

Test 13 – Negative Slopes

Goal

To investigate whether negative slopes (reversing the slope parameter direction) produce symmetry or asymmetry in survival outcomes. In other words: does “lingering backwards” (slow entry/exit into the fold in reverse) behave the same way as forward slopes, or does it reveal a bias in the weighting mechanism?

Parameters

- **β sweep:** 8.0 \rightarrow 10.0 in steps of 0.25 (same as Test 11/12, for direct comparison).
- **Slope:** negative values, spanning approximately **-1.2 \rightarrow -0.26** (mirror of the positive test).
- **Gamma:** keep fixed at representative mid value (e.g., $\gamma = 1.0$).
- **Other constants:** keep \hbar , normalization, etc., identical to Test 11 setup.

Predictions

1. **Symmetry hypothesis:** If the system is slope-symmetric, then ΔQ and suppression patterns will simply mirror the positive slope case (fast still suppressed, but mirrored in sign).
2. **Asymmetry hypothesis:** If negative slopes probe a fundamentally different part of the energy manifold, we may see either:
 - Enhanced survival for the fast path (unexpected dominance in reverse), OR
 - Collapse of coexistence into a trivial regime (weights vanish faster).
3. **Most likely (our intuition):** Some **subtle asymmetry** will emerge because degeneracy + β scaling probably “opens” extra channels only in one slope direction (consistent with your multidimensional/white hole intuition).

Why This Test Matters

- **Checks reversibility:** Determines whether the MU path integral respects slope reversal symmetry.
- **Exposes dimensional bias:** If hidden dimensions only couple on one side of slope space, this could be the first strong signature of MU asymmetry.
- **Builds on Test 11/12:** Gives us a full picture — forward slope behavior is now well-characterized; we need to test its “mirror.”

