

Maintaining diversity in structured populations



David Brewster
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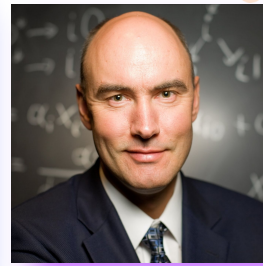
Dylan Roscow
Purdue & UIUC



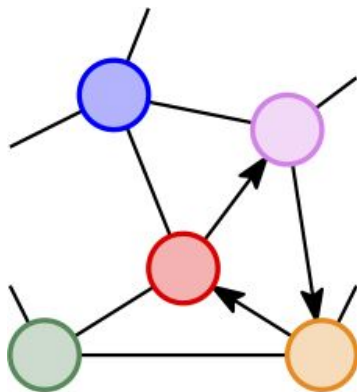
Krish Chatterjee
IST Austria



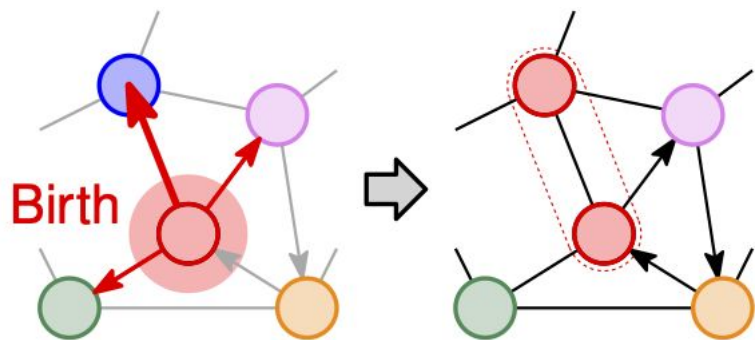
Josef "Pepa" Tkadlec
Charles



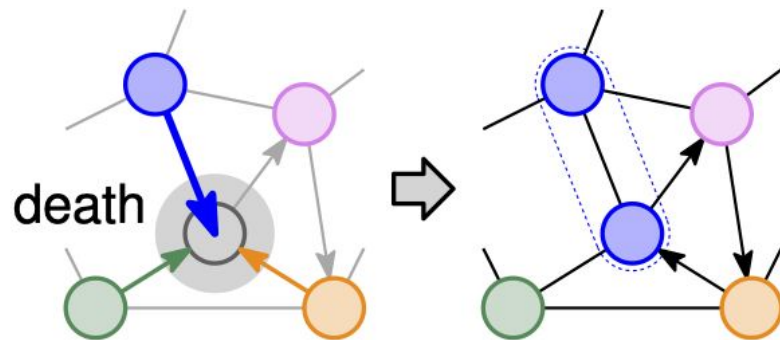
Martin Nowak
Harvard



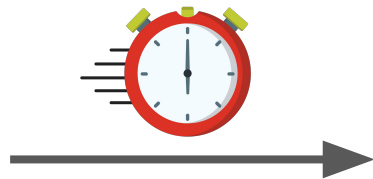
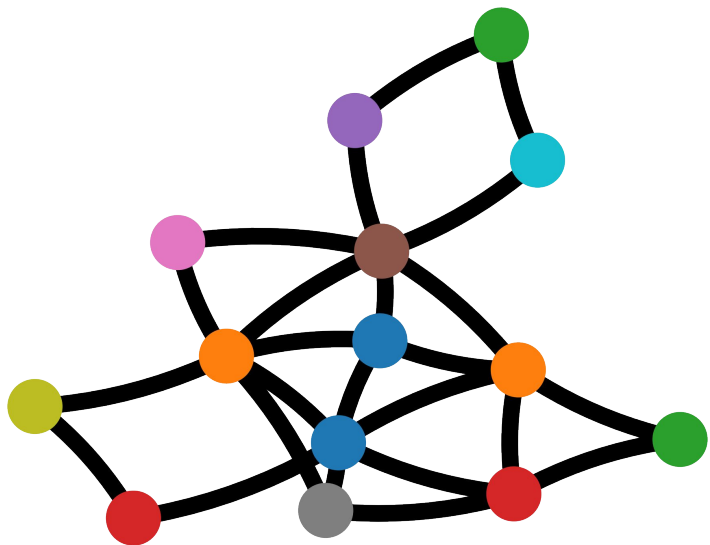
birth-death (bd)



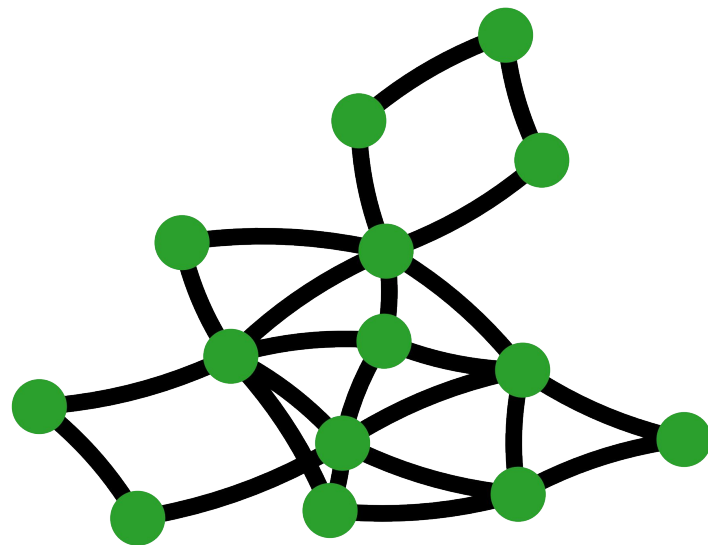
death-birth (db)



Heterogeneous

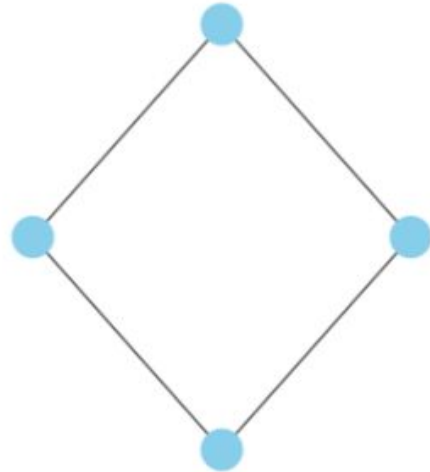


Homogeneous

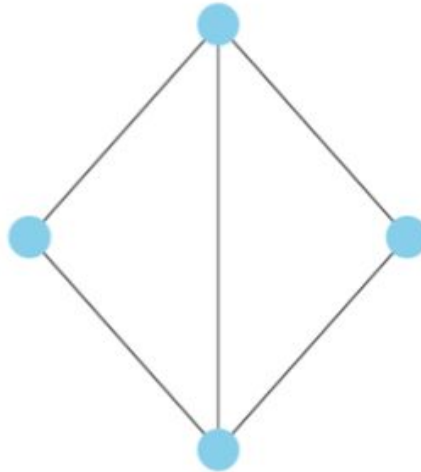


Interactive simulation

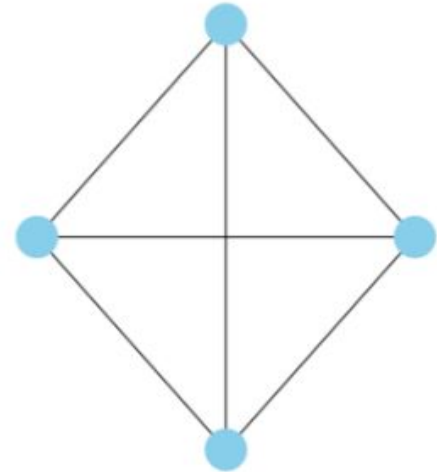
Removing edges, $N=4$, birth-death



$$T = 10$$

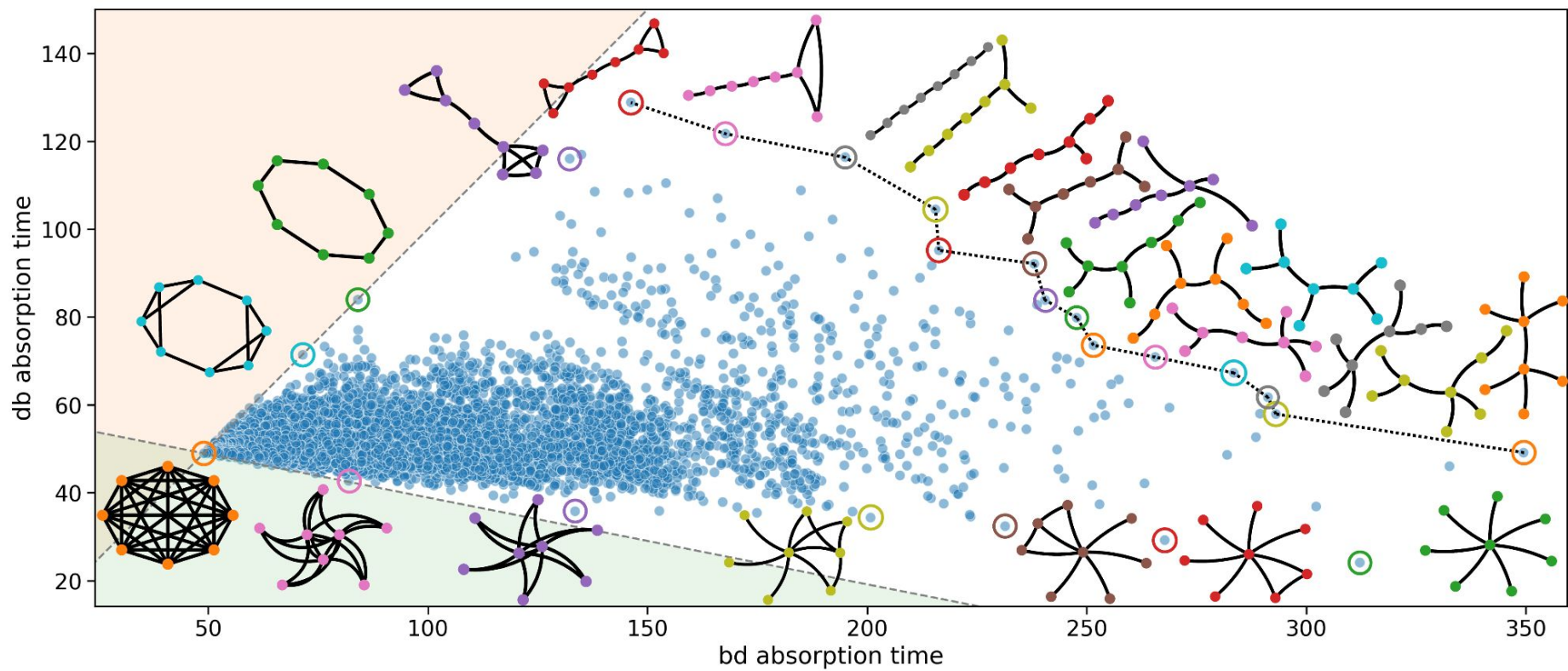


$$T = 10.733$$

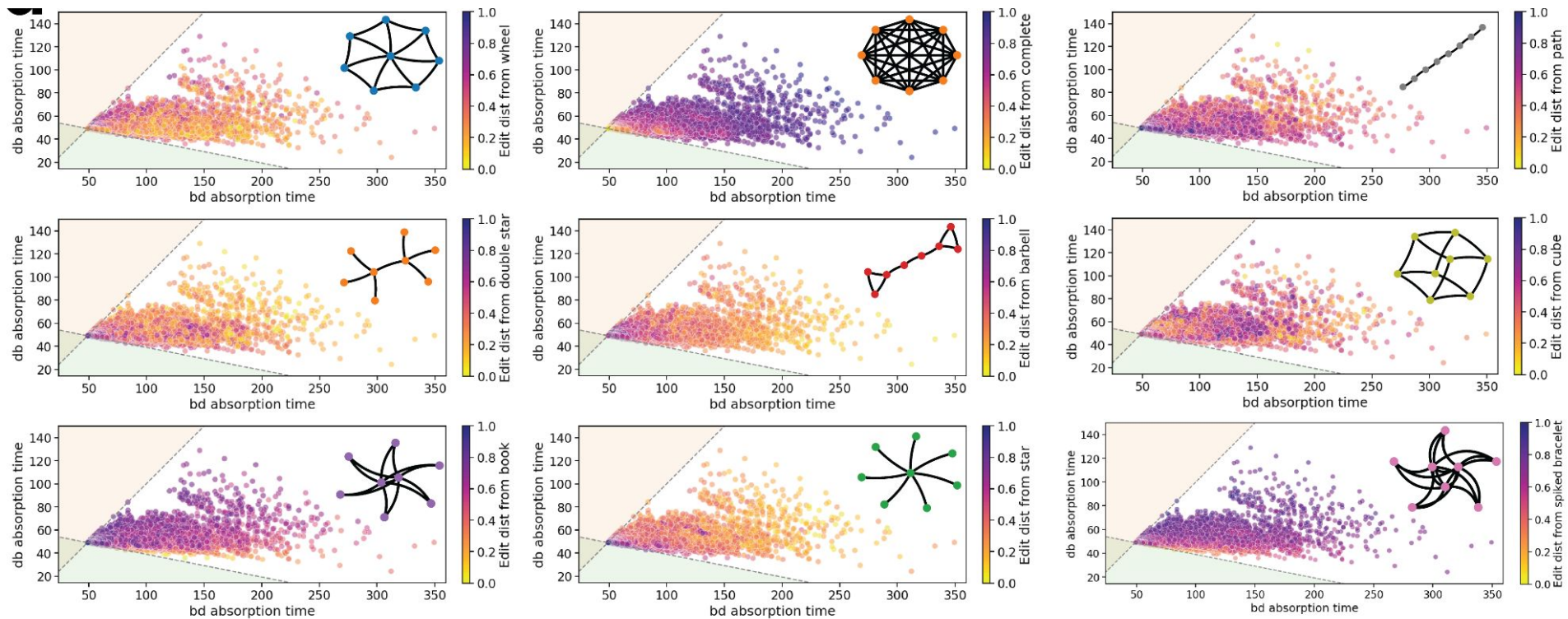


$$T = 9$$

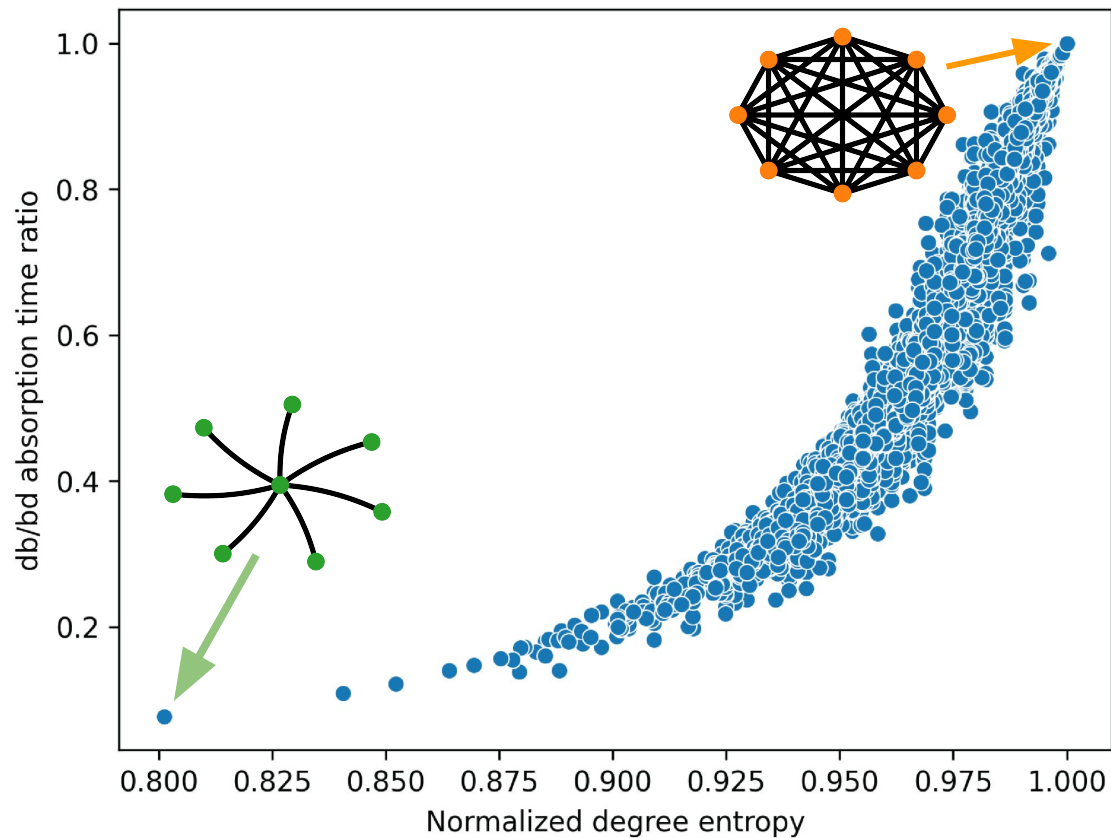
db vs bd, N=8



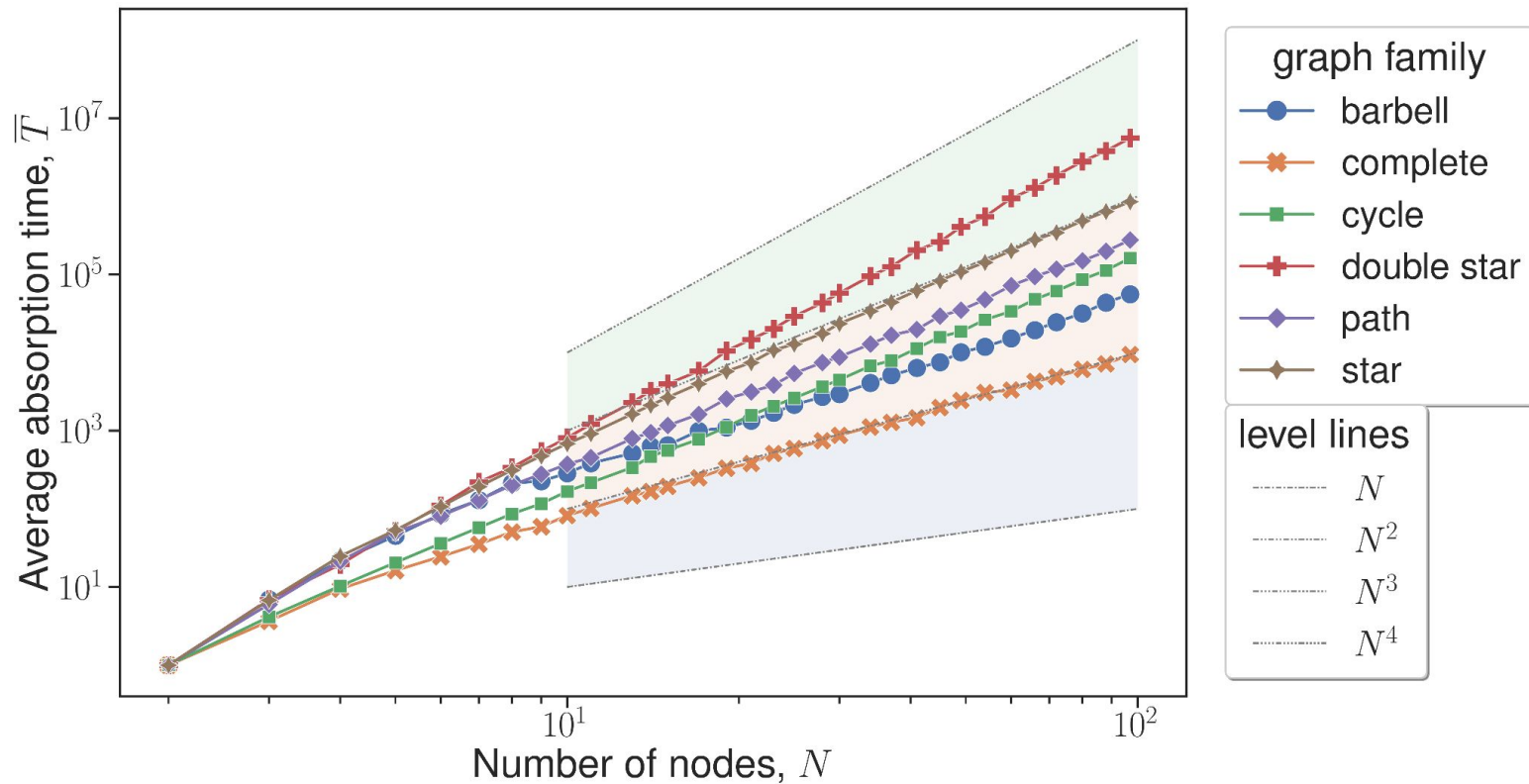
db vs bd, edit distance, N=8



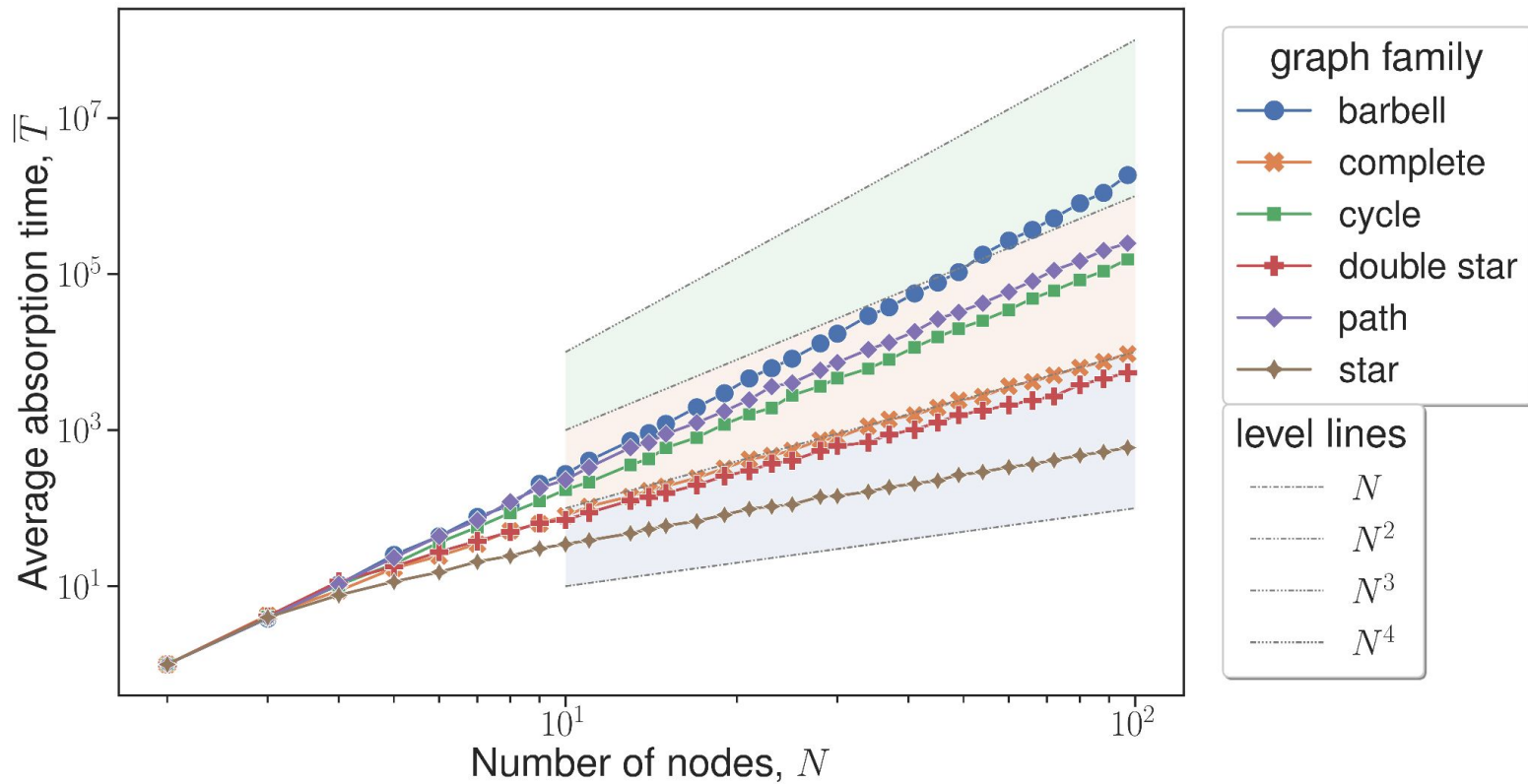
db/bd vs degree entropy, $N=8$



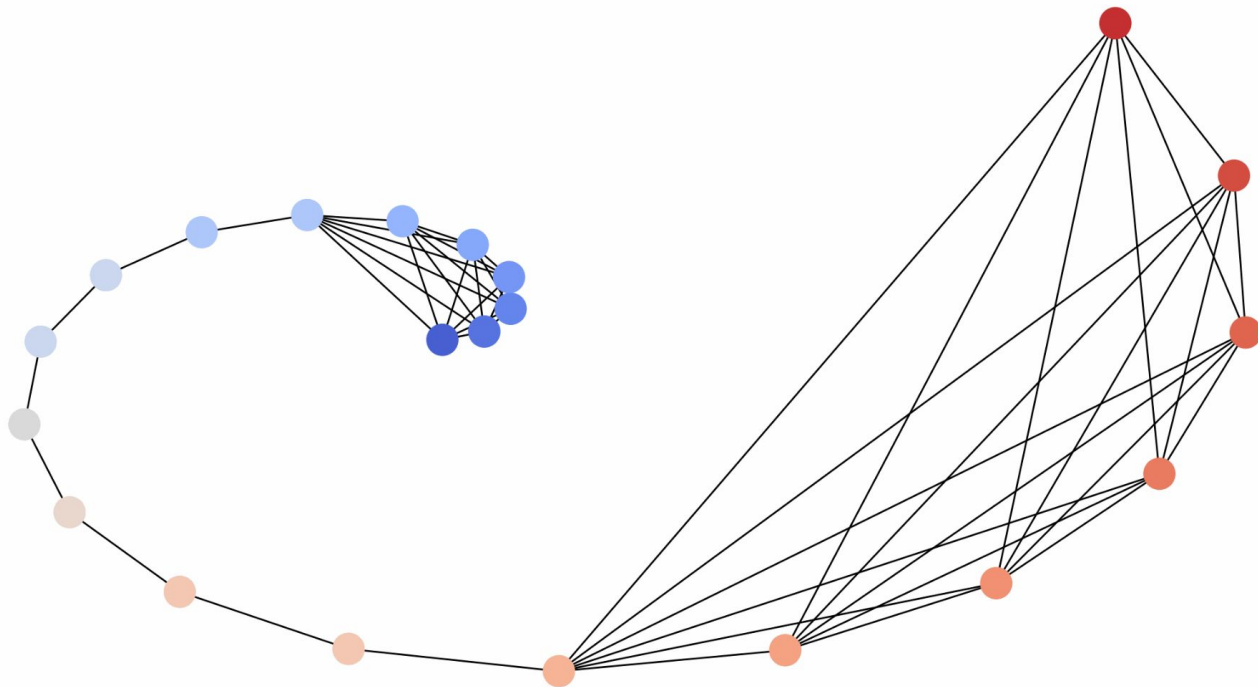
birth-death



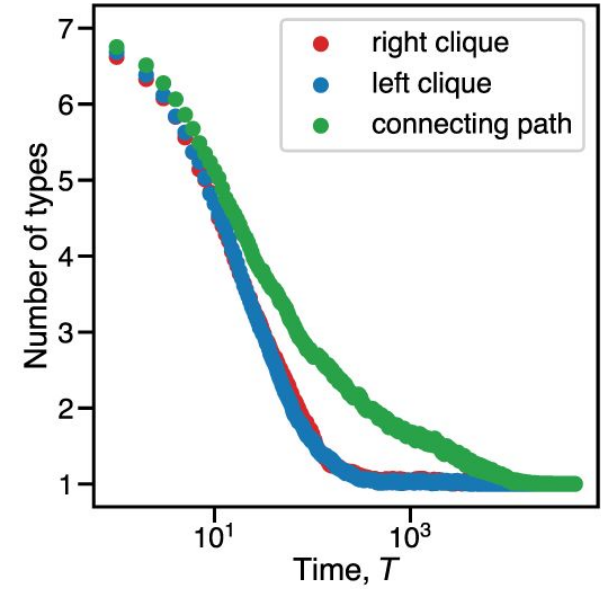
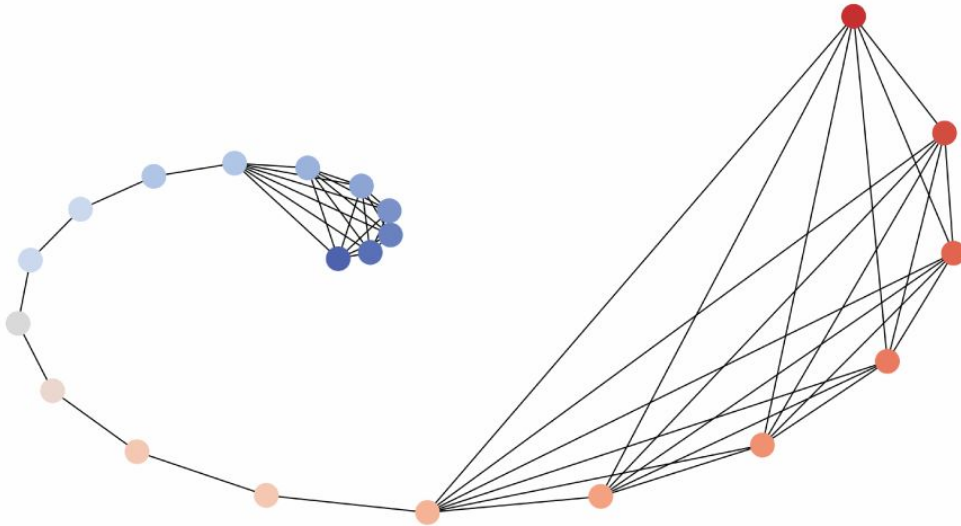
death-birth

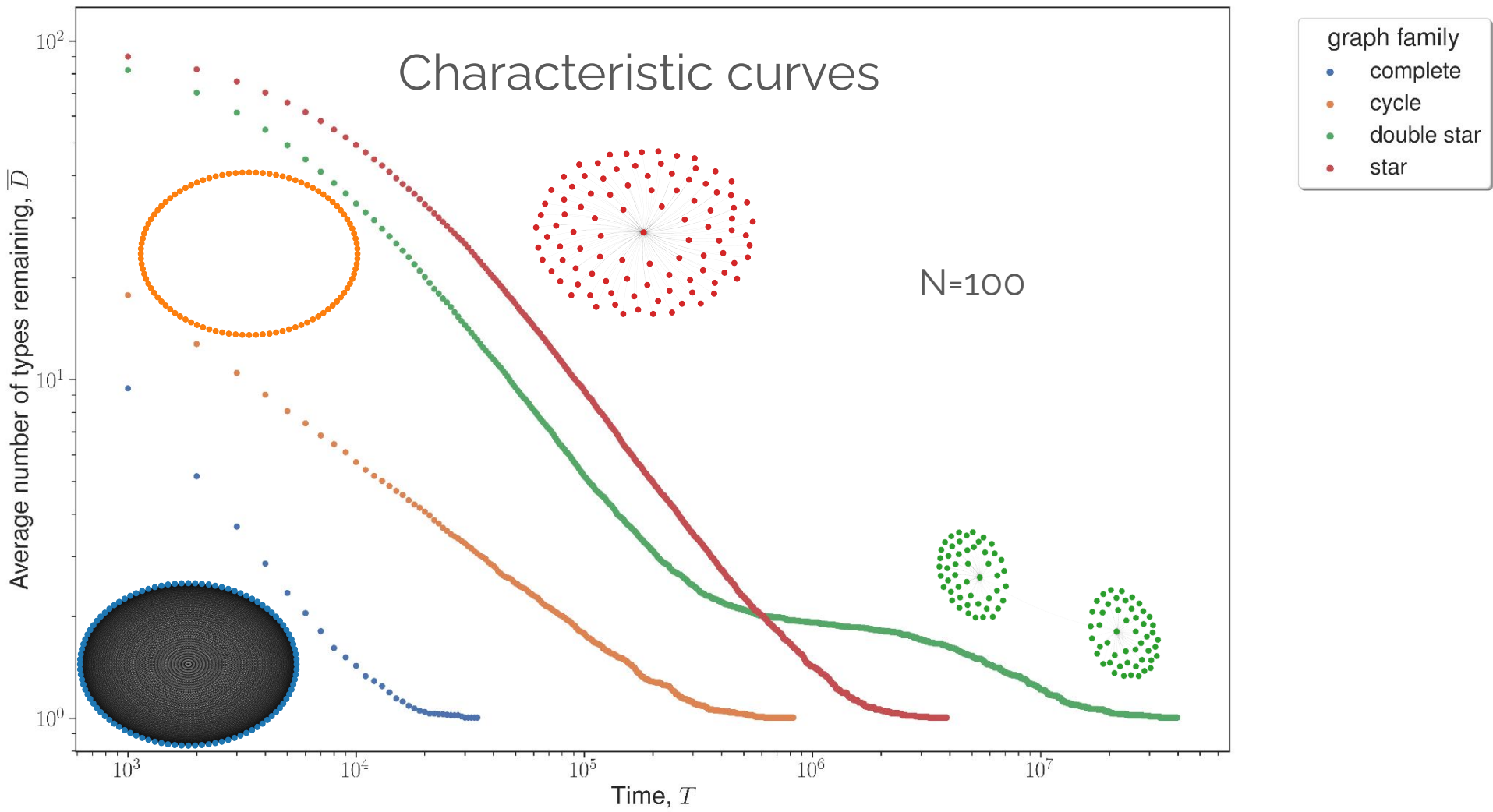


Barbell simulation

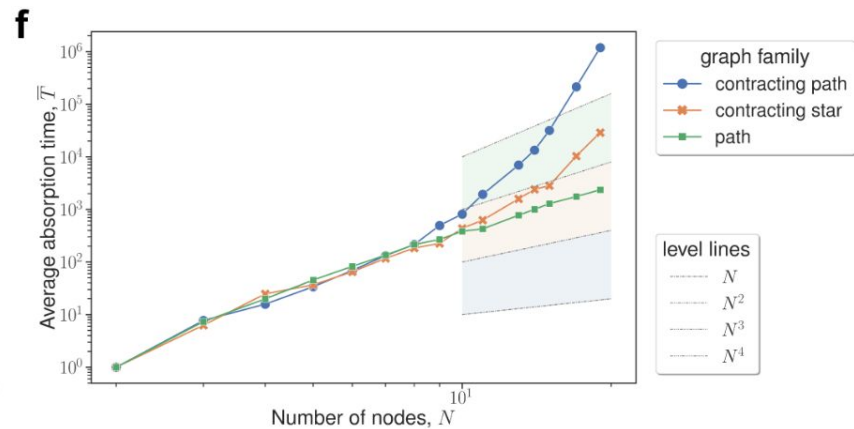
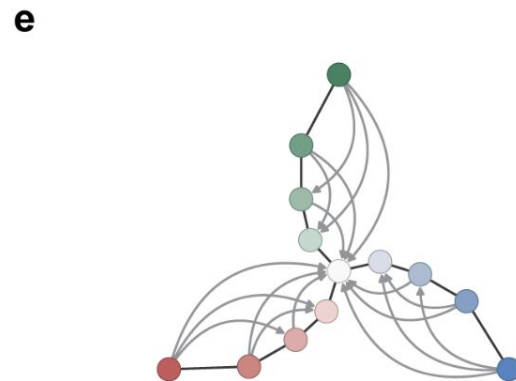
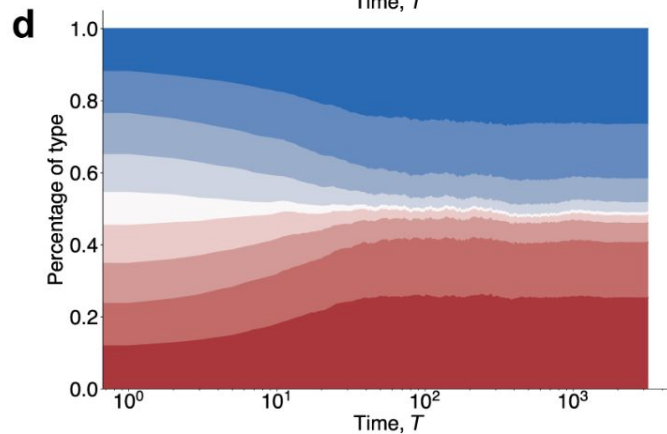
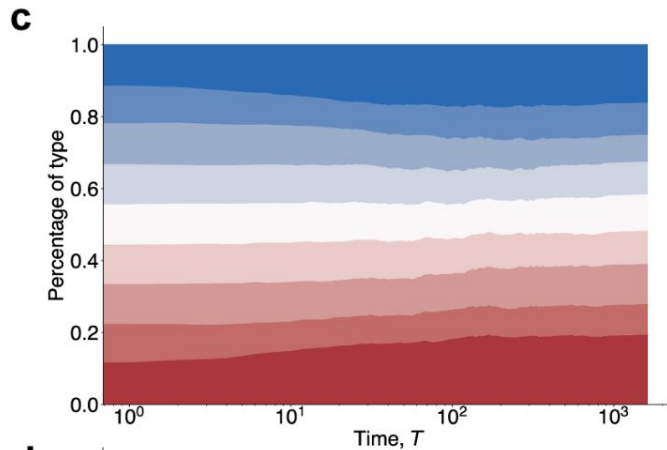
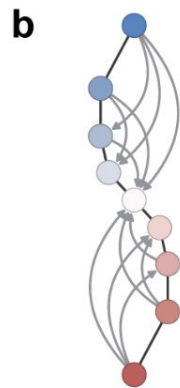
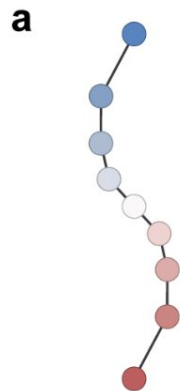


Barbell, $N=21$, death-birth





Contracting star, $K=3$



Citation

Brewster, et. al. Maintaining diversity in structured populations. *PNAS Nexus*, 4(8): pgaf252, 2025.