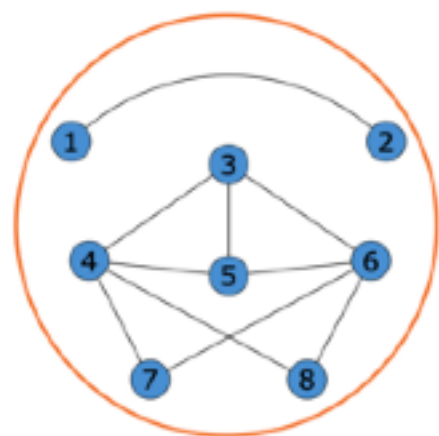
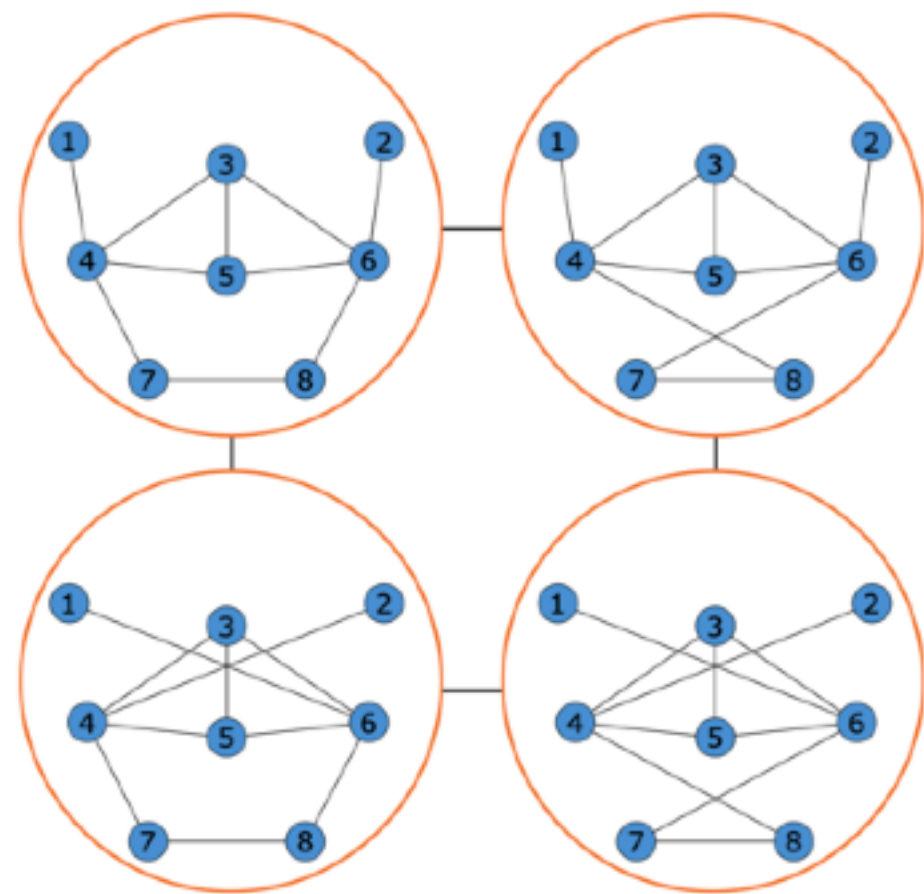
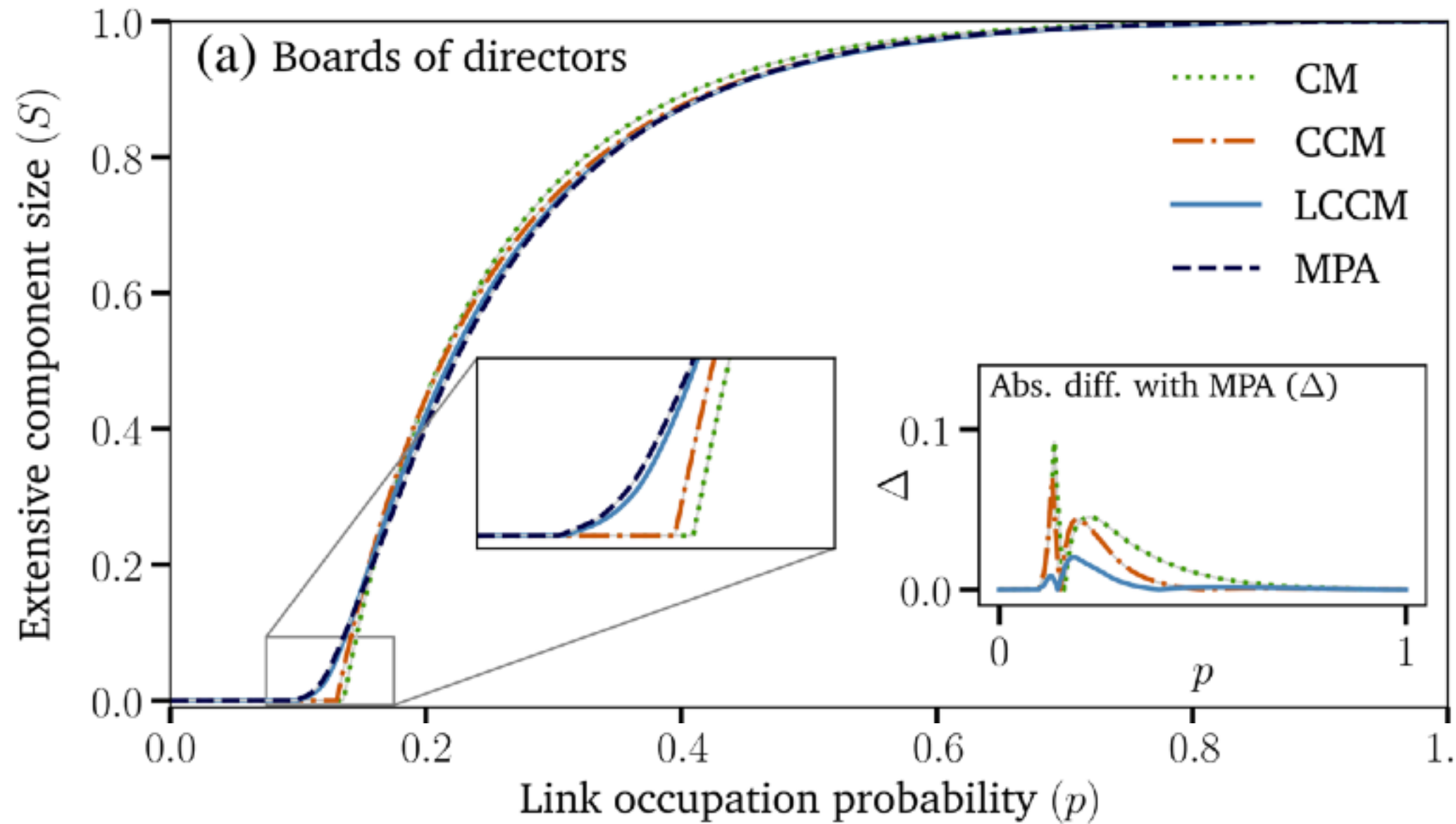
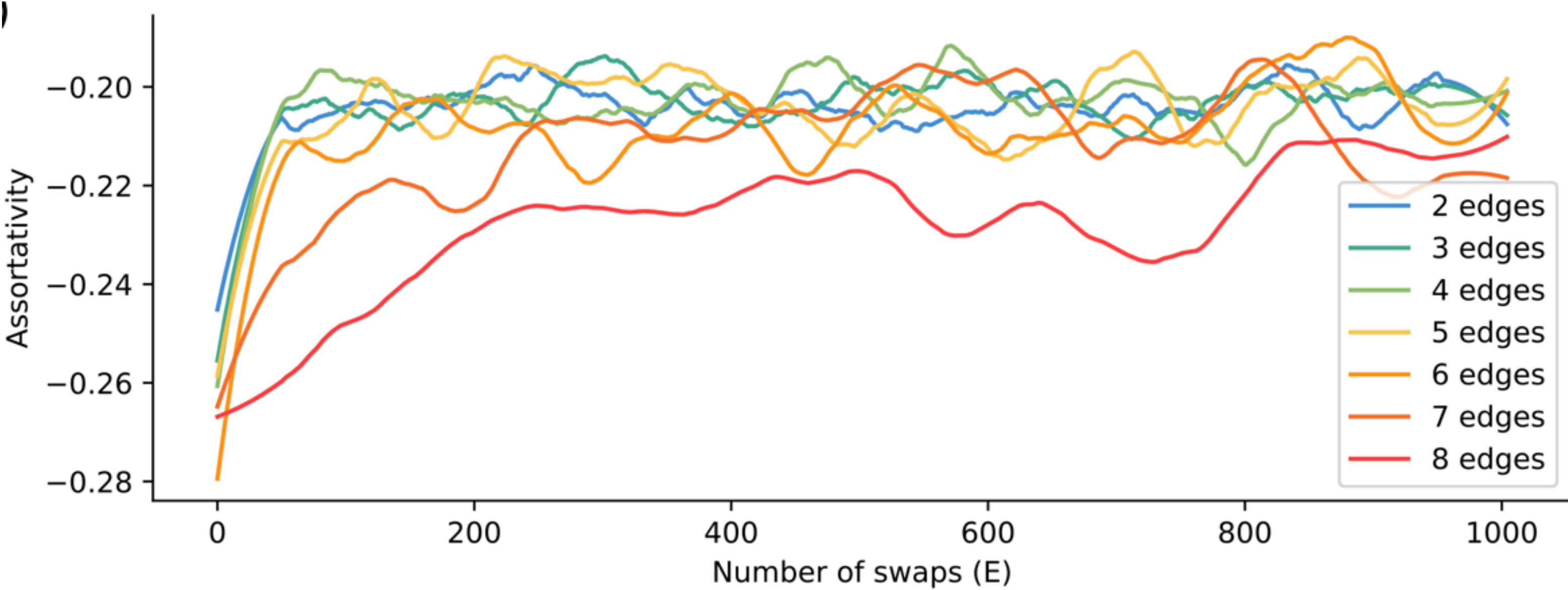


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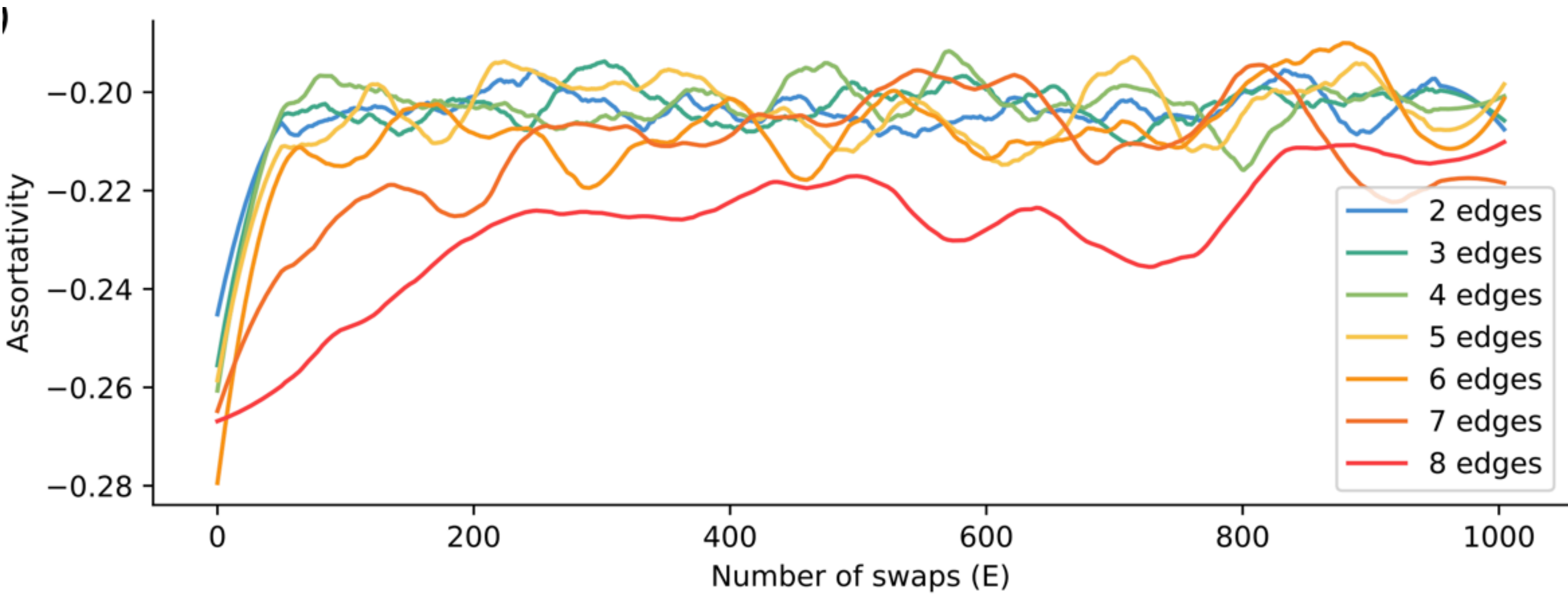
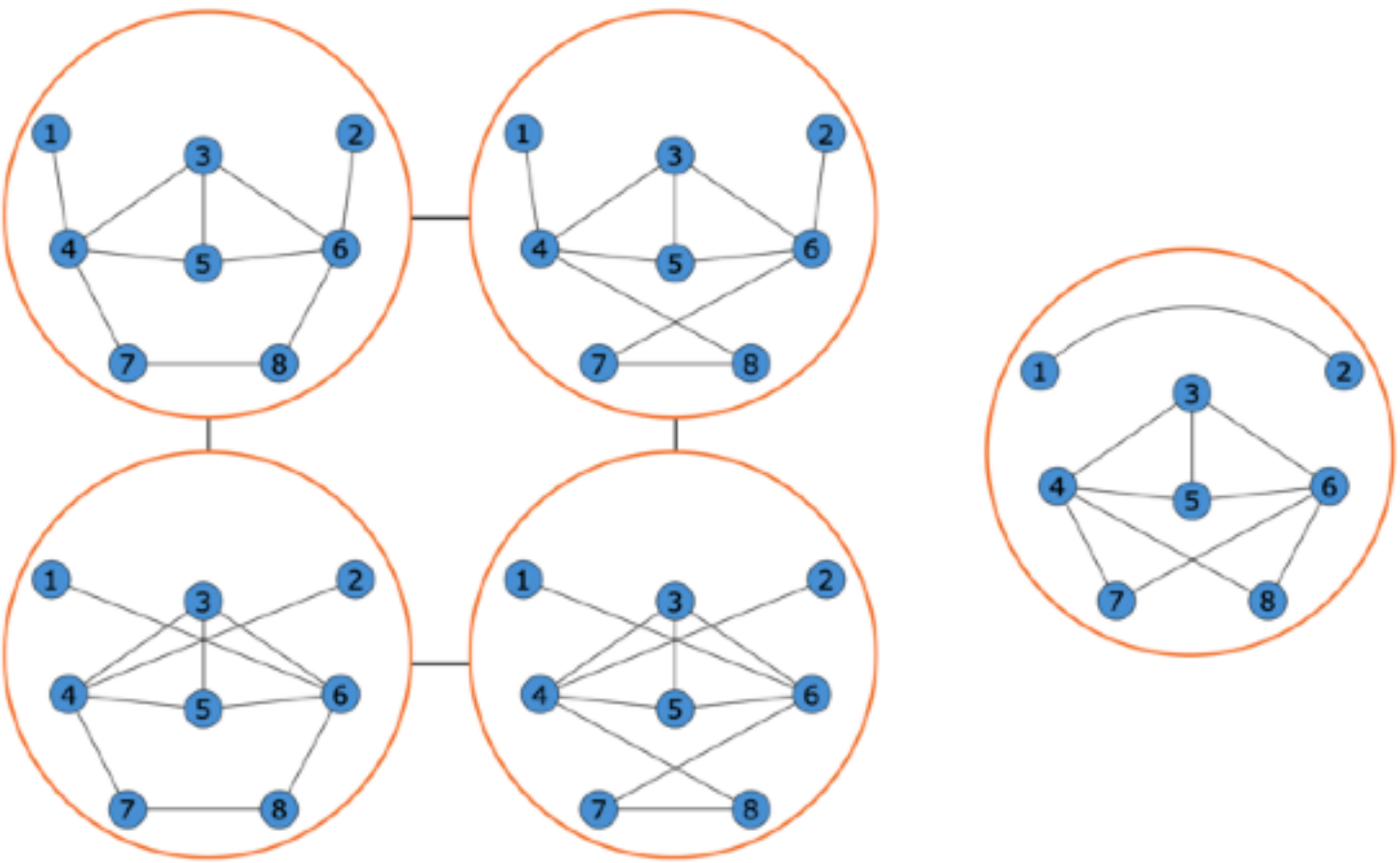
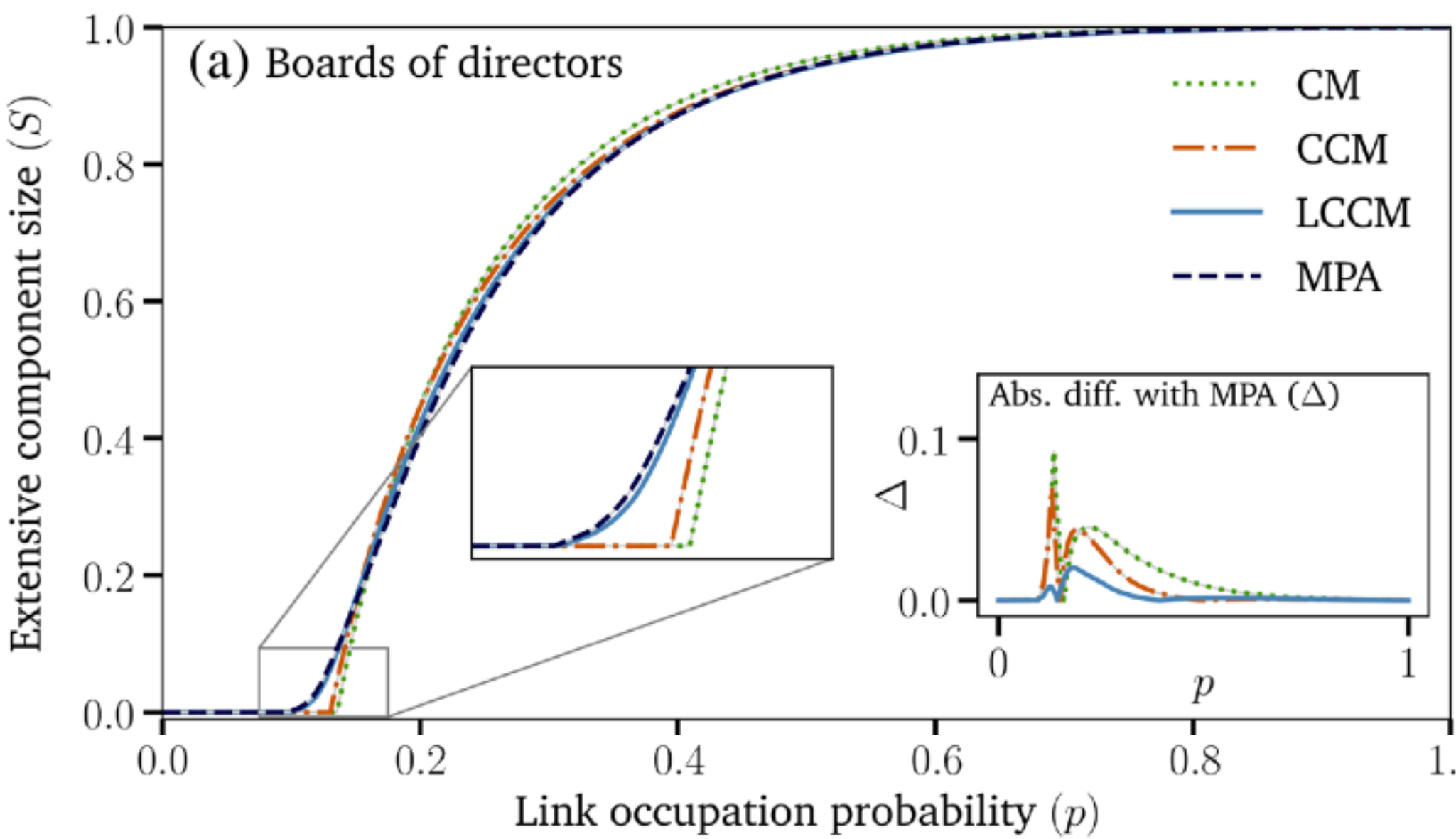


Challenges

- ▶ Many analytical approaches (PGF, ODE) can be adapted to account for stub types, but the graphs considered are infinite in size.
- ▶ Sampling naively is easy, sampling right is tricky (ex.: uniform sampling via edge swaps).

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Main takeaways

- ▷ **Local connection rules** can enforce strict **global topological features**.
- ▷ These rules can be leveraged to design
 - new mathematical frameworks (ex.: ODEs, PGFs)
 - new sampling algorithms (ex.: edge swapping)

Multi-scale structure and topological anomaly detection via a new network statistic: The onion decomposition

Laurent Hébert-Dufresne¹, Joshua A. Grochow¹ & Antoine Allard²

Sci. Rep. 6, 31708 (2016)

Percolation and the Effective Structure of Complex Networks

Antoine Allard^{1,2} and Laurent Hébert-Dufresne^{3,1}

Phys. Rev. X 9, 011023 (2019)

Modeling critical connectivity constraints in random and empirical networks

Laurent Hébert-Dufresne,^{1,2,3} Márton Pósfai,⁴ and Antoine Allard^{3,5,1}

arXiv:2307.03559

On the Uniform Sampling of the Configuration Model with Centrality Constraints

François Thibault,^{1,2} Laurent Hébert-Dufresne,^{3,4} and Antoine Allard^{1,5}

arXiv:2409.20493



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