

Beyond Spacetime: A Conceptual Critique of the "Four States of Space"

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The Proposition of Parsimony: Redefining Einsteinian Spacetime

In the relentless pursuit of a unified field theory, the principle of parsimony serves as both a scalpel and a guide. While Albert Einstein's integration of space and time into a four-dimensional manifold was a revolutionary leap in the early 20th century, the current theoretical impasse suggests that this synthesis may have been an incomplete reduction. The proposed "Four States of Space" framework posits that the drive for a truly parsimonious description of reality necessitates a further ontological reduction: the total elimination of time as an independent dimension. By collapsing the dualistic nature of spacetime into a singular spatial metric, the model attempts to resolve the complexities inherent in the Einsteinian continuum through a more direct, space-only inquiry.

The central epistemological pivot of this framework is the assertion that time lacks an independent ontological status. Rather than a fundamental fabric of reality, the model suggests time is a derivative measurement—specifically, a metric for the expansion of the empty spatial vacuum. By establishing the identity **empty space in motion = time**, the theory effectively transforms our understanding of the universe from a static 4D manifold into a dynamic 3D volume in a constant state of expansion. Evaluating this claim reveals a radical simplification: if time is merely the kinetic state of the vacuum, the perceived "flow" of history is simply the increasing dimension of the spatial background across the eons. This reductionist approach eliminates the need for temporal coordinates, suggesting that a space-only framework provides a more coherent basis for physical inquiry.

Conceptual Shift: Spacetime vs. Four States Model

Feature	Classical Einsteinian Spacetime	Proposed "Four States" Model
Fundamental Dimensions	Two integrated concepts: Space and Time.	A singular fundamental concept: Space.
Nature of Time	An objective phenomenon or fourth dimension.	A derivative measurement of spatial expansion.
Universal State	A four-dimensional manifold curved by mass.	A dynamic volume existing in four interactive states.
Interaction Mechanism	Curvature of the spacetime fabric.	Kinetic interaction between filled and empty space.
Conceptual Goal	Synthesis of temporal and spatial coordinates.	Parsimony through the total elimination of time.

This radical reduction of the temporal dimension necessitates a sophisticated taxonomy to categorize the observable behaviors of the universe within a purely spatial context.

The Taxonomy of Existence: Analyzing the Four States of Space

To construct a unified theory of motion and gravity absent the temporal dimension, the model establishes a strategic taxonomy of spatial configurations. Defining specific "states" of space is not merely a descriptive exercise but a necessary foundation for explaining all physical interactions as various modes of a single substance. This shift in perspective moves the discourse from the behavior of objects *within* space to the intrinsic properties of the various states that space itself can inhabit.

The framework identifies four distinct spatial states that constitute the totality of the physical world:

- **Empty Space:** The fundamental, expansive background of the cosmos; the "vacuum" in its primary state.

- **Filled Space (Mass):** A mass-bearing spatial state representing the tangible matter of the universe. This state is defined by its density and is "made of something," manifesting as the celestial and biological entities of our experience, including stars, planets, and human beings.
- **Stationary Space:** A theoretical limit characterized by the total cessation of motion. In this framework, this is a radical exception to the universal norm, occurring almost exclusively within the extreme conditions of a singularity.
- **Space in Motion:** The kinetic state of the empty vacuum, which provides the physical basis for what has traditionally been misidentified as "time."

This classification posits that every entity and phenomenon in the universe is a variation of a singular spatial medium, where the mechanical interaction between these states—specifically filled and empty space—generates the fundamental force of gravity.

Mechanics of Interaction: Gravity as a Spatial Warp

In this model, gravity is stripped of its status as an independent fundamental force and is instead redefined as a mechanical byproduct of spatial interaction. By viewing gravity through the lens of the "Four States," the framework provides a kinetic explanation for how mass-bearing space influences its environment without resorting to the curvature of a temporal dimension.

The gravitational mechanism is localized in the warping of empty space as filled space moves through it. As a mass-bearing spatial state—such as a star or planet—interacts with the expansive vacuum; it creates a spatial distortion. The intensity of this warp is a function of density; when filled space becomes sufficiently dense, it collapses under the magnitude of its own gravitational influence. This collapse represents the ultimate limit of spatial density, leading to the formation of black holes and, ultimately, singularities. In these extreme environments, the kinetic energy of space is overcome by density, forcing the transition from a dynamic state to a terminal state of stasis.

The cessation of motion at the gravitational limit necessitates an investigation into the stationary state—the final frontier of the spatial model and the bridge to the subatomic world.

The Stationary Limit: The Bridge Between Relativistic and Quantum Realms

A pivotal strategic insight of the "Four States" theory is the identification of motion as the primary variable separating the macro-scale and the micro-scale. The assertion that "the key is motion" implies that the divergence between General Relativity and Quantum Mechanics is not a matter of physical size, but rather a shift in the kinetic state of space itself. By making motion the dividing line, the model provides a potential resolution to the "size problem" that has long plagued unified field theories.

The model posits that while the relativistic universe is defined by constant movement—both the expansion of empty space and the movement of mass-bearing space through that vacuum—a transition occurs at the point of stasis. This "stationary state" is found within the singularities of black holes, where the standard rules of spatial motion are suspended. This state of stasis serves as the primary evidence for the boundary between the relativistic level and the quantum level. When both filled and empty space reach the stationary limit, the relativistic laws governing the macroscopic world cease to apply, giving way to the quantum realm.

This suggests that the fundamental distinction between the "large" and the "small" is an ontological shift triggered by the absence of spatial movement, framing the quantum realm as the domain of stationary space.

Synthesis: The Viability of a Unified Spatial Theory

The "Four States of Space" model offers a coherent attempt to unify disparate physical scales by stripping away the historical baggage of time. By identifying time as a measurement of the expansion of the vacuum and defining mass as a specific state of space, the framework seeks to explain motion, gravity, and the quantum-relativistic divide through a singular, multi-faceted medium. This "simpler theory" derives its strength from its internal logic: if the universe is a purely spatial construct, the tension between physics' various sub-disciplines can be resolved by identifying "motion" as the sole variable of differentiation.

Core Pillars of the Four-State Model

- **The replacement of time with spatial expansion:** An ontological reduction where "empty space in motion" serves as the true identity of time.

- **The definition of mass as "filled space":** Framing all matter—from celestial bodies like stars to biological entities like humans—as mass-bearing spatial states.
- **The role of "stationary space" in defining the quantum boundary:** Locating the transition to quantum physics at the point where spatial motion ceases, specifically within singularities.

Ultimately, the framework achieves the goal of a more parsimonious inquiry by reducing the complexity of the 4D manifold into a dynamic, 3D spatial volume. Whether this model can withstand the rigorous mathematical scrutiny of modern physics remains to be seen, but as a conceptual critique, it offers a compelling and logically consistent alternative to traditional Einsteinian spacetime.