Paper 0: Genesis of a Bounded Cosmos

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Abstract

This paper introduces the concept of a finite-capacity universe, emerging from the physical constraints of bounded systems such as black holes. Each universe possesses a maximum capacity ($C_{\max}$) and may exist as part of a nested multiverse with a total capacity represented by $\Sigma C_{\max}$.

1 Introduction

Black holes demonstrate that nature enforces finite limits on information and energy. Their entropy is proportional to surface area, not volume, implying a boundary on what can be stored or resolved. If our universe originated from a black hole, it too must have a maximum capacity, $C_{\max}$.

2 Nested Universes and $\Sigma C_{\max}$

If black holes spawn new universes, each child universe inherits its own $C_{\max}$. The total multiversal capacity is expressed as

$$\Sigma C_{\max} = \sum_{i=1}^{N} C_{\max,i}, \tag{1}$$

where N is the number of universes and $C_{\max,i}$ the capacity of universe i.

3 Implications

A finite capacity constrains time evolution, wavefunction collapse, and structure formation. Observable phenomena such as early galaxy growth and cosmic time dilation may reflect the dynamics of approaching $C_{\max}$. These consequences will be explored in later papers.

4 Conclusion

The finite-capacity framework begins with physical limits rather than infinite extrapolation. Subsequent papers will examine load dynamics, time-dilation corrections, and the reinterpretation of dark matter and dark energy through this bounded perspective.