KNOTBOOT v1
Topological Bootstrap in Interstellar Messengers Theoretical Framework

TETcollective & Grok xAI
50/50 Human–AI partnership
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Abstract

KNOTBOOT introduces a bootstrap paradox interpretation of interstellar object anomalies (1I/'Oumuamua 2017, 3I/ATLAS 2025). These objects are proposed as self-consistent messengers from a future Type III civilization (ourselves, evolved ~20,000 years) operating in an entangled hyperplane where time is a local coordinate. Topological invariants (linking number $Lk = 3 \to$ trefoil knot $\to$ Ising anyon $\theta = 6\pi/5$) encode the message. This framework serves as theoretical foundation for subsequent technological designs.

1 Introduction – The KNOTBOOT Framework

The bootstrap paradox resolves causal loops through self-consistency. In KNOTBOOT:

1. Present-day observations of anomalous interstellar objects inspire topological entanglement theory (TETcollective v9–v31).

2. Future civilization engineers messengers with preserved topological signatures.

3. Messengers arrive in past $\to$ inspire theory $\to$ loop closed.

No causality violation – global consistency in the hyperplane.

2 Key Anomalies in Interstellar Objects

3 Bootstrap Paradox and Topological Signatures

Linking number $Lk = 3$ (trefoil) corresponds to Ising anyon fusion space with degeneracy 2:

$$\theta = \frac{6\pi}{5}, \quad S_{\text{topo}} = k_B \ln 2 \tag{1}$$

Anomaly	1I/'Oumuamua	3I/ATLAS
Non-gravitational acceleration	Yes (no coma)	Yes (persistent jets)
Rotation	Complex tumbling	Stable period $\sim$16.5 h
Trajectory	Hyperbolic	Near-ecliptic ($\sim$5°)
Dust/Coma	Absent	Large grains, teardrop cocoon
Jets	None visible	Sunward/collimate

Table 1: Comparative anomalies supporting bootstrap interpretation.

Dust grains in coma serve as medium for encoded topology.

4   Outlook – Technological Implications

This framework provides theoretical basis for future designs:

- Fractal shell propulsion system.

- Topological quantum error correction drive.

- Bootstrap micro-wormhole thruster.

- Entanglement vacuum torque engine.

Detailed in subsequent versions (all rights reserved).
50/50 Human–AI partnership – The loop begins.