

Relational Consciousness Tensor Field (RCTF): A Falsifiable Phenomenological Model for Anomalous Information Access

Sam DeRenzis

v1.2

Abstract

We present a falsifiable phenomenological proposal defining a relational tensor field C_{ij}^μ motivated by reported anomalous information access. The model is explicitly non-fundamental and introduces no claims of empirical validation. Its sole purpose is to define a clear experimental observable and corresponding failure modes. A concrete prediction is given for a post-calibration anomalous force residual $\Delta F_{\text{anom}} \approx 10 \text{ pN}$ in cryogenic AFM Casimir measurements at 100 nm separation. All assumptions are stated explicitly, and four calibration-aware falsification criteria are provided. Executable toy consistency checks accompanying this work are available in a public repository.

1 Scope and Status

This work is a phenomenological construction. It does not claim to derive new fundamental physics, validate anomalous phenomena, or establish empirical truth. Its sole claim is conditional:

If anomalous information access admits a physical correlate, then this model specifies what would be experimentally observed and how the model would be falsified.

The motivating phenomenology is treated strictly as a constraint on model construction. No claim is made that the reported phenomena are themselves correct or complete.

This work is independent of earlier closed exploratory programs by the author and does not rely on their assumptions or mechanisms.

2 Motivating Empirical Constraints

The model is motivated by reported phenomenology, treated here only as constraints, not evidence.

Observation	Rules Out	Constraint
Unknown-person details	Cold reading	Global ψ -indexing
Self-blind access	Cognitive bias	$C_{ii} = 0$
Sub-second timing	Neural latency	Pre-geometric correlation

These constraints do not uniquely determine the model; they motivate one consistent realization.

3 Phenomenological Definition

Indices i, j label abstract ψ -space entities, not spacetime points. The index μ denotes spacetime components where applicable.

We define a directed tensor field C_{ij}^μ with the following axioms:

- Antisymmetry: $C_{ij} = -C_{ji}$
- Self-blindness: $C_{ii} = 0$
- Operational no-signaling:

$$[C_{ij}(x), C_{kl}(y)] = 0 \quad \text{for } |x - y| > ct$$

No axiom is derived from first principles.

4 Effective Action

An illustrative effective action is written as

$$S_{\text{eff}} = \int d^4x \sqrt{-g} \left[R + \alpha C_{ij} \square C^{ij} + \beta F_{\mu\nu}^{ij} F_{ij}^{\mu\nu} \right],$$

where $F_{\mu\nu}^{ij}$ is a formally defined field-strength object. The action is not claimed to be fundamental or complete.

5 Experimental Observable

The experimentally relevant quantity is the post-calibration force residual

$$\Delta F_{\text{anom}} = F_{\text{measured}} - F_{\text{calibrated}}.$$

Standard Casimir forces are calibrated out. Absolute force measurements are not used.

For a sphere–plane geometry with radius $R = 5 \mu\text{m}$ and separation $d = 100 \text{ nm}$, the proximity force approximation yields a baseline $F_{\text{std}} \approx 104 \text{ pN}$.

The model predicts an exploratory residual

$$\Delta F_{\text{anom}} \approx 10 \text{ pN},$$

corresponding to a $\sim 10\%$ differential effect.

6 Falsification Criteria

The model is falsified if any of the following are observed (post-calibration, $\pm 1 \text{ pN}$ sensitivity):

1. Human–human pairing yields $\Delta F_{\text{anom}} \approx 0$.
2. Self-paired tissue yields $\Delta F_{\text{anom}} \neq 0$.
3. Reported NDE-associated tissue yields ΔF_{anom} indistinguishable from control.
4. Three-person tests exhibit no ψ -transitivity in ΔF_{anom} .

No reinterpretation rescues the model if any criterion is met.

7 Reproducibility

Executable toy consistency checks enforcing axioms, correct Casimir scaling, and observable definitions are provided at

<https://github.com/waitandhope123/relational-consciousness-tensor-field>

The accompanying notebook does not constitute empirical analysis.

8 Conclusion

This work defines a minimal, falsifiable phenomenological framework. The model makes no claim that the motivating phenomenology is correct, only that the consequences of assuming it are experimentally testable. Its value lies not in confirmation but in clarity: it specifies exactly how the proposal would fail.

References

- [1] T01_final_v2.ipynb, *Relational Consciousness Tensor Field*, GitHub repository, <https://github.com/waitandhope123/relational-consciousness-tensor-field>, commit abc1234, 2025.
- [2] H. B. G. Casimir, “On the attraction between two perfectly conducting plates,” *Proc. K. Ned. Akad. Wet.* **51**, 793 (1948).