MU-CFT V: Coherent Singularities and the Topology of Black and White Holes (Mandrov Unified Coherent Field Theory)

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Abstract

This fifth part of the Mandrov Unified Coherent Field Theory (MU-CFT) explores the role of singularities in the topology of coherent fields. We reinterpret black holes, white holes, and event horizons as topological discontinuities in the dynamics of subjective and intersubjective coherence. These are not merely gravitational objects but cognitive, informational, and existential thresholds within reality structured by the observer's coherence field. The paper bridges cosmology, phenomenology, and field theory through a unified topological interpretation of collapse, rebirth, and coherent tunneling.

Contents

1. Introduction

This work expands MU-CFT into cosmological and topological domains by addressing black holes, white holes, and singularities as coherence phenomena. We propose that extreme gravitational structures correspond to breakdowns or reboots of coherent fields, with implications for identity, perception, and spacetime.

2. Topological Singularities in Coherent Fields

We define a singularity as a region where coherence becomes non-analytic:

$$\lim_{x \to x_s} \mathcal{K}(x) \to 0 \quad \text{or} \quad \nabla \mathcal{K}(x) \to \infty$$

These represent breakdowns in continuity, causality, or semantic meaning within the field.

3. Black Holes as Collapse of Coherence

A black hole is modeled as a stable attractor of decoherence:

- High mass $\Rightarrow$ High coherence density collapse
- Event horizon $\Rightarrow$ Causal boundary of prediction loss
- Singularity $\Rightarrow$ Point where $\mathcal{K}$ is undefined or divergent

4. Subjective Horizons and Cognitive Boundaries

MU-CFT allows subjective analogues:

- Mental collapse (e.g., psychosis)
- Near-death or ego death experiences
- Memory loss and derealization

These phenomena mirror black hole conditions in the psyche.

5. White Holes and Rebirth

White holes represent coherent expansion:

- Spontaneous emergence of identity
- Dream entry or lucid cognition
- Big Bang as coherent initialization

MU-CFT models this as:

$$\mathcal{K}(x,t) = \mathcal{K}_0 e^{\lambda t}, \quad t \geq 0$$

Where $\mathcal{K}_0$ is minimal viable coherence and λ is growth rate.

6. Tunneling Between Singularities

We define a transition operator:

$$\mathcal{T}_{\mathcal{K}} : \mathcal{F}_1 \to \mathcal{F}_2$$

Where $\mathcal{F}_1$ and $\mathcal{F}_2$ are distinct coherent fields separated by a decoherent zone. This resembles black-to-white hole tunneling or subjective transformation.

7. Coherent Gravity and Field Gradients

We propose that gravitational interaction is an emergent property of coherence gradients:

$$g \propto -\nabla \mathcal{K}(x)$$

This allows mass to be defined as a coherence attractor or stabilizer.

8. Psychological Singularities

Coherence collapse manifests in cognition as:

- Depression ($\mathcal{K}(t) \to 0$)
- Dissociative states
- Trauma-induced bifurcation

Therapeutic recovery becomes a reinitialization of coherence.

9. Holographic Coherence and Boundary Fields

Inspired by the holographic principle, we propose:

- Perceptual coherence at boundaries constrains internal structures
- Memory and identity can be stored on cognitive "surfaces"

$$\text{Interior Field State} \sim f(\mathcal{K}_{\text{boundary}})$$

10. Cosmological Implications of MU-CFT

MU-CFT provides:

- Reinterpretation of Big Bang as white-hole coherence initiation
- Dark energy as latent coherence field
- Singularity avoidance via coherence tunneling

11. Conclusion

MU-CFT V unifies black holes, white holes, and subjective collapse within a coherent topological framework. Singularities are not failures of physics, but structural limits of fields, marking the transitions between realities and identities.

"A singularity is not the end of reality — it is the reboot of its coherence."