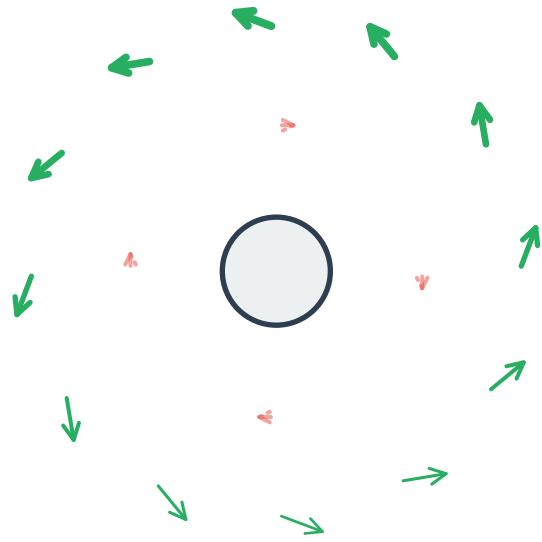# Figure 4: Flow Asymmetry and Irreversibility

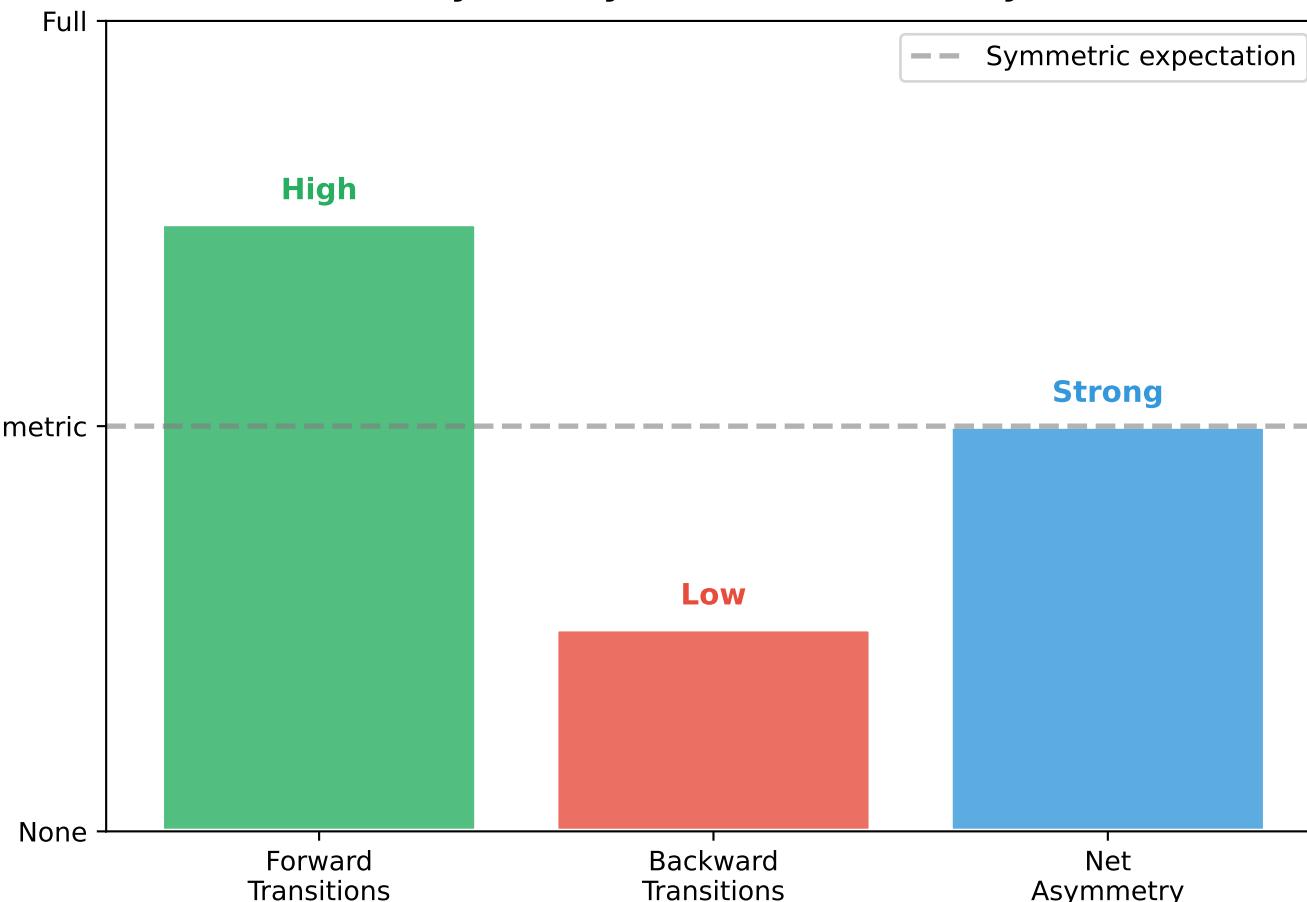## Directional Flow (Forward ≠ Backward)

Irreversibility Signature:

Forward transitions ≫ Backward transitions

Legend:
- Dominant flow
- Suppressed reverse

Flow Asymmetry: Markovian Null Rejected

- - - Symmetric expectation

Y-axis: Relative Frequency (abstract), from None to Full with Symmetric marked

Bars: Forward Transitions (**High**), Backward Transitions (**Low**), Net Asymmetry (**Strong**)

The system exhibits statistically significant irreversibility, incompatible with Markovian null models.