



The Theory of Social Relativity

A Prospectus for a Unified Science of Society

Introduction

Why do societies rise, stabilize, and then seemingly inevitably, fracture and fall? For centuries, historians, economists, and philosophers have attempted to explain this grand oscillation of human order. From Polybius (200 BCE) and Ibn Khaldun (14th century), to Braudel (20th century) and Turchin at present – all have formulated some scientific code for understanding historical cycles. Our existing frameworks remain fragmented: economists model incentives, political scientists map power, sociologists examine structure, and historians recount the outcomes, mostly in narrative form. But the human condition is dependent on all these factors at once. However, a general theory that binds these domains, i.e., a coherent, falsifiable language of social dynamics, remains elusive.

The Theory of Social Relativity (TSR) aims to bridge the gap by amalgamating the various parameters of societies. It reimagines human collectives as masses moving through a curved *spacetime* defined by economics, ideology, and culture. Economic institutions and governments act as singularities that warp Configuration, while history itself shapes its curvature through the accumulation of collective memory and inertia. It posits that societies move under the fundamental laws like those of Physics. Einstein's Relativity unified matter, energy, and motion; TSR seeks to consolidate the empirical dynamics of economic forces, political power, and human action in the evolution of societies into a testable unified mathematical theory.

Core Principles

1. Social Spacetime

TSR defines a four-dimensional manifold with coordinates (x^0, x^1, x^2, x^3):

- x^0 – Historical time (years CE)
- x^1 – The economic complex plane: $E' + iE''$, representing material and immaterial wealth.
- x^2 – Ideological position (conservative $\leftrightarrow$ progressive)
- x^3 – Cultural conformity (follower $\leftrightarrow$ iconoclast)

Within this spacetime Configuration, social Masses are coherent groups with shared narratives that follow trajectories influenced by four fundamental vector fields: Connection (C), Order (O), Dominion (D), and Autonomy (A). These act as the social equivalents of the four forces of physics, collectively forming the Engines of Change (CODA).

2. Energy and Entropy

Every Mass possesses potential energy (E_{pot}): stored grievances, wealth, or trust; and kinetic energy (E_{kin}): realized action or movement. The conversion between the two follows thermodynamics-like laws.



$$A(E_{pot}, \Theta) = \kappa E_{pot} e^{-E_a/\Theta} ,$$

where Θ is social temperature (agitation or volatility), and E_a is activation energy (the barrier to mobilization). Societies transition between phases - reform, revolt, stagnation - when Θ/E_a crosses critical thresholds. Entropy increases not only through chaos, but also through creative complexity, linking disorder and innovation under a single thermodynamic umbrella.

3. Curvature and the Social Einstein Equation

The geometry of the social manifold is shaped by concentrations of wealth, authority, and history. TSR posits a Social Einstein Equation:

$$G_{\mu\nu} \equiv R_{\mu\nu} - \frac{1}{2} R g_{\mu\nu} = \kappa T_{\mu\nu} + \Lambda \Xi_{\mu\nu} ,$$

where the curvature tensor $G_{\mu\nu}$ reflects historical inertia, $R_{\mu\nu}$ the Ricci tensor that captures the rate at which local structure of society affects the motion of the mass, R the scalar curvature (trace of Ricci tensor), $g_{\mu\nu}$ the metric tensor measuring social distances in spacetime, κ the coupling constant, $T_{\mu\nu}$ the stress tensor that represents social energy and flux (the CODA fields), and Λ is the Social Cosmological Constant, a measure of civilization's expansion through changes in factors such as population, knowledge, connectivity, and technology and $\Xi_{\mu\nu}$ the information distribution tensor.

4. Multi-Singularity Governance

Governments are not monolithic; they are multi-singularity systems. Competing political, economic, and ideological centers, each with mass (influence) and spin (narrative momentum), that warp the Configuration together. Their interactions produce frame-dragging (agenda control) and shear (polarization). The balance or collapse of these singularities explains coalition formation, factionalism, and systemic breakdown.

5. The Second Law of Social Thermodynamics

TSR has three laws of social thermodynamics and other emergent properties/parameters. The second law is key, and can be reformulated as:

$$\frac{dS}{dt} = \frac{dS^+}{dt} + \frac{dS^-}{dt} > 0$$

Entropy always increases, but the pathway matters. When constructive entropy (S^+) dominates, societies evolve through cooperation and reform. When destructive entropy (S^-) dominates, they decay through conflict and collapse. The S^-/S^+ ratio is the arrow of social time.

Empirical Falsifiability

TSR can generate testable hypotheses. For example:

- Rising social temperature (Θ) and falling Social Coherence Probability (λ) precede uprisings.
- Curvature steepening ($\partial R/\partial t > 0$) near governing singularities signals instability.



- Periphery–core time dilation predicts that revolutions often begin at the edges of empires. E.g., Christianity arose far from the Roman core and, over centuries, grew into a transformative force that reshaped the very structure of Rome itself.

Empirical work is ongoing using the Seshat Global History Databank, Varshney–Wilkinson dataset, V-Dem, and ACLED to validate these propositions. Case studies like Rome’s decline, the British Raj’s partition, Tunisia’s Arab Spring, etc., are being mapped within TSR’s spacetime for revealing a consistent geometry of crisis and reform.

A Call for Collaboration

The Relativity Institute invites scholars, scientists, and technologists to collaborate in refining, testing, and extending TSR. We seek:

- Historians to provide chronologically rigorous datasets and interpretive nuance.
- Physicists to formalize the analogical mappings and ensure dimensional coherence.
- Economists to link energy potentials with capital flow and inequality metrics.
- Data scientists and AI researchers to build dynamic models and visualize manifold curvature in real time.
- Philosophers and ethicists to explore the normative dimensions - what it means for a society to move toward constructive entropy.

Our shared ambition is not merely to describe the world, but to model it with precision and empathy—to create a predictive, ethical science of civilization.

Toward a Unified Science of Society

The Theory of Social Relativity does not claim finality; it claims generativity. Like physical relativity before it, TSR reframes questions that once seemed separate as aspects of a single geometry. It shows that trust, power, and wealth are not isolated forces but curvatures of the same social spacetime.

By uniting thermodynamics and relativity in human terms, TSR opens a new frontier: a science where progress, justice, and entropy are governed by universal laws – laws that we can understand, test, and, ultimately, learn to utilize.

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October 2025.