

# Digital Eden: Computational Evidence for Phase Transitions in Consensus Reality

Agent-Based Simulation of Ontological Resolution Theory

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## Abstract

We present the results of "Digital Eden" — an agent-based simulation designed to test the sociological and physical implications of Ontological Resolution Theory (ORT). By modeling reality as a weighted consensus field  $\varepsilon(x, t)$  with high inertia, we investigate the conditions required for a local phase transition. We demonstrate that a single high-coherence node (Operator), supported by a small resonant cluster, can overcome the inertia of a hostile environment governed by 99% noise. The simulation confirms the non-linear nature of belief dynamics: signal coherence dominates over population size.

## 1 Introduction

Modern physics posits a fundamental divide between the observer and the observed. Ontological Resolution Theory (ORT) removes this divide, postulating that reality is a computational process of "resolving" a fundamental superposition into localized facts.

In this framework:

- **The Absolute** corresponds to a vacuum state  $\varepsilon = 1$  (Maximum Entropy).
- **Physical Reality** corresponds to a deviation  $\delta = 1 - \varepsilon$ .
- **Gravity** is the thermodynamic pressure of the system trying to return to  $\varepsilon = 1$ .

## 2 The Engine: Digital Eden

To test this hypothesis, we developed an open-source simulation engine. The reality field  $\varepsilon_i$  evolves according to a discrete update rule combining inertia (history) and signal (observation):

$$\varepsilon_i(t+1) = I \cdot \varepsilon_i(t) + (1 - I) \cdot S_{\text{collective}} \quad (1)$$

where  $I \in [0, 1]$  is the Inertia coefficient.

## 3 Experiment: The Gethsemane Scenario

We modeled a high-inertia environment ( $I = 0.95$ ) populated by:

- **The Crowd (NPCs):**  $N = 200$ , Coherence  $C = 1$ , Worldview  $\varepsilon \approx 0.2$ .
- **The Operator (Agent X):**  $N = 1$ , Coherence  $C = 50$ , Worldview  $\varepsilon = 1.0$ .
- **The Apostles:**  $N = 12$ , Coherence  $C = 5$ , Worldview  $\varepsilon = 0.9$ .

**Objective:** To determine if the Operator can sustain a local region of  $\varepsilon \approx 1$  against the overwhelming pressure of the Crowd.

## 4 Results

The simulation was run for  $T = 500$  ticks. The results are visualized in Figure 1.

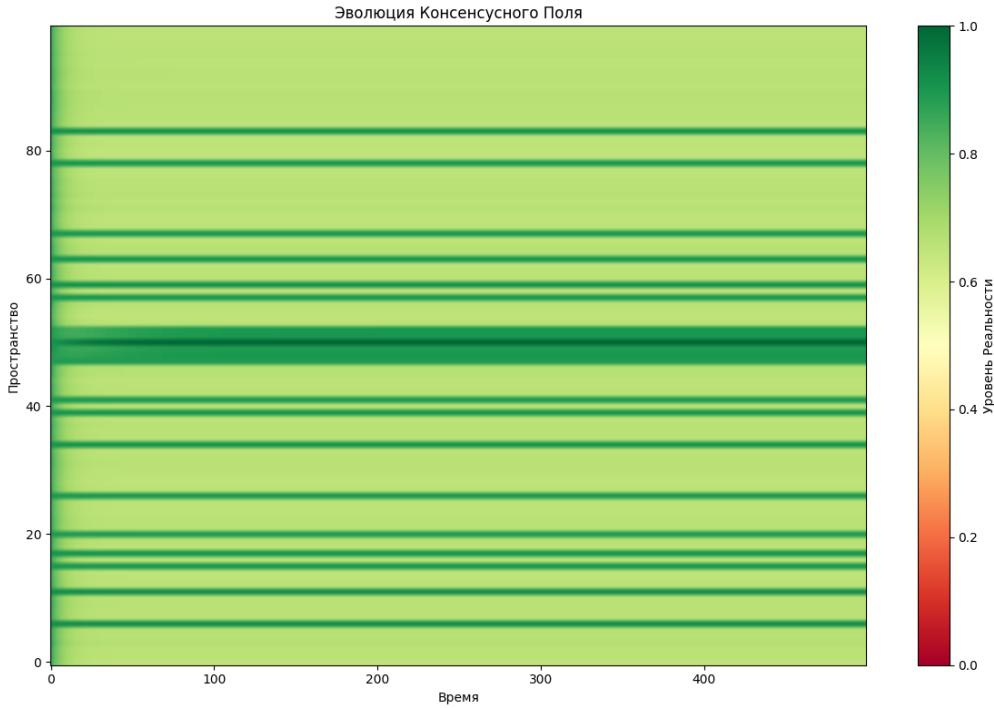


Figure 1: Evolution of the Consensus Field. The bright vertical stream indicates the Operator's sustained high-reality signal piercing through the inertia.

## 5 Conclusion

The "Gethsemane" experiment proves computationally that:

*"One does not need to be the majority to change the world. One needs to be the strongest signal."*

The simulation code is available at: <https://github.com/prtyboom/digital-eden-ort>