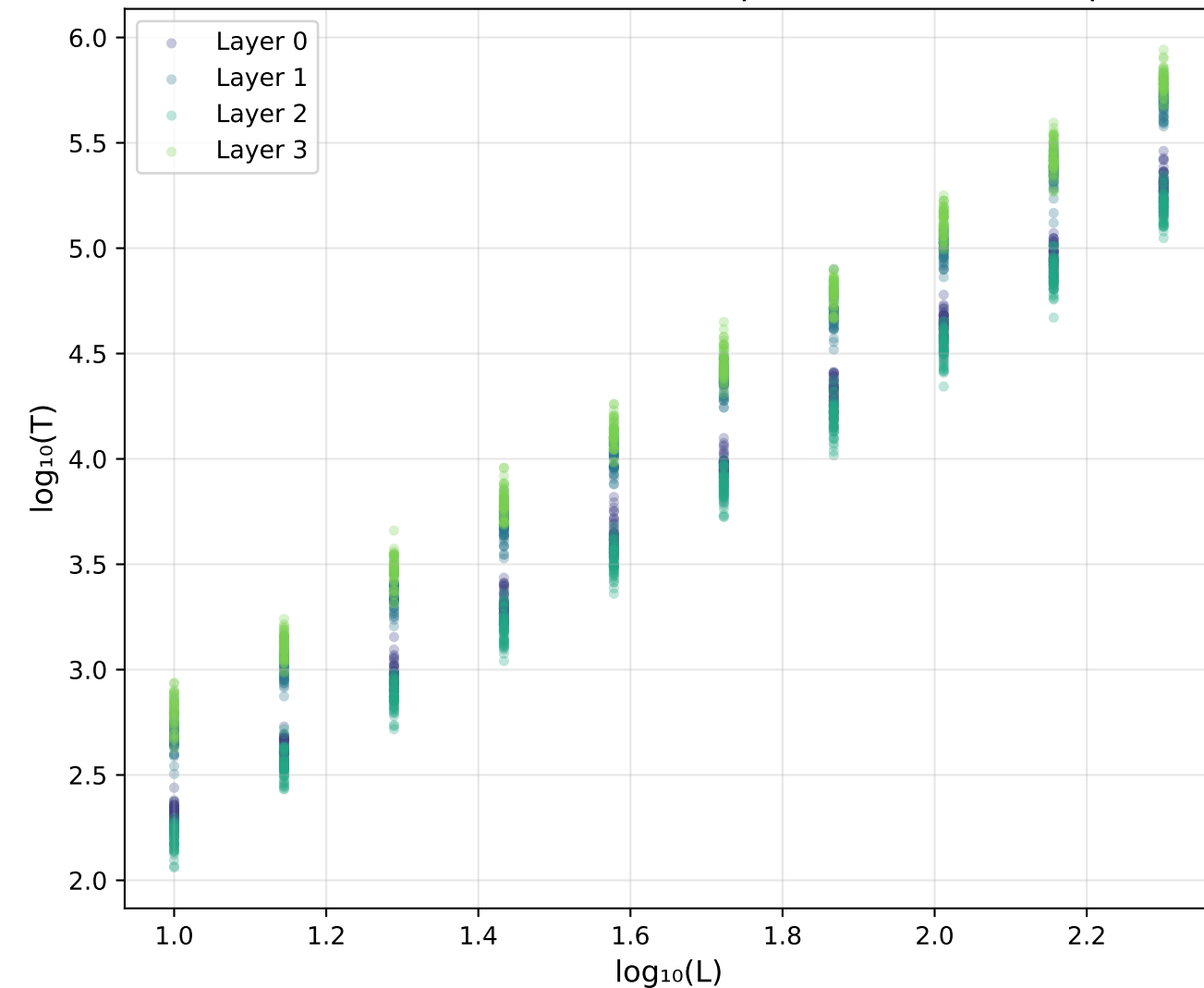
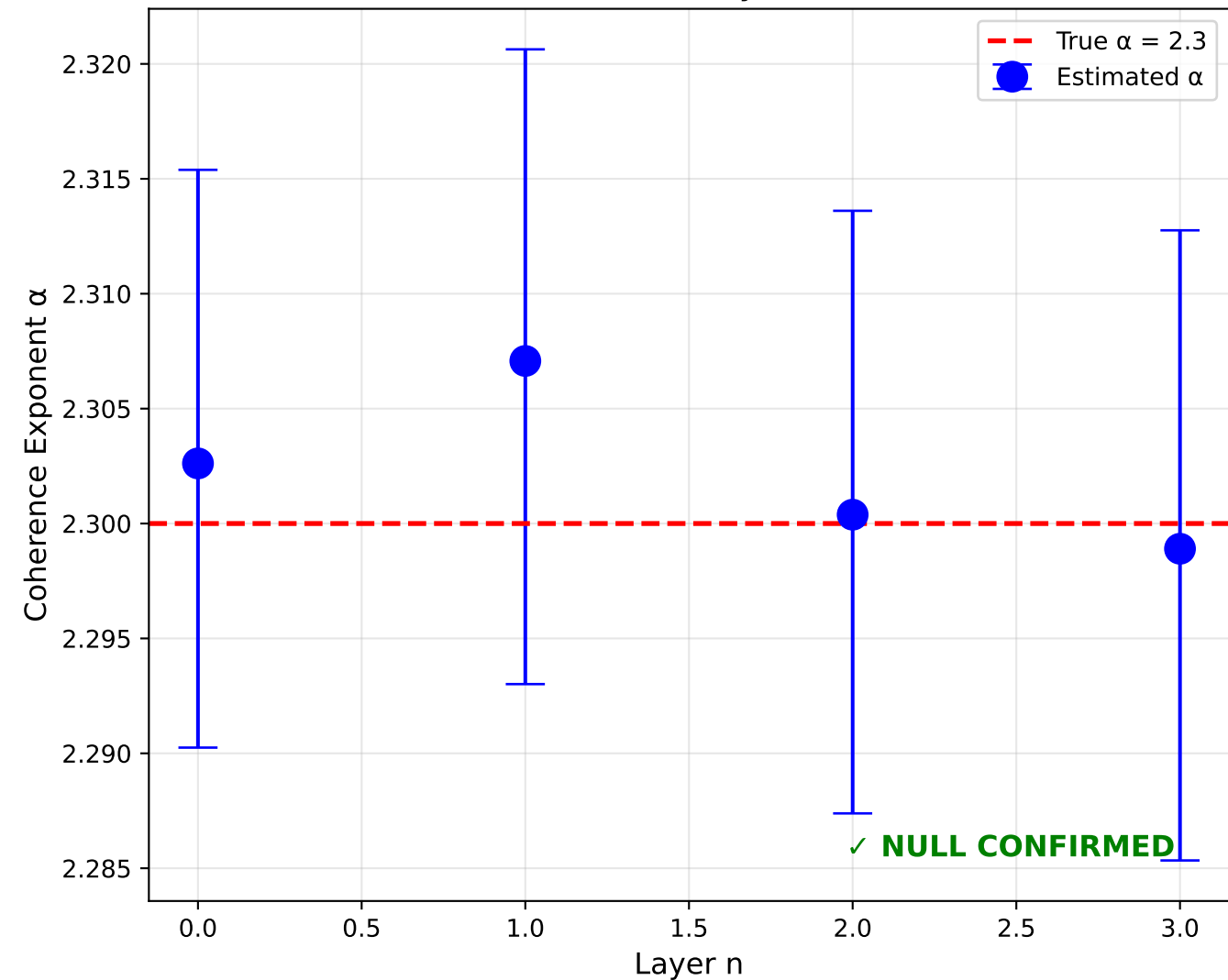
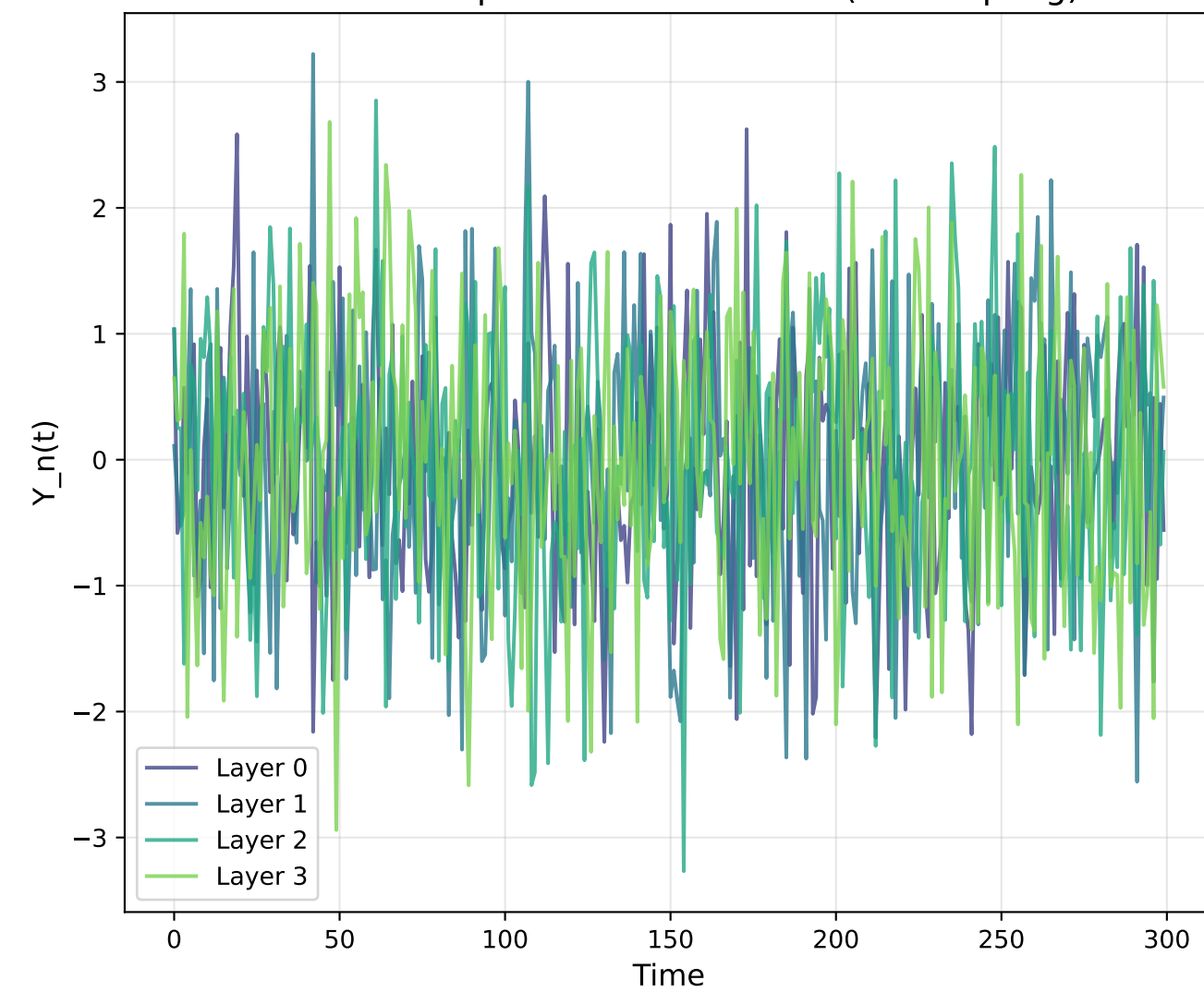


S1 Null: Parallel Lines (Same Slope, Different Intercepts)

S1 Null: Flat  $\alpha$  Across Layers (No Cascade)

S2 Null: Independent Time Series (No Coupling)



S2 Null: Symmetric Granger (No Directional Causality)

