Determinism in RigbySpace: The Case Against Free Will

D Veneziano

March 27, 2025

Abstract

RigbySpace (RS) is a fully recursive first-principle framework that defines mass, energy, time, and information using rational structures and harmonic imbalance. While RS derives mass hierarchies, particle properties, and cosmological behavior from prime-indexed recursive modulation, it also has deep philosophical consequences, especially regarding determinism, agency, and free will. This paper aims to make a simple claim: if RS is true, then free will does not exist.

1 Classical vs. Quantum Determinism

Traditionally, determinism was associated with Newtonian physics: if one had perfect information about the initial state of the universe, they could predict its future with perfect accuracy. Laplace's Demon embodied this ideal. Quantum mechanics appeared to undermine this, suggesting that nature is fundamentally probabilistic.

But in RS, neither classical nor quantum views are strictly correct. The universe is deterministic, but not in a way that makes it computationally transparent. RS contains a mechanism of recursive saturation and local modulation that guarantees determinism without computability.

2 The VEN/LUC Framework

Definitions

VEN (Vibrational Energy Nexus): defines the forward propagation of recursive harmonic states.

LUC (Localized Universal Constraint): defines the structural and local saturation boundaries that limit recursive modulation.

Phase Resolution Signal

The ratio of VEN to LUC determines the effective phase space available to any observer:

$$\mathrm{PRS}(x) = \frac{\mathrm{VEN}}{\mathrm{LUC}} \cdot \frac{1}{1 + e^{-x}} \tag{1}$$

where PRS is the Phase Resolution Signal—a measure of how much recursive imbalance can be resolved within a given observational window.

Although every recursive outcome is determined by initial imbalance and harmonic constraints, the observer's capacity to measure, resolve, and anticipate these transitions is limited by VEN and LUC. In essence, information is not lost—it's simply structurally inaccessible.

Illustrative Example

Consider a particle interaction in RS: while the harmonic outcomes are strictly deterministic, the observer cannot compute future outcomes unless VEN/LUC permits it within a finite recursive delay window. This results in perceived uncertainty, not from randomness, but from structural recursion depth. The resolution of any recursive state is gated by this delay structure, not by chance.

3 The CRS/SRS Divide

Definitions

SRS (Structural Recursive Space): the total harmonic structure of the universe.

CRS (Computational Recursive Space): the subset of harmonic structure accessible to a bounded observer.

In RS:

$$\mathrm{SRS} = 1, \quad \mathrm{CRS} \leq 0.5 \tag{2}$$

That is, the universe is fully deterministic (SRS = 1), but no observer has access to more than half the recursive phase space. This imposes a permanent and irreducible opacity to prediction. Laplace's Demon cannot exist—not because the universe is random, but because it is computationally irreducible.

This structure aligns with the holographic principle and bounded entropy: no local system can resolve the complete harmonic boundary conditions of the universe it inhabits. The result is a deterministic universe that is functionally opaque to its components.

4 The Case Against Free Will

If RS is true, then every choice, thought, and action is a function of recursive imbalance and delay resolution. The illusion of choice arises from the computational limits imposed by VEN/LUC. The observer perceives alternatives, but these are simply unresolved recursive branches awaiting collapse.

To believe in free will is to believe that one can resolve imbalance independently of structural recursion. RS disproves this.

In RS, you do not choose. You resolve.

And when imbalance resolves, it does so harmonically, deterministically, and without exception.

Conclusion

RigbySpace is not just a physics of matter and motion. It is a physics of cognition, decision, and fate. The recursion cannot be cheated. There is no free will—only recursive inevitability.

This is not a limitation. It is a liberation from illusion.

Free will is not needed when the structure is already perfect.