

The Perpetual Consistency Framework (PCF): A Unified Theory of Probability, Quantum Determinism, and Cosmological Expansion

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Abstract

The Perpetual Consistency Framework (PCF) proposes a unified theory of physics centered on a single, continuous, active universal mandate: the drive towards **Perpetual Consistency** ($\mathcal{C} \rightarrow 1$). This mandate is mathematically quantified by the dimensionless Consistency Metric (\mathcal{C}) and physically enforced by the non-local Informational Singularity (IS) within all matter. The PCF resolves the quantum measurement problem through deterministic wave function collapse and simultaneously accounts for cosmological expansion via the Consistency Constant ($\Lambda_{\mathcal{C}}$) acting as Dark Energy.

1 Introduction

Modern physics is characterized by two profound, irreconcilable problems: the inherent stochasticity of quantum mechanics (the Measurement Problem) and the unexplained accelerating expansion of the universe (Dark Energy). This paper introduces the Perpetual Consistency Framework (PCF), a novel, teleological model that resolves both issues by positing a singular, active principle governing all scales of reality. We redefine the laws of physics as emergent properties of a continuous self-correction mechanism aimed at minimizing universal probabilistic variance.

2 Core Theory: Principles of Consistency Enforcement

The PCF is built upon non-negotiable principles that redefine the causal structure of reality.

2.1 Foundational Tenets

- **The Consistency Metric ($\mathcal{C} \rightarrow 1$):** All physical laws derive from a single mandate: to drive the universe towards a state of perfect probabilistic consistency, where the dimensionless metric \mathcal{C} approaches unity.
- **Non-Local Informational Singularity:** To enforce \mathcal{C} instantly, all particles contain an Informational Singularity (IS) that mediates instantaneous communication across the universe, providing the causal mechanism for entanglement and non-locality.
- **Active Universal Self-Correction:** The universe actively generates an accelerating, repulsive force to counterbalance the entropy inherent in natural evolution. This is quantified by the **Consistency Constant** ($\Lambda_{\mathcal{C}}$), which unifies the PCF with the established properties of Dark Energy.

2.2 Quantum Consistency Enforcement

The PCF provides a deterministic solution to the quantum measurement problem by introducing the Consistency Field ($\phi_{\mathcal{C}}$). Wave function collapse is not random; rather, the instantaneous non-local data provided by the Informational Singularity allows the Consistency Field ($\phi_{\mathcal{C}}$) to deterministically select the measured state that best minimizes instantaneous probabilistic variance, thus maximizing \mathcal{C} .

3 Mathematical Formalism: The Consistency Metric (\mathcal{C})

The universal mandate is formalized through the Consistency Metric (\mathcal{C}).

3.1 Defining Probabilistic Variance (\mathcal{V})

Probabilistic Variance (\mathcal{V}) is the universal measure of uncertainty and potential entropy, fundamentally tied to the information contained within the total wave function of the universe, Ψ .

$$\mathcal{V} \equiv \sum_i \left(P_i - \frac{1}{N} \right)^2 \quad (1)$$

Where P_i is the probability of outcome i , and N is the total number of possible quantum states available to the system.

3.2 The Consistency Metric (\mathcal{C})

The Metric is defined as the inverse relationship to the square of the maximum possible variance, normalized by a scaling factor (k):

$$\mathcal{C} \equiv 1 - k \cdot \mathcal{V} \quad (2)$$

The continuous, active attempt to enforce $\mathcal{C} \rightarrow 1$ is the driving force of the PCF.

4 Cosmological Implications and the Consistency Constant ($\Lambda_{\mathcal{C}}$)

The PCF provides a theoretical basis for the accelerating expansion of the universe. The natural increase in \mathcal{V} (entropy/variance) over time creates a deficit in \mathcal{C} . To correct this deficit and drive \mathcal{C} back toward unity, the universe must introduce a self-correcting force.

4.1 Unification with Dark Energy

The Consistency Constant ($\Lambda_{\mathcal{C}}$) is defined as the proportional, active self-correction force required to maintain the universal mandate. It operates as an anti-gravitational, repulsive energy density that increases the distance between matter, reducing the potential for complex, high-variance quantum interactions. The observed phenomena attributed to **Dark Energy** are the macroscopic manifestation of $\Lambda_{\mathcal{C}}$.

5 Conclusion

The Perpetual Consistency Framework offers a unified, deterministic, and physically grounded resolution to several of physics' greatest challenges. By positing a fundamental mandate of Consistency, the PCF transforms quantum indeterminacy into local, deterministic self-correction and integrates the unexplained force of Dark Energy ($\Lambda_{\mathcal{C}}$) into a coherent universal principle.