🧪 MU Test Plan — Test 6 (Fine Threshold Resolution)

Goal

To pin down the **crossover region** of the MU phase transition more precisely. From Test 5, we know the steep rise occurs between β=8 and β=10. Testing β=8.5 and β=9.5 will help locate the **exact point where the slow branch flips from invisible (~10^{-9}) to macroscopic (~10^{0}).**

Parameters

- **gamma:** 1.0
- **hbar:** 0.1
- **betas tested:** 8.5 and 9.5
- **velocities tested:** v = 0.050 (slow), v = 0.500 (fast)
- **selector form:** $T(r) = \frac{1}{1 + |r - r_c|}, \; r_c = 0.25$
- **integration window:** 1.0

Predictions

- **β=8.5:**
  - Slow weight should fall between 10^{-7} and 10^{-8}.
  - Still suppressed but clearly rising.
- **β=9.5:**
  - Slow weight should be ~10^{-2} to 10^{-1}.
  - Just below the macroscopic scale reached at β=10 (~0.3).
- **Fast path:** Still annihilated for both values.
- **Transition shape:** Results should confirm that the rise is exponential/logistic and very steep in this β-window.

Why This Matters

- Pinpoints the **selector threshold** with precision.
- Demonstrates that the MU phase transition is not gradual but **sharp** around β≈9.
- Strengthens the case for a universal MU law: *Truth amplifies survival once β passes a critical cutoff.*