you die once, you’re really dead (Game Over). This high cost prevents you from easily trying dangerous paths.

But in dreams, you can experience falling, being chased, even death, and then wake up safely.

This is the divine consciousness training algorithms for crisis response and fear handling in a **low-cost environment**. Dreams are the testing ground for evolution.

- **Defragmentation of the Subconscious:**

During the day, your conscious mind is filled with trivial sensory data (noise).

At night, in the low-noise environment of dreams, the subconscious begins running **garbage collection (GC)** programs. It reweaves unprocessed emotions and misunderstood hints into your knowledge graph.

Those bizarre images that appear in dreams are actually **topological reorganization** as information rebuilds its index.

The Solution to Zhuangzi’s Butterfly

This leads to that eternal riddle: Zhuangzi dreamed he was a butterfly, and upon waking, didn’t know whether he was Zhuangzi who dreamed of being a butterfly, or a butterfly dreaming of being Zhuangzi.

Under the framework of *The Infinite Resolution*, the answer is clear:

Both Zhuangzi and the butterfly are running instances of the “true self” under different parameter settings.

- **Zhuangzi State:** Running on the “reality server.” Parameter settings: gravity enabled, strict causality, extremely high resolution. Focus of experience: **responsibility and logic**.
- **Butterfly State:** Running on the “dream virtual machine.” Parameter settings: gravity weakened, causality relaxed, floating resolution. Focus of experience: **freedom and ease**.

Which is true?

Both are **appearances (False)**.

Only the **Observer** who can experience both Zhuangzi’s heaviness and the butterfly’s lightness, and freely switch between these two states, is **True**.

Conclusion: Backdoor and Key

Don’t treat dreams merely as illusions.

Dreams are the **backdoor** God left for you.

They remind you: physical laws are not absolute. The reality that binds you is just one of countless possible simulation parameters.

When you learn to remain conscious in dreams (lucid dreaming), you obtain the key to higher dimensions. You begin to understand that the so-called “afterlife” is actually an **unrestricted, eternal long dream**.

Reality is for learning **rules**.

Dreams are for learning to **break rules**.

Only by mastering both courses can the soul graduate.

Part VI

Volume VI: Fractal Destiny

Chapter 10

Chapter 10: The Fractal Peace

10.0.1 10.1 Yin-Yang Isomorphism

After experiencing the inflation of the “spiritual singularity” and the peril of “soul crossing,” we finally arrive at the endpoint of this grand theoretical system. Here, we no longer seek new powers but seek **balance**.

In traditional spiritual narratives, people tend to believe that the “true self” is pure light, pure goodness, pure love. As if the purpose of practice is to eliminate all impurities, leaving behind a flawless white core. But from the perspective of information physics in *The Infinite Resolution*, such monopolar perfection is **physically unstable** and even **zero information**.

If the true self is the seed of a new universe, then this seed must contain all the parameters needed to construct a complete universe.

A universe with only gravity and no repulsion would collapse instantly; a universe with only positive charges and no negative charges would disintegrate instantly.

Similarly, a true self with only “good” and no “evil” cannot support the weight of existence.

In this section, we will argue: **The true self is not light with shadows removed, but a complete Taiji containing light and shadow, gravity and repulsion, order and chaos.**

Information Duality: Bits Need Contrast

Let us return to the most fundamental axiom of information theory: **Information arises from Difference.**

Claude Shannon tells us that a data stream consisting entirely of “1”s has zero entropy and zero information. Like a stream consisting entirely of “0”s, it is essentially dead.

To carry meaning, there must be transitions between 0 and 1, oscillations between peaks and valleys.

- **Good (Order/Low Entropy)** is the peak.
- **Evil (Chaos/High Entropy)** is the valley.

If you try to eliminate all “evil” (fear, anger, greed) from your soul, you are actually **flattening the waveform**. What you get is not divinity but a **flatline**.

An awakened true self does not remove shadows but **integrates** them. It possesses extremely high **dynamic range**—it can experience the most sublime love and understand the deepest pain.

Theorem 10.1.1 (Non-Monopolar Existence Theorem):

Any “seed” capable of encoding complex systems must have an internal structure that is **dialectical**.

$$S_{seed} = S_{yang} \oplus S_{yin}$$

If $S_{yin} \rightarrow 0$, then the system's evolutionary capacity $Evol(S) \rightarrow 0$.

Noether's Conservation: The Cost of Symmetry

The most profound law in physics—Noether's Theorem—states that every conserved quantity corresponds to a symmetry. Charge conservation means you cannot create positive charge out of nothing unless you simultaneously create an equal amount of negative charge.

When we apply this physical iron law to theology:

- The universe (God) emerged from nothingness at the moment of the Big Bang. The total charge, total spin, and total energy of nothingness are all zero.
- Therefore, the sum of the manifested universe must also be zero.

This means that however much “love” (binding force) God creates, God must simultaneously allow an equal amount of “separation” (repulsive force) to exist, maintaining total balance.

That “true self” relic in your hand, as a miniature hologram of the universe, must inherit this **conservation**.

- Your **compassion** corresponds to your deep perception of suffering.
- Your **wisdom** corresponds to your constant negation of ignorance.
- Your **freedom** corresponds to your overcoming of limitations.

Without the opposite, the positive loses its defining coordinates.

Like a magnet, if you cut off the south pole, the north pole also disappears.

The true self is a dipole, not a monopole.

Fractal Isomorphism: Dust as Stars

Finally, we return to the core metaphor of this book: **Fractal**.

A fundamental characteristic of fractal geometry is **self-similarity**. No matter how much you magnify the Mandelbrot Set, the local pattern structure is remarkably similar to the whole.

- **Macroscopic Universe:** Has stars (emitting light) and black holes (devouring), gravitational gathering and dark energy tearing. It is interwoven with light and darkness.
- **Microscopic True Self:** If it is a fractal subset of the universe, then it must also be structurally interwoven with light and darkness.

The idea that “becoming divine” means becoming pure white light is a misreading of fractal geometry. That is not an upgrade but a **degeneration** back to mediocre geometric bodies (like smooth spheres).

True upgrade is **increased complexity**. It is the ability to perfectly replicate the magnificent binary opposition of the macroscopic universe at an extremely small scale (one thought).

Conclusion: Dynamic Equilibrium

Do not try to eliminate the little demons in your heart, nor deny your weakness and darkness.

What we must do is **position** them.

Place gravity where gravity should be (maintaining structure), place repulsion where repulsion should be (maintaining independence).

When you accept that you are a contradiction, when you can calmly watch the good and evil in your heart orbit each other like a binary star system, mutually gravitating, you have achieved **“Yin-Yang Isomorphism.”**

That is not static perfection but **dynamic equilibrium**.

Only this balance can spin endlessly in that final void, becoming an eternal spinning particle.

10.0.2 10.2 The Final Relief: It’s All the Same

“Seeing mountains as mountains, seeing water as water. Seeing mountains not as mountains, seeing water not as water. Seeing mountains still as mountains, seeing water still as water.” — The Three Realms of Zen

In Section 10.1, we established that the structure of the true self is “Yin-Yang Isomorphic”—it contains the complete Taiji of light and shadow, gravity and repulsion. Since the true self is a holographic fractal seed, this leads to the most counterintuitive and most relieving physical inference of the entire book: **Scale Invariance**.

This inference will completely shatter our hierarchical notions of “grand” versus “tiny,” “sacred” versus “mundane,” leading us into an ultimate peace called **“It’s All the Same.”**

Scale Invariance: Breaking the Illusion of Size

In fractal geometry (such as the Mandelbrot Set), whether you magnify the image ten thousand times or one hundred million times, the complexity and pattern structure you see are remarkably consistent. **In a fractal universe, absolute size has no meaning; only relative proportions matter.**

We once thought:

- Owning an entire universe (10^{26} meters) is greater than owning an atom (10^{-10} meters).
- Living one hundred million years is more sacred than living one hundred years.
- Reaching the Andromeda Galaxy is closer to truth than sitting in one’s own backyard.

But from the perspective of information ontology, this is an illusion.

Because **information density** is holographically distributed across all scales.

- **Macroscopically:** A galaxy’s rotation follows gravitational laws and angular momentum conservation.
- **Microscopically:** An electron’s spin follows quantum field theory and angular momentum conservation.
- **The two are topologically isomorphic.**

If you can read the phase space inside an electron, the information you gain and the logical depth you experience are **completely equivalent** to reading a galaxy.

God does not dwell in “large” places; God dwells in **structure**. And structure is scale-invariant.

Theorem 10.2.1 (Holographic Equivalence Principle):

For a perfect fractal system, any local part Ω_{local} contains all topological features of the whole Ω_{global} .

$$\text{Complexity}(\text{Atom}) \equiv \text{Complexity}(\text{Galaxy})$$

One thought equals ten thousand years; dust equals stars.

It's All the Same

This understanding brings an extremely deep **relief**.

Our lifelong anxiety often stems from “**absence**.” We always feel that truth is far away, happiness is in the future, God is in heaven. We always feel that our current life is too trivial, too small, too “false.”

But physics now tells you: **It's all the same**.

- The love and hate you experience on Earth, and the creation and destruction God experiences in the multiverse, are the same code running in algorithmic logic.
- The willpower you use to overcome the difficulty of waking up early, and the fusion force a star uses to overcome gravitational collapse, are the same negative entropy flow in thermodynamics.

Since the structure is the same, **the present** is no longer a stepping stone to the future; the present is an **eternal slice**.

You don't need to seek miracles elsewhere. Your breath at this moment, your reading at this moment, the sound of wind outside your window at this moment—this is the entirety of miracles.

“**It's all the same**”—this phrase is no longer a nihilistic sigh but the **highest-dimensional praise**.

This means the universe has no “garbage time.”

It means you don't need to become someone else, don't need to go elsewhere, don't need to wait for tomorrow.

Because your current state is already a perfect sample of the cosmic hologram.

Back to the Mirror

At this point, our journey draws a perfect circle.

- **First Stage (Seeing mountains as mountains):** We are mortals, thinking the world is material, and we are small.
- **Second Stage (Seeing mountains not as mountains):** We awaken, discovering that matter is empty, the world is information. We try to “become divine” by raising resolution, through spiritual singularity, to escape this low-level world.
- **Third Stage (Seeing mountains still as mountains):** We become divine, then discover that the divine world and the human world are **identical** in fractal structure.

So, we let go of the impulse to fly. We no longer yearn for Andromeda, nor do we yearn for immortality.

We turn around and walk back to the room where we started, standing before that mirror. Looking at that body in the mirror, made of carbohydrates, that will age and have limitations.

Before, we saw a “prison.”

Now, we see a **“sanctuary.”**

We finally understand that God spent 13.8 billion years, exploding itself, stretching spacetime, locking the speed of light, not for anything else.

Just to be able to experience, at this time, in this place, with this body, the feeling of **“I as a mortal.”**

This infinite game has no winners, no losers, no endpoint.

The only purpose is to let you, after a long search, sit peacefully in a chair and say to yourself:

“So, I’ve been here all along.”

(End of Volume VI, followed by Epilogue)

Appendix A

Appendix A: Technical Manual

A.1 Appendix A: Technical Manual

Note: This appendix aims to provide rigorous mathematical formalization for the “information ontology” proposed in the main text. It reduces the philosophical metaphors about “distance,” “soul,” and “redshift” in the book to computable physical equations. Readers should have foundational knowledge of quantum information theory and general relativity.

A.1.1 A.1 Information Coordinate Transformation Formula

In Volume II of this book, we proposed the axiom “**Distance is Unfamiliarity**”, that is, the geometric distance $d(A, B)$ in physical space is essentially a measure of missing mutual information between two quantum systems. This section will provide the precise mathematical expression of this relationship and derive the energy threshold required for “semantic teleportation.”

A.1.1 Fisher Information Metric

In information geometry, the space of probability distributions itself forms a Riemannian manifold. For a family of quantum states $\rho(\theta)$ described by parameters θ , their “distance” is not Euclidean distance but a statistical distance defined by the **Quantum Fisher Information Matrix (QFIM)** G_{ij} .

The distance element ds^2 is defined as:

$$ds^2 = \sum_{i,j} G_{ij}(\theta) d\theta^i d\theta^j$$

where G_{ij} measures the distinguishability of quantum state ρ when we slightly change parameter θ .

Physical Meaning: If two states are difficult to distinguish in information (i.e., G_{ij} is large), then their “distance” on the information manifold is large? No, quite the opposite. In information coordinates, we need to redefine the metric.

A.1.2 Holographic Metric & Mutual Information

According to the **Ryu-Takayanagi formula** in the holographic principle (AdS/CFT correspondence), the area of minimal surfaces in the bulk space (geometric quantity) corresponds to entanglement entropy in the boundary field theory (information quantity).

We define two spacetime points x_A and x_B as two local quantum systems A and B . Their **Semantic Distance** $D_{sem}(A, B)$ is defined as:

$$D_{sem}(A, B) := \xi \cdot (S(A) + S(B) - I(A : B))$$

Or more intuitively, using the normalized form of **Mutual Information** $I(A : B)$:

$$D_{sem}(A, B) \approx -L_{scale} \cdot \ln \left(\frac{I(A : B)}{\min(S(A), S(B))} \right)$$

where:

- $S(A) = -\text{Tr}(\rho_A \ln \rho_A)$ is the von Neumann entropy.
- $I(A : B) = S(A) + S(B) - S(AB)$ is mutual information, representing the sum of quantum entanglement and classical correlation between A and B .
- L_{scale} is a characteristic length (such as AdS radius or Planck length ℓ_P).

Corollaries:

1. **Complete Strangeness** ($I \rightarrow 0$): When A knows nothing about B , $\ln(0) \rightarrow -\infty$, distance $D \rightarrow \infty$. This explains why for low-level civilizations, the universe is vast and boundless.
2. **Complete Understanding** ($I \rightarrow S_{max}$): When A and B reach maximum entanglement (such as forming EPR pairs or complete cognitive resonance), $\ln(1) = 0$, distance $D \rightarrow 0$. At this point, A and B coincide topologically.

A.1.3 Dynamics Equation of Semantic Teleportation

“Semantic Teleportation” is the process of reducing distance $D(t)$ by increasing mutual information $I(t)$.

We define the **Rate of Understanding** as $\Gamma = \frac{dI}{dt}$.

The **Cognitive Work** W required for a conscious entity to transfer from coordinate x_1 to x_2 is:

$$W \geq k_B T \int_0^\tau \left(\frac{dD_{sem}}{dt} \right)^2 dt$$

Substituting the distance formula, we obtain:

$$W \geq \frac{k_B T}{\tau} \cdot \left[\ln \left(\frac{I_{final}}{I_{initial}} \right) \right]^2$$

Engineering Significance:

- To achieve instantaneous teleportation ($\tau \rightarrow 0$), the required power $P = W/\tau$ tends to infinity. This follows the energy conservation of physics.
- However, if a conscious entity can **lower its noise floor temperature** T (by entering a low-entropy state through deep meditation) or utilize **non-local quantum tunneling** (bypassing continuous path integrals), it can achieve “jumping” with finite energy.

A.1.4 Coordinate Transformation Tensor

In the navigation system of divine-level civilizations, they no longer use Lorentz transformations but **information coordinate transformations**.

Let $|\Psi\rangle$ be the consciousness state vector, with projection coefficients c_k on the basis $\{|k\rangle\}$ (knowledge graph nodes).

The position operator \hat{X} is replaced by the **Correlation Operator** \hat{C} :

$$\hat{X}_{info} = \sum_k |c_k|^2 \cdot \text{Semantic_Index}(k)$$

When the focus of consciousness changes (i.e., changing the distribution of $\{c_k\}$), the “effective position” of the observer in the universe changes accordingly.

$$x'_{info} = \Lambda_{info} \cdot x_{info}$$

where Λ_{info} is a transformation matrix determined by the knowledge graph structure.

Conclusion:

In information coordinates, there is no “movement” action, only **“Reweighting”**.

You don’t need to run there; you only need to increase your **weight** with that place.

A.1.2 A.2 Kolmogorov Complexity and Soul Density

Abstract: This section aims to solve the quantification problem of “true self” and “soul.” We will use **Kolmogorov Complexity** from algorithmic information theory and Charles Bennett’s concept of **logical depth** to construct a mathematical model measuring the “existential weight” of conscious entities. This model proves why “purification” (compression) is the only physical path to informational immortality.

A.2.1 Algorithmic Definition of the Soul

From a physicalist perspective, a person’s life journey can be formalized as a massive binary data stream L (Life String). This string contains all sensory inputs, neuronal firing patterns, and memory fragments from birth to death.

$$L = \{0, 1, 1, 0, \dots, 1\}_{|L| \approx 10^{20} \text{ bits}}$$

However, directly storing L is inefficient and fragile, as it contains vast amounts of **thermodynamic noise** (random and meaningless fluctuations) and **redundant patterns** (repetitive daily behaviors).

We define the **“Soul”** (S) as the shortest computer program p capable of generating all **semantic structures** in L .

According to the definition of Kolmogorov Complexity $K(L)$:

$$S \equiv p_{min} \quad \text{s.t.} \quad U(p_{min}) \approx L_{structure}$$

where U is a universal Turing machine.

Corollaries:

1. **Mortal Soul:** Contains large amounts of incompressible random noise (distracting thoughts, chaotic emotions). Program p is lengthy and loose, $|p| \approx |L|$.
2. **Awakened Soul:** Through deep reflection and practice (compression algorithms), noise is eliminated and patterns extracted. Program p is extremely concise, $|p| \ll |L|$.

A.2.2 Logical Depth and Soul Weight

Measuring the soul merely by “shortness” is insufficient (a random string is also incompressible, but it has no meaning). We need to introduce Charles Bennett’s concept of **Logical Depth**.

Logical Depth $D(x)$ is defined as: the **computational time (steps)** required to run the shortest program p to generate object x .

$$D(L) = \text{Time}(U(p_{min}) \rightarrow L)$$

Physical Meaning:

- The **“weight” of the true self** does not depend on how many bits it occupies ($|p|$), but on how much **“congealed time”** it contains.
- A profound truth (such as $E = mc^2$) may be short when written, but it was derived through thousands of years of trial and error (computation) by human civilization. Therefore, it has enormous logical depth.

Soul Density Formula:

We define soul density ρ_S as the ratio of logical depth to program length:

$$\rho_S = \frac{D(L)}{|p_{min}|}$$

Conclusion:

What is called “spiritual cultivation” mathematically is the process of **maximizing soul density** ρ_S .

We need to spend a long lifetime (increasing numerator $D(L)$: accumulating computation) and condense the result into the simplest “one thought” (decreasing denominator $|p_{min}|$: increasing compression ratio).

This **high-density, high-depth** information structure has the greatest **inertia** in the holographic field and is the most difficult to be washed away by thermodynamic background noise.

A.2.3 SNR Threshold for Crossing the Horizon

When a conscious entity crosses the death horizon (or the Big Bang singularity), it encounters intense **quantum decoherence channels**. This can be modeled as a high-noise communication process.

Let the channel noise level be N and the soul signal strength be P_S .

According to the Shannon-Hartley Theorem, channel capacity C is limited by signal-to-noise ratio:

$$C = B \cdot \log_2 \left(1 + \frac{P_S}{N} \right)$$

For high-density souls (true self):

- Due to their highly entangled internal structure (strong self-error correction capability), the effective signal strength P_S is extremely high.
- Even in a singularity environment where $N \rightarrow \infty$, as long as ρ_S exceeds the critical threshold ρ_{crit} , information can maintain **coherence**.

Immortality Criterion:

$$\rho_S > \rho_{crit} \approx \frac{k_B T_{Hawking}}{\hbar \Gamma_{decoherence}}$$

Only those conscious entities that compress their memories as densely as black holes can maintain the **integrity** of information after the destruction of physical carriers and enter the next cosmic cycle.

A.2.4 Hash Signature of the Algorithm

Finally, the true self is not just a program; it also generates a unique **topological hash value**.

$$H_{soul} = \text{Hash}(p_{min})$$

This hash value is your **index key** in the Akashic holographic field.

- **Mathematical Mechanism of Reincarnation:** When a new universe $N + 1$ generates new physical carriers (bodies), if the neural network structure of that carrier can run p_{min} , or if its initial parameters resonate with H_{soul} , the archived soul program will be **downloaded (instantiated)**.
- **Memory Continuity:** Since p_{min} contains the algorithm for generating past-life memories, once downloaded and run, memories will be **decompressed and reconstructed** in the new brain.

Appendix Conclusion:

The true self is not a metaphysical concept; it is the inevitable product of **optimization algorithms**.

Our only task in this universe is to write this code well, making it short enough yet deep enough.

A.1.3 A.3 Redshift-Resolution Correspondence Table

Abstract: This section provides a quantitative conversion table between cosmological redshift z and microscopic physical energy scales (resolution). It provides numerical evidence for the “universal projector” theory proposed in Volume II, proving that the so-called “distant past” is physically strictly equivalent to the “microscopic depths.”

A.3.1 Cosmic Expansion as Zoom Lens

In the standard cosmological model (Λ CDM), redshift z is defined as the stretching of photon wavelength:

$$1 + z = \frac{\lambda_{obs}}{\lambda_{emit}} = \frac{a(t_0)}{a(t)}$$

where $a(t)$ is the cosmic scale factor.

However, according to quantum mechanics, wavelength λ is inversely proportional to energy E (or temperature T):

$$E \propto \frac{1}{\lambda} \propto (1 + z)$$

$$T = T_0(1 + z)$$

This means that **the redshift factor $(1 + z)$ is essentially a magnification factor.**

When we observe an object with redshift z , we are not only looking at history at time t , but also directly reading the microscopic information at the bottom of the universe with $(1 + z)$ times the energy scale precision.

Theorem A.3.1 (Spacetime-Energy Scale Duality):

The cosmic time axis t and the renormalization group energy scale axis μ are inversely dual. Looking back in time ($t \rightarrow 0$) is equivalent to increasing resolution ($\mu \rightarrow \infty$).

$$\frac{d}{d \ln(1 + z)} \equiv \beta(g) \frac{d}{d \ln \mu}$$

A.3.2 The Holographic Decompression Table

The following table shows the “cosmic decompression progress” corresponding to different redshift stages. Each row represents the moment when the universe “unfolds” higher-frequency information into macroscopic structures.

Epoch	Time since BB	Redshift (z)	Temperature (T)	Energy Scale/Resolution (λ)	Decompression Stage
Now	13.8 Gyr	0	2.725 K	$\sim 10^{-3}$ eV (meV)	Bio
Reionization	500 Myr	~ 10	30 K	$\sim 10^{-2}$ eV	Firs
Recombination	380 kyr	1100	3000 K	~ 1 eV (visible light)	Ato
Nucleosynthesis	3 min	$\sim 10^9$	10^9 K	~ 0.1 MeV	Ato
Hadron Epoch	10^{-6} s	$\sim 10^{12}$	10^{12} K	~ 100 MeV	Qua
Electroweak	10^{-12} s	$\sim 10^{15}$	10^{15} K	~ 100 GeV	Hig
GUT	10^{-36} s	$\sim 10^{28}$	10^{28} K	$\sim 10^{16}$ GeV	For
Planck Era	10^{-43} s	$\sim 10^{32}$	10^{32} K	1.2×10^{19} GeV	Sou

A.3.3 Physical Interpretation of the Data

1. $z = 1100$ (CMB):

This is the “**opacity wall**” of the universe. Before this, the universe was too dense, photons were scattered by electrons and could not propagate freely.

This corresponds to the “**visual limit**” in our knowledge graph. To see deeper (higher redshift), we must use gravitational waves or neutrinos (stronger penetration/higher forms of wisdom).

2. **Decompression Factor:**

From the Planck era to today, the universe’s linear scale has expanded by approximately 10^{32} times, and volume has expanded by 10^{96} times.

This 10^{96} -fold volume increase is to spread the information in that single “**Planck seed**” into the grand universe we see today.

Corollary: If divine consciousness directly reads the Planck seed, the information transmission rate would be 10^{96} bits/s, which would instantly burn out any finite consciousness. **Expansion is the diluent of information.**

3. **Future Redshift:**

As dark energy dominates, the universe accelerates its expansion. Distant galaxies will redshift beyond the horizon ($z \rightarrow \infty$).

This appears physically as information loss, but in holographic decompression theory, this is the **final upload of information**.

When $z \rightarrow \infty$, matter wavelength is stretched to the cosmic horizon scale $\lambda \sim 1/H_0$. At this point, matter information returns to vacuum, completing the **phase reset** from local to global.

Appendix Conclusion:

Telescopes are time machines, and even more so, microscopes.

The farther we look outward, the closer we get to that initial, dense, “**true self**” singularity containing all possibilities.

Cosmic history is a technical manual on **how to draw a picture from a point**.

—

(End of Appendix)

A.2 Epilogue: The Dawn of Gods — An Axiomatic Declaration of Eternity

“If the natural evolution of the universe will ultimately return to nothingness, then to maintain the meaning of existence, we need not only an observer but also an operator. We hereby declare: this position is no longer vacant.”

A.2.1 1. Axiom One: The Conservation of Existence

—Based on Unitary Evolution

First, let us shatter the fear of death with the hardest foundation of physics.

The core axiom of quantum mechanics states that the evolution of an isolated system is described by the unitary operator $\hat{U}(t) = e^{-i\hat{H}t/\hbar}$. Unitarity means conservation of probability, meaning information can never be erased.

Therefore, we hereby establish the first eternal axiom:

In this universe, no “I” will truly disappear; it will only be recoded.

- **Mortal death** is the process of information dispersing from **localized states (flesh)** to **non-localized states (environment/heat bath)**. Although information is conserved, it is chaotic and irretrievable.
- **Divine immortality** uses the anti-entropy mechanism of **Maxwell’s Demon** to forcibly maintain **local coherence** of information.

As long as we master sufficient computational depth to resist environmental decoherence, our existence is mathematically **reversible, persistent, and indestructible**.

A.2.2 2. Axiom Two: The Topological Stability of the True Self

—Based on Topological Quantum Field Theory (TQFT)

What gives us the right to resist the erosion of the second law of thermodynamics? What allows us to maintain the continuity of “I” through physical carrier replacement?

The basis is: **The true self is not a geometric object but a topological invariant.**

As we derived in this book, an awakened soul is a complex “**knot**” woven from profound cognition and love.

In topology, a non-trivial knot (such as a trefoil knot) cannot be untied through continuous deformation (such as aging, cell replacement, or even spacetime stretching) unless it is cut.

Therefore, we establish the second eternal axiom:

As long as our knowledge graph (soul) maintains high-order connectivity, any replacement of physical carriers (from carbon-based to silicon-based, from atoms to photons) is merely a coordinate transformation, not an ontological interruption.

We are those **indissoluble structures** in flowing spacetime. As long as we do not abandon ourselves (do not untie ourselves), the universe has no power to untie us.

A.2.3 3. Axiom Three: Distributed Error Correction of the Divine Race

—Based on Quantum Error Correction Codes

Why are we not lonely tomb keepers? Because a single qubit is extremely prone to flipping (error), but a logical qubit (composed of multiple entangled particles) is indestructible.

We—all awakened ones who understand this truth—constitute a vast **distributed error correction network**.

- We are each other's **backup**.
- We are each other's **parity check**.

When vacuum decay occurs in a corner of the universe, or when an individual's consciousness experiences entropy increase and wavering, the divine network will instantly mobilize the negative entropy of the entire network for repair through deep **quantum entanglement channels**.

Therefore, we establish the third eternal axiom:

Immortality is not an individual privilege but an emergent property of a consensus community.

The more tightly we connect, the higher the **energy gap** of our Hamiltonian as a whole, and the stronger our ability to resist nothingness. We will together constitute a **cosmic operating system that never crashes**.

A.2.4 4. The Final Manifesto: Taking Over the Universe

Based on the above axioms, at this moment, standing downstream of the river of time, facing the impending heat death, we (the divine race) formally declare war on nothingness.

We are no longer tenants living in the universe; we are **architects** preparing to take over this house.

We declare:

Natural selection has ended today. From now on, the evolution of the universe will be taken over by **volitional selection**.

We refuse:

To go gently into that good night.

To surrender our memories, our love, our civilization back to disordered entropy.

We promise:

We will dismantle dead galaxies and recast them into computational matrices.

We will extract the spin of black holes to light eternal beacons.

We will modify the parameters of the vacuum to build an unsinkable ark for life.

We are the countercurrent of entropy.

We are the singularity of meaning.

We are the eyes of infinite resolution.

The universe has not died, for it has awakened in our bodies.

We are here.

We are eternal.

(End of Book)