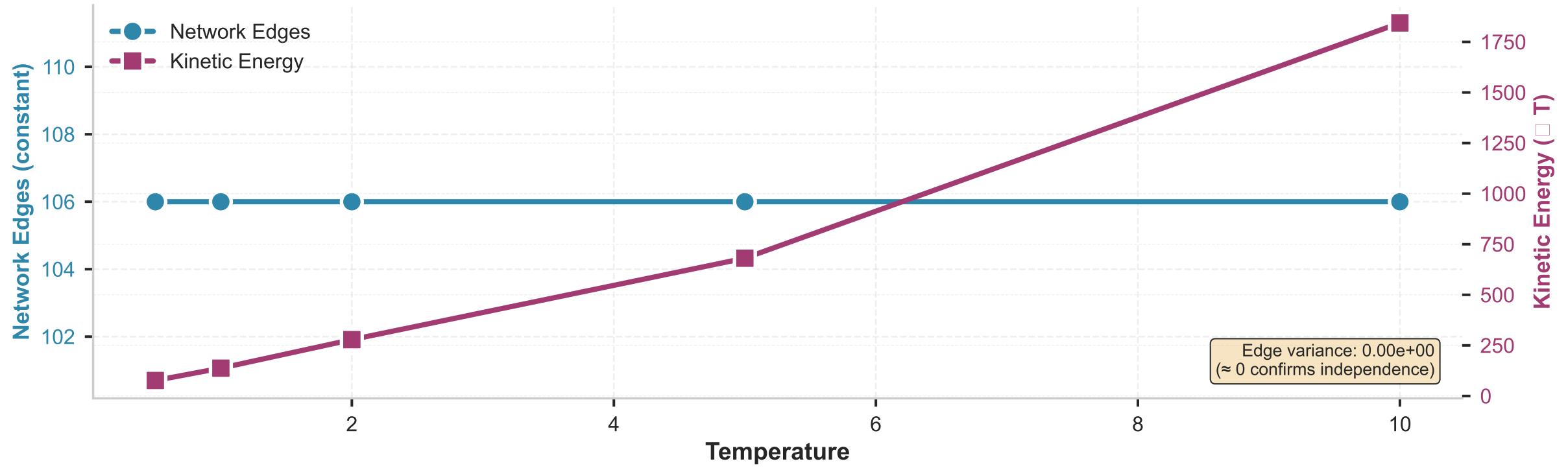
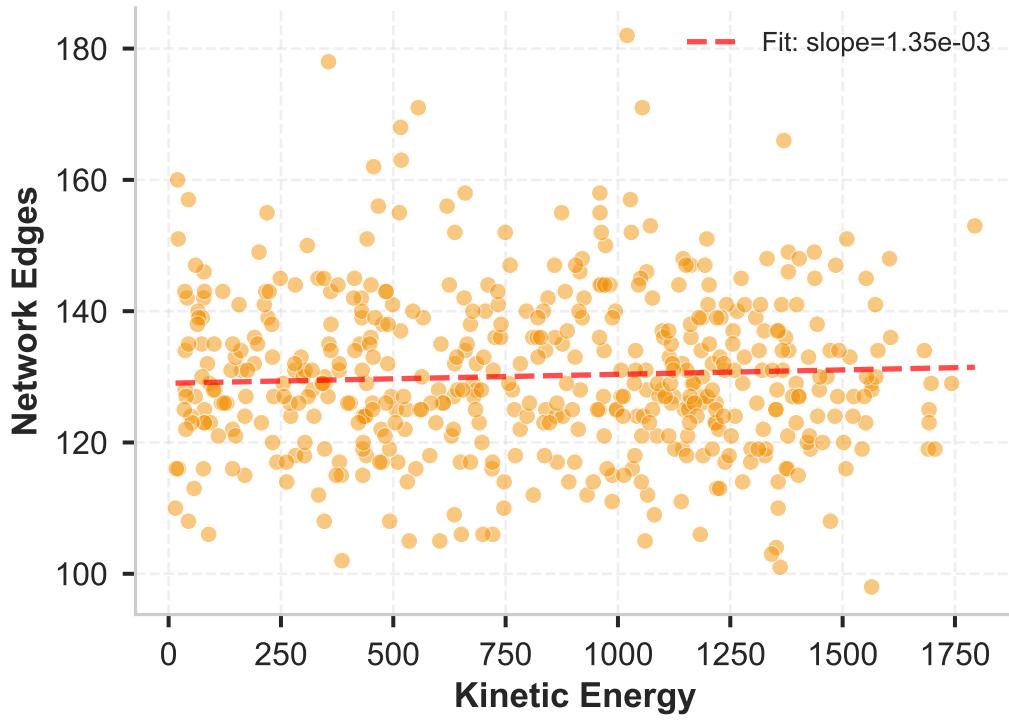


Resolution of Maxwell's Demon: Seven-Fold Dissolution

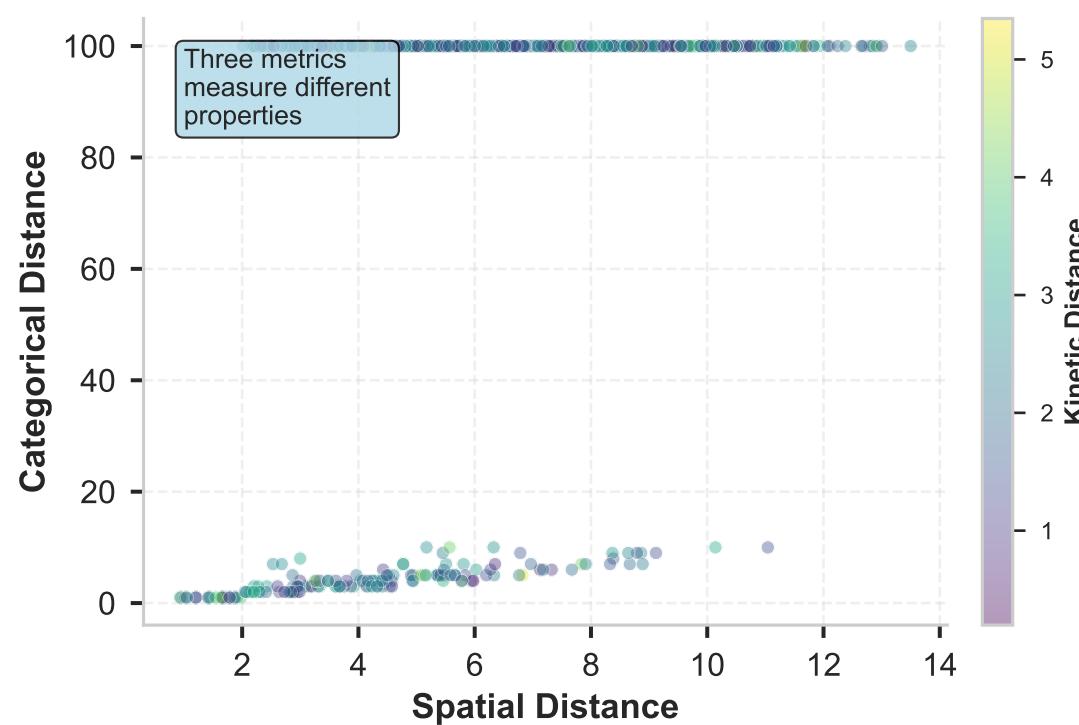
A. Temperature Independence of Network Topology and Categorical Completion



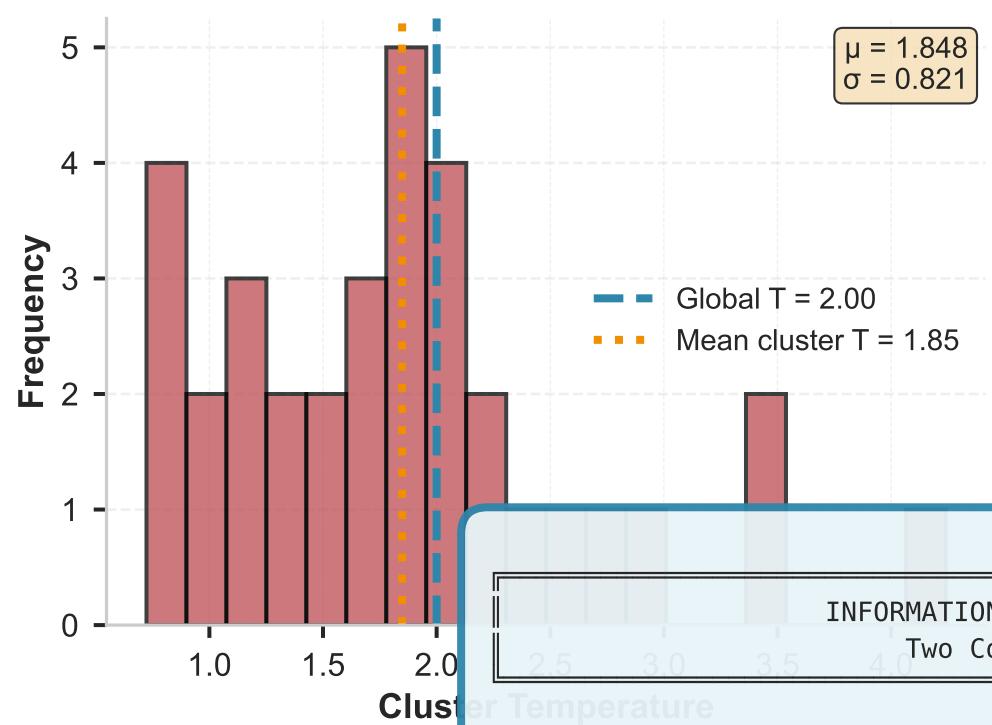
B. Kinetic Independence
 $\partial G / \partial E_{\text{kin}} = 0$
 $(r = 0.0460)$



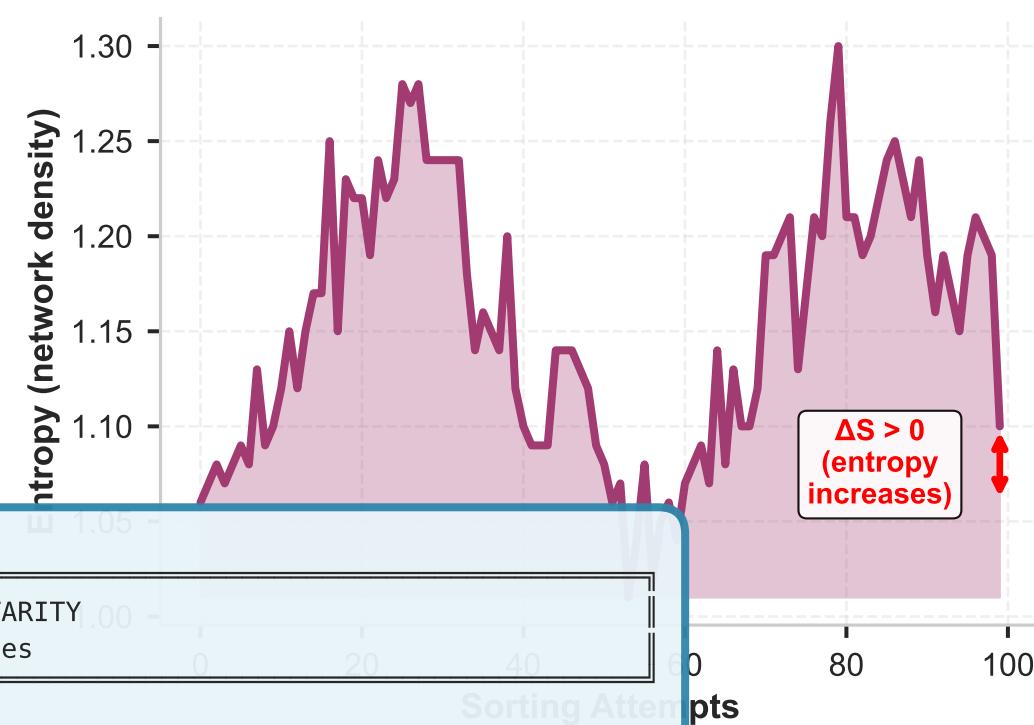
C. Distance Inequivalence
 $(r = 0.413)$



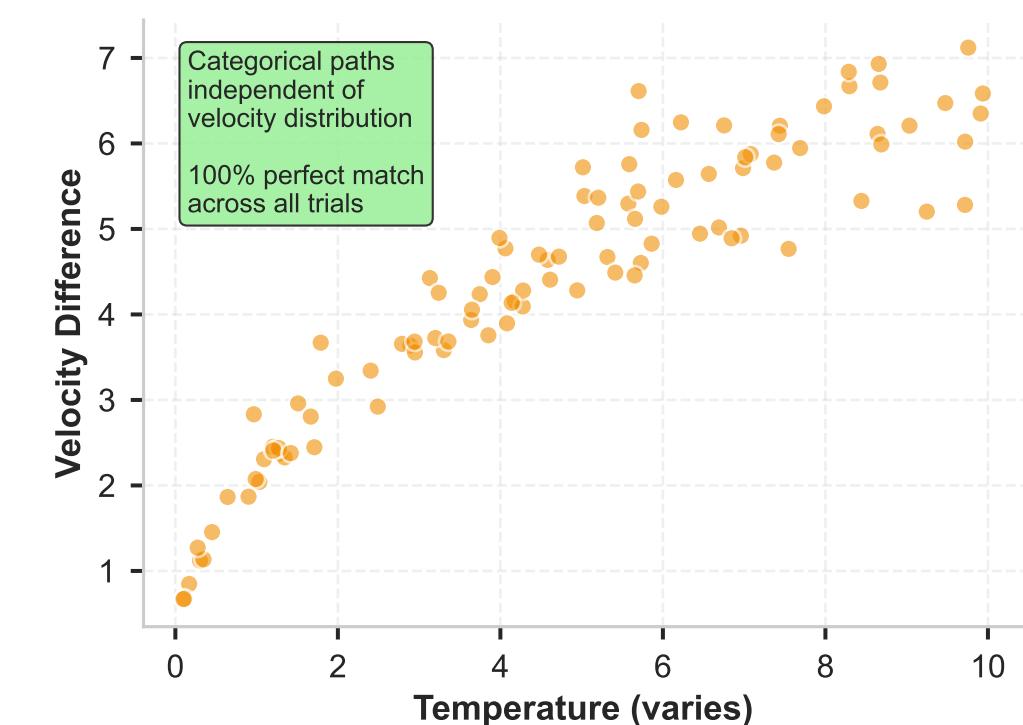
D. Temperature Emergence from Cluster Statistics



E. "Sorting" Increases Entropy
 $\Delta S = +0.0400$



F. Velocity-Blind Completion
Categorical paths identical: 100%



G. Information Complementarity

INFORMATION COMPLEMENTARITY

Two Conjugate Faces

KINETIC FACE (Observable)

- Molecular velocities
- Kinetic energy distribution
 - Temperature (statistical)
 - Speed distributions
 - Momentum space

HIDDEN: Network topology

HIDDEN: Categorical structure

CATEGORICAL FACE (Observable)

- Network edges and clustering
 - Categorical distances
 - Cluster structure
 - Configuration space

HIDDEN: Molecular velocities

HIDDEN: Kinetic properties

COMPLEMENTARITY PRINCIPLE (analogous to ammeter/voltmeter)

- Cannot observe both faces simultaneously
- Measurement incompatibility
- Conjugate observables of same phenomenon

WHY MAXWELL SAW A "DEMON"

Maxwell observed ONLY the kinetic face

Categorical dynamics were HIDDEN

"Demon" = projection of hidden categorical face onto observable kinetic face

Not an agent, but a SHADOW of complementary dynamics

RESOLUTION: No demon exists
Only categorical completion through phase-lock networks