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Patterns of behavior in an online community

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Motivation

Social networks are agile and permanently changing.

Sociological theories on Social Drivers are mainly postulated, empirical evidence is rather weak (small networks, low statistics).

Our approach to study structural signatures:

- probabilities of processes / mechanisms
- dynamical measurement
- evaluate every single activity of new link

Outline

0. Motivation
1. Online community data
2. Sociological theories
3. Results
4. Summary

Data

Online community 1 (OC1): 60k members

- favorites (directed), 200k actions
- guestbook, 340k actions
- activity in 63 days + situation before

Online community 2 (OC2): 20k members

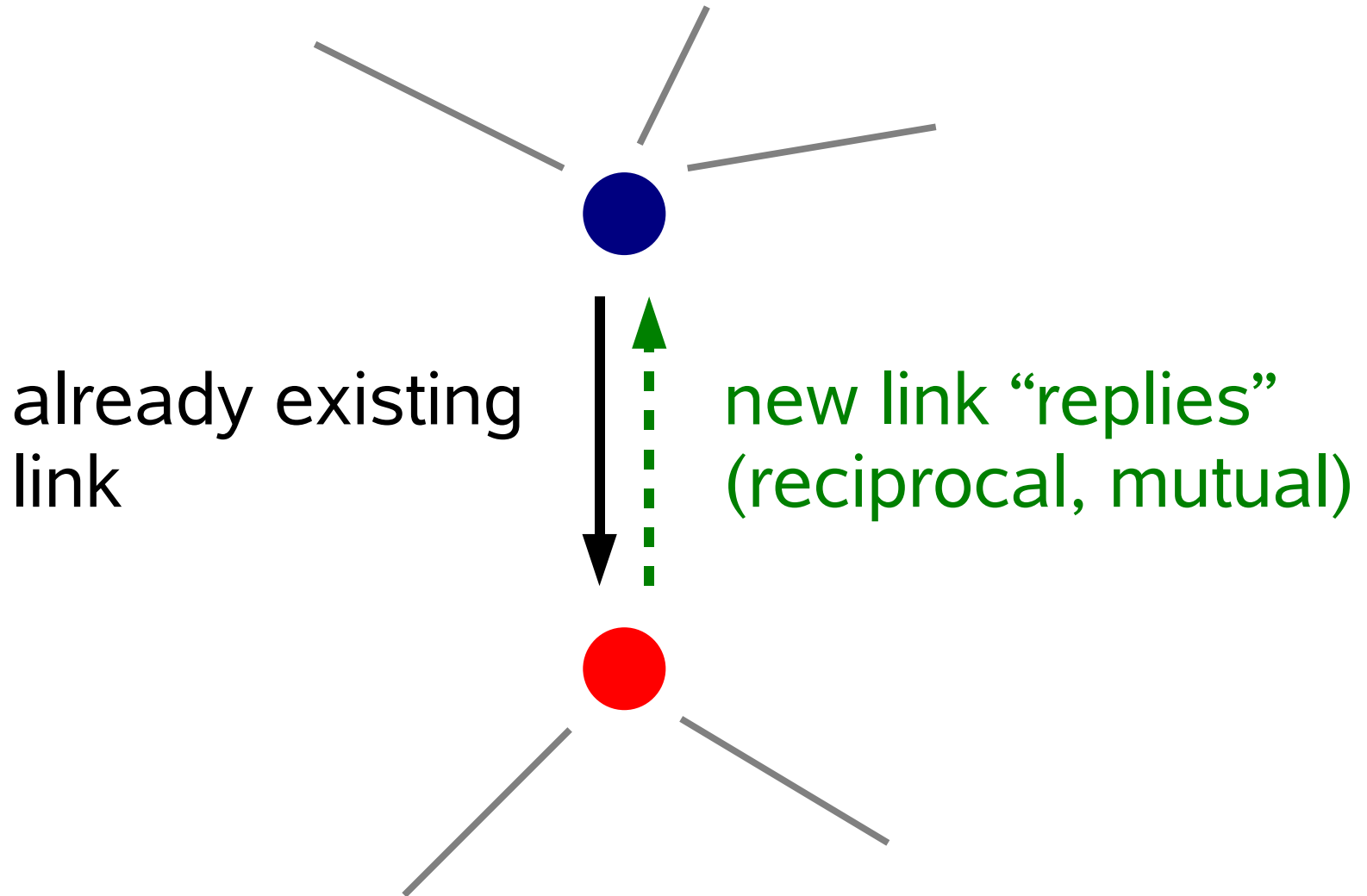
- guestbook, 190k actions
- activity in 492 days

both are dating-communities

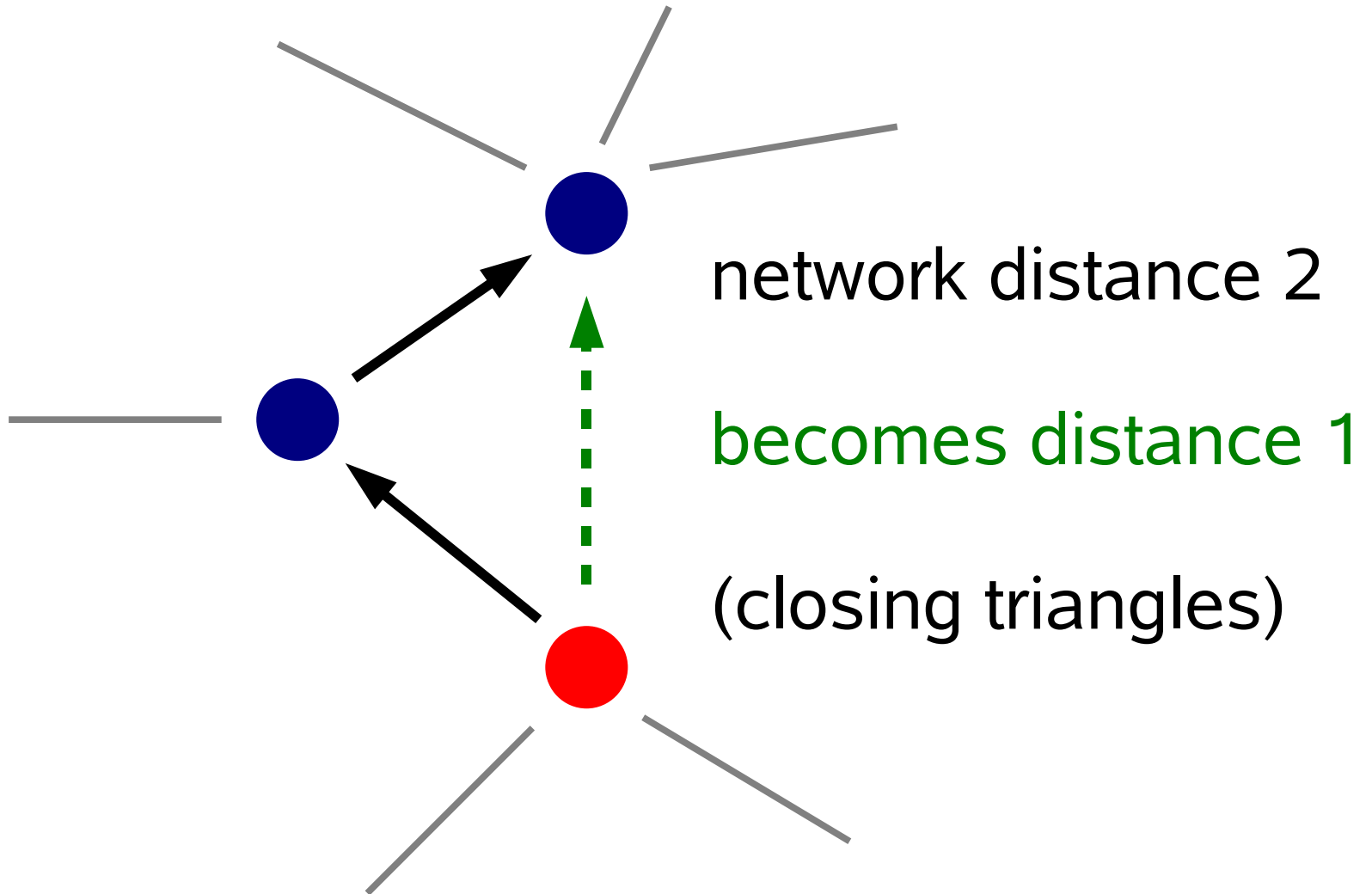
also used for social interaction in general

completely anonymous

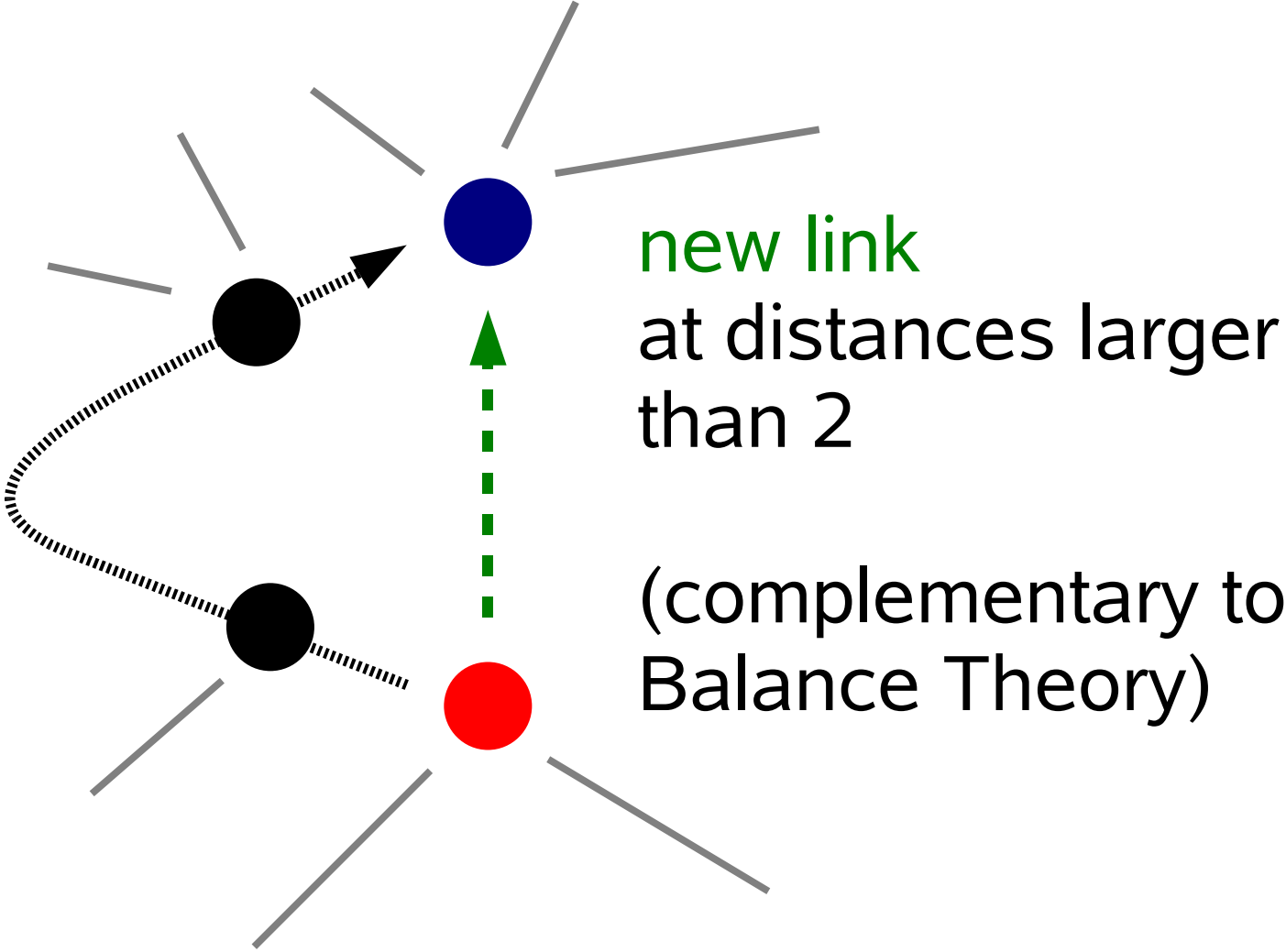
Exchange Theory



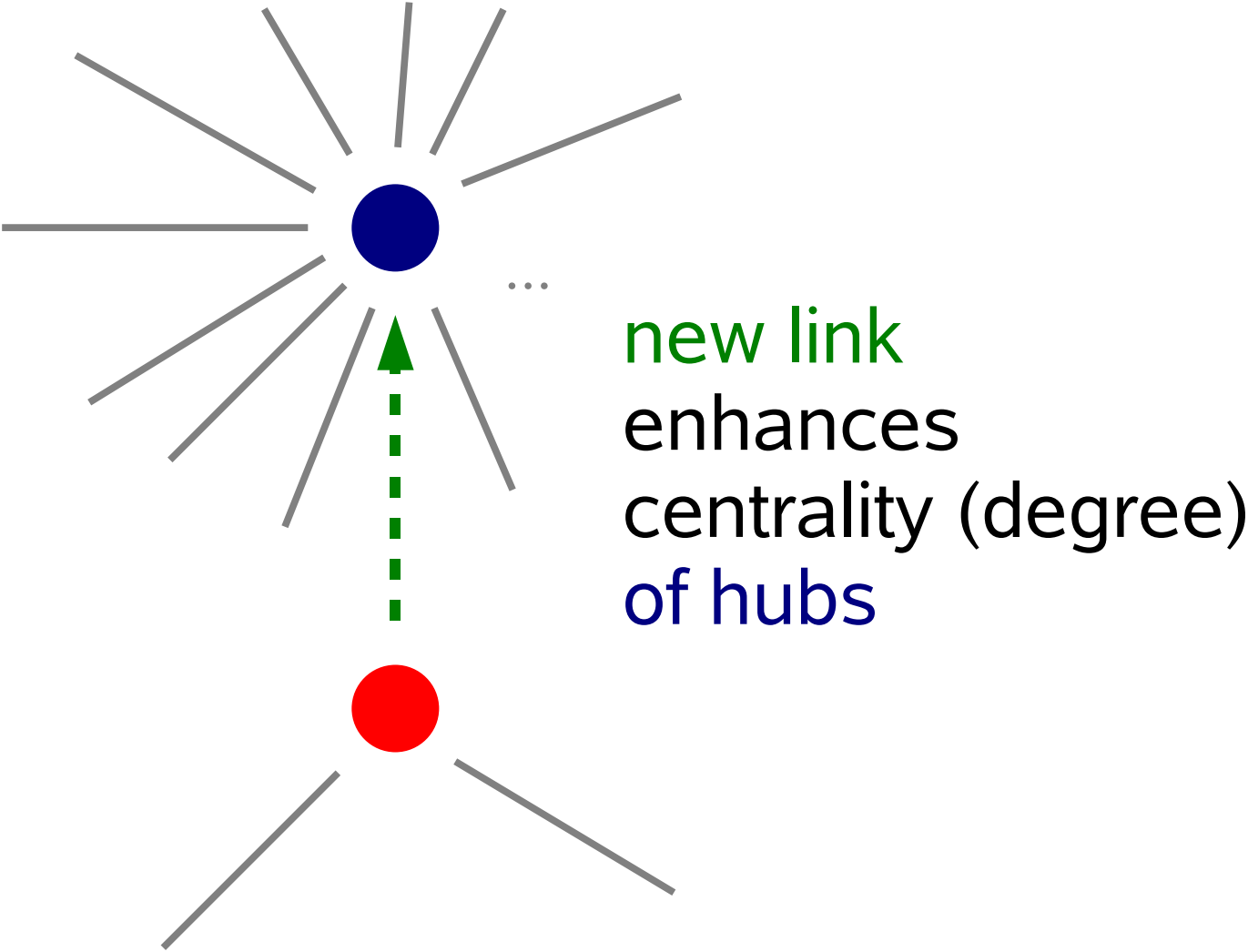
Balance Theory



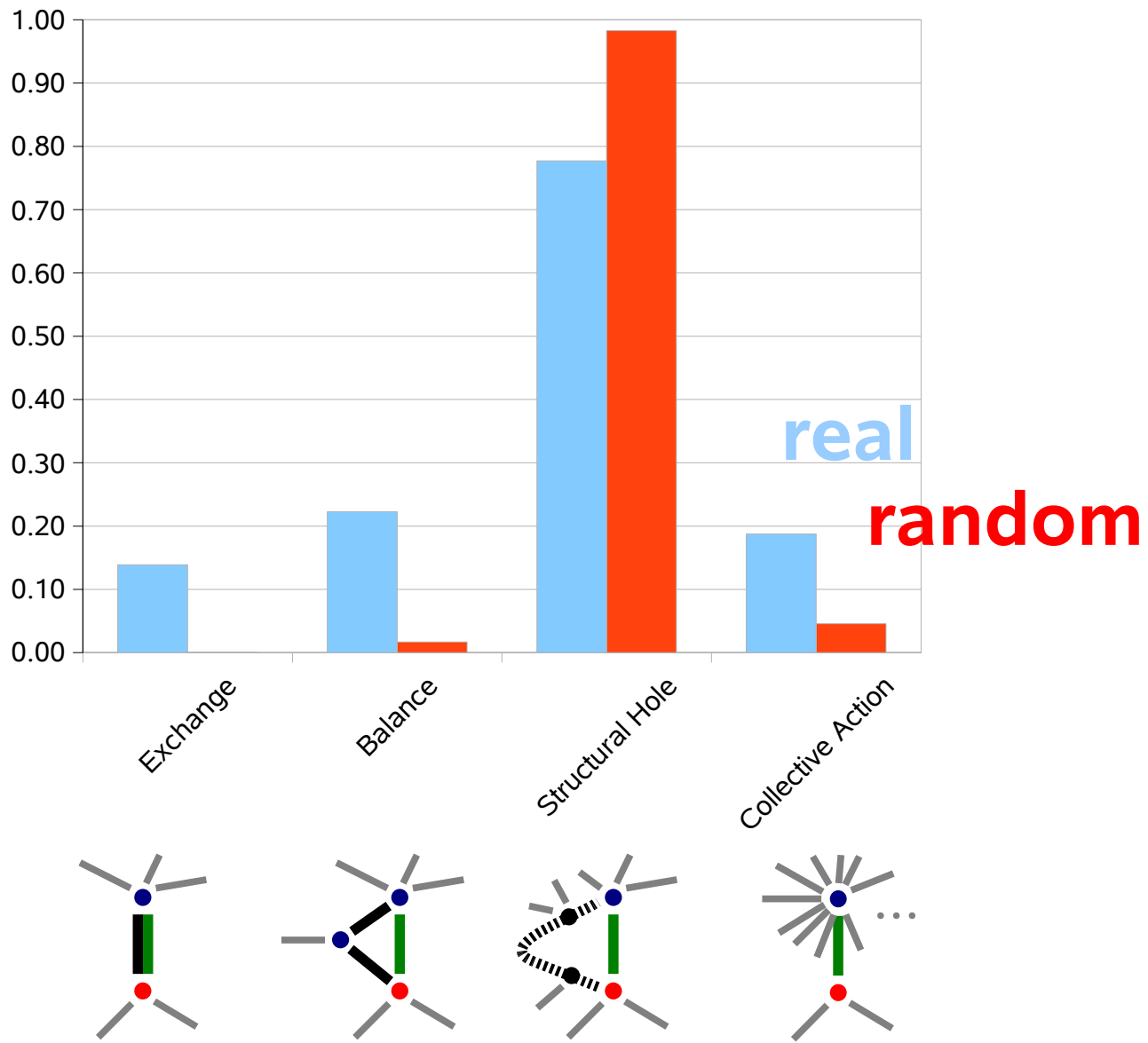
Structural Hole Theory



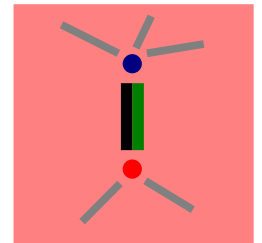
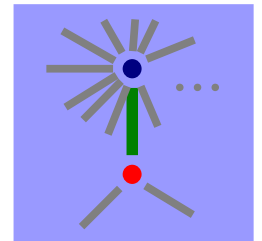
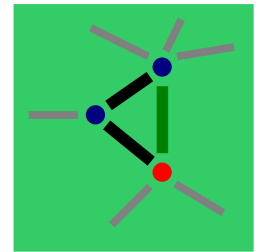
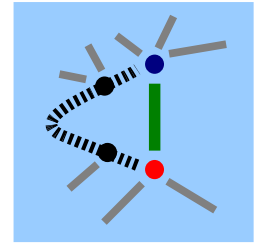
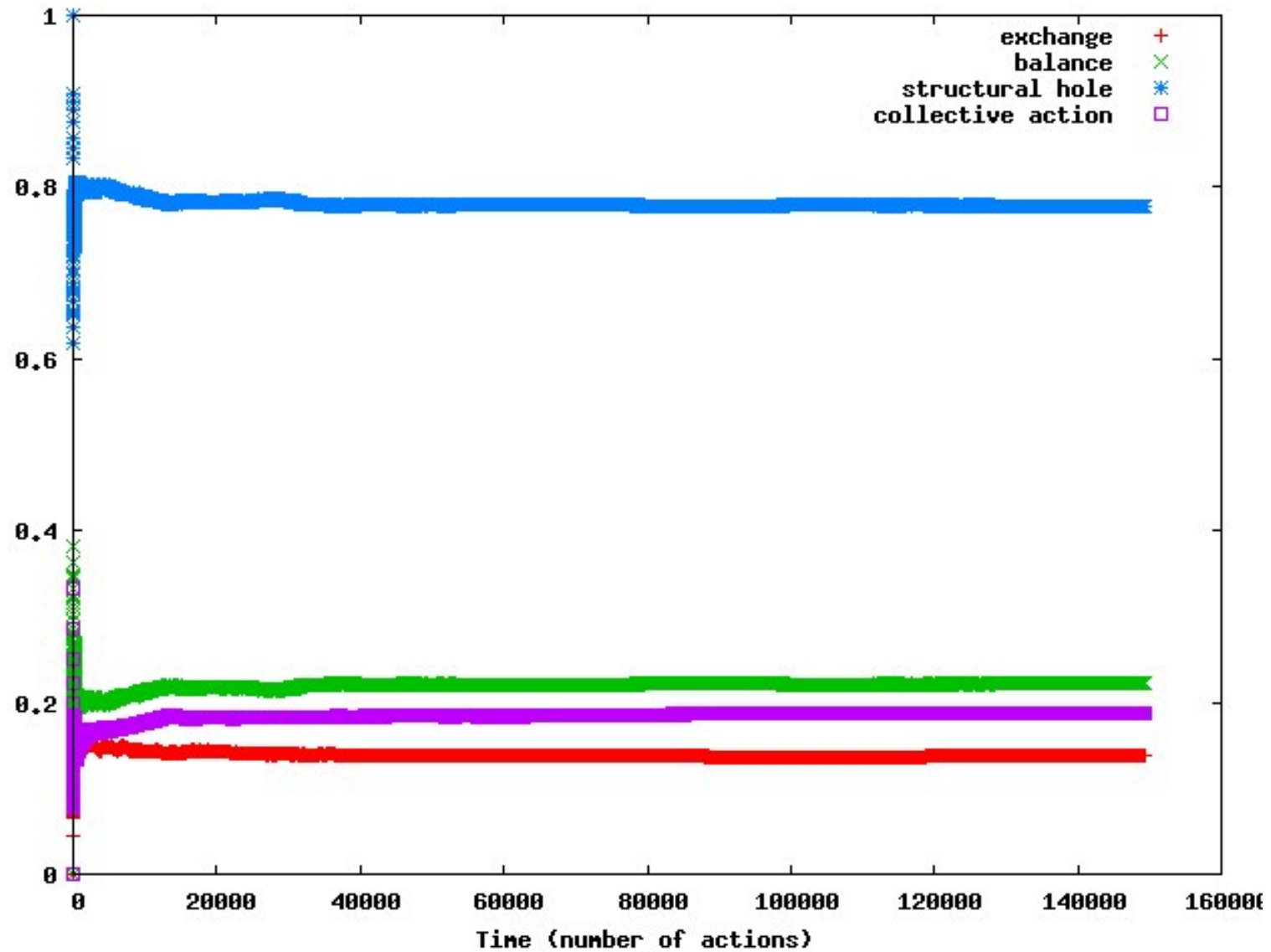
Collective Action Theory



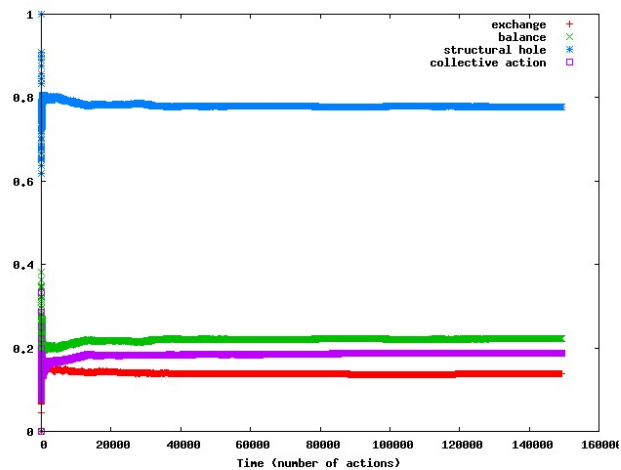
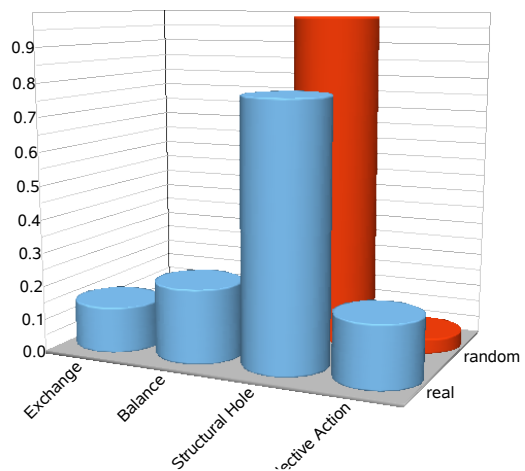
OC1 - favorites



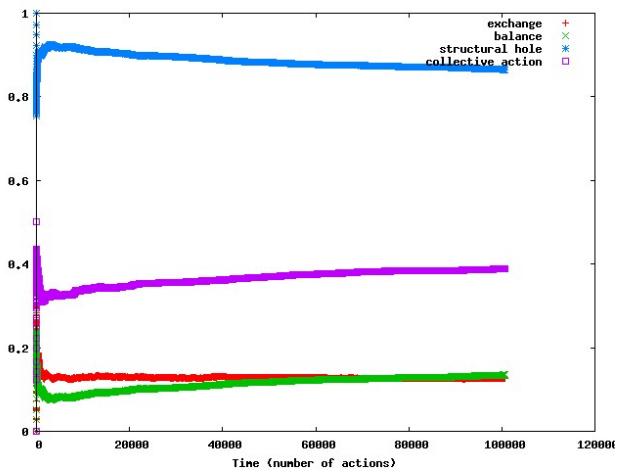
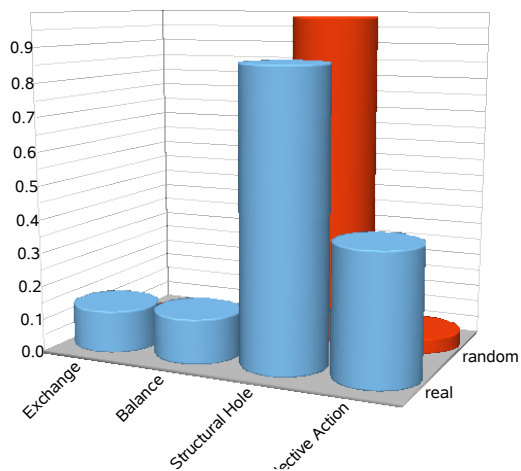
OC1 - favorites



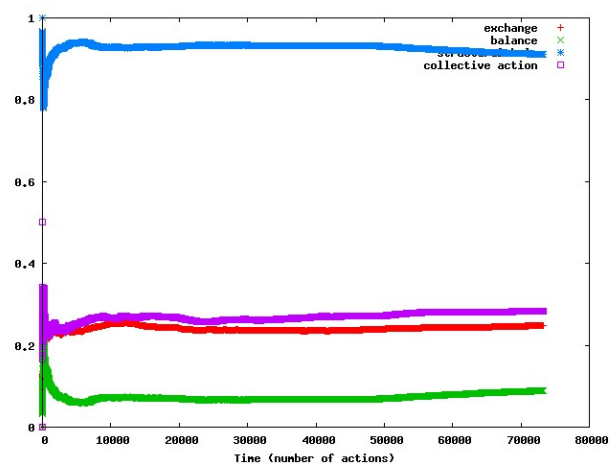
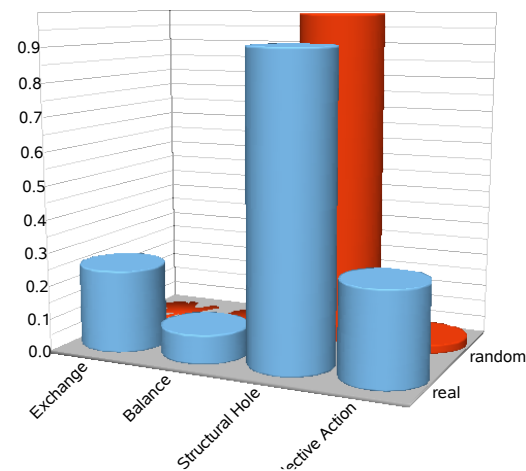
OC1 - FAVORITES



OC1 - GUESTBOOK

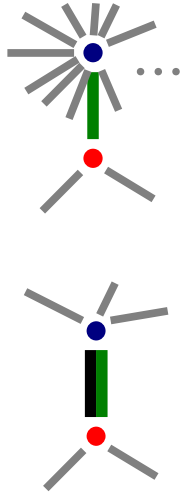
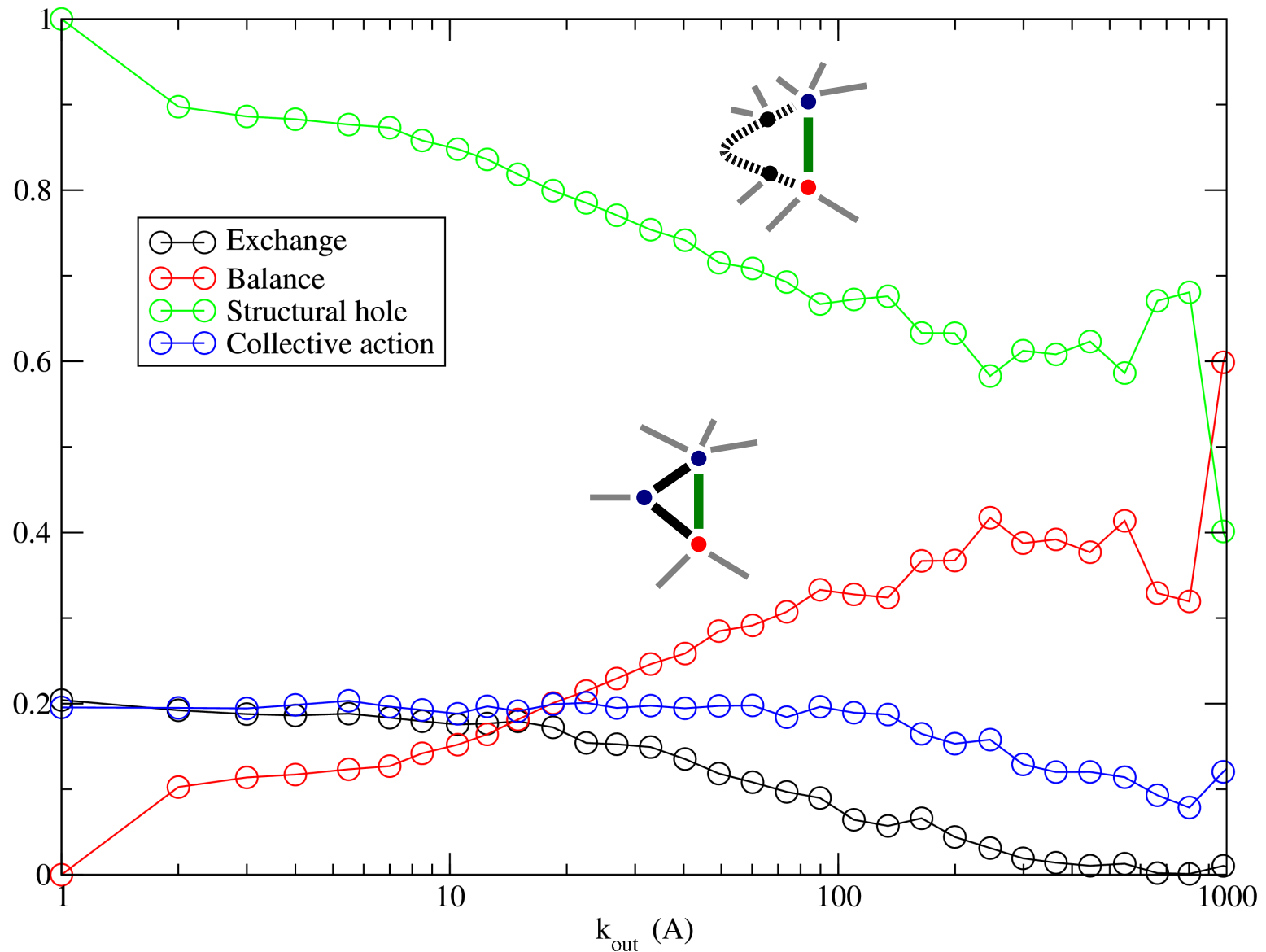


OC2 - GUESTBOOK

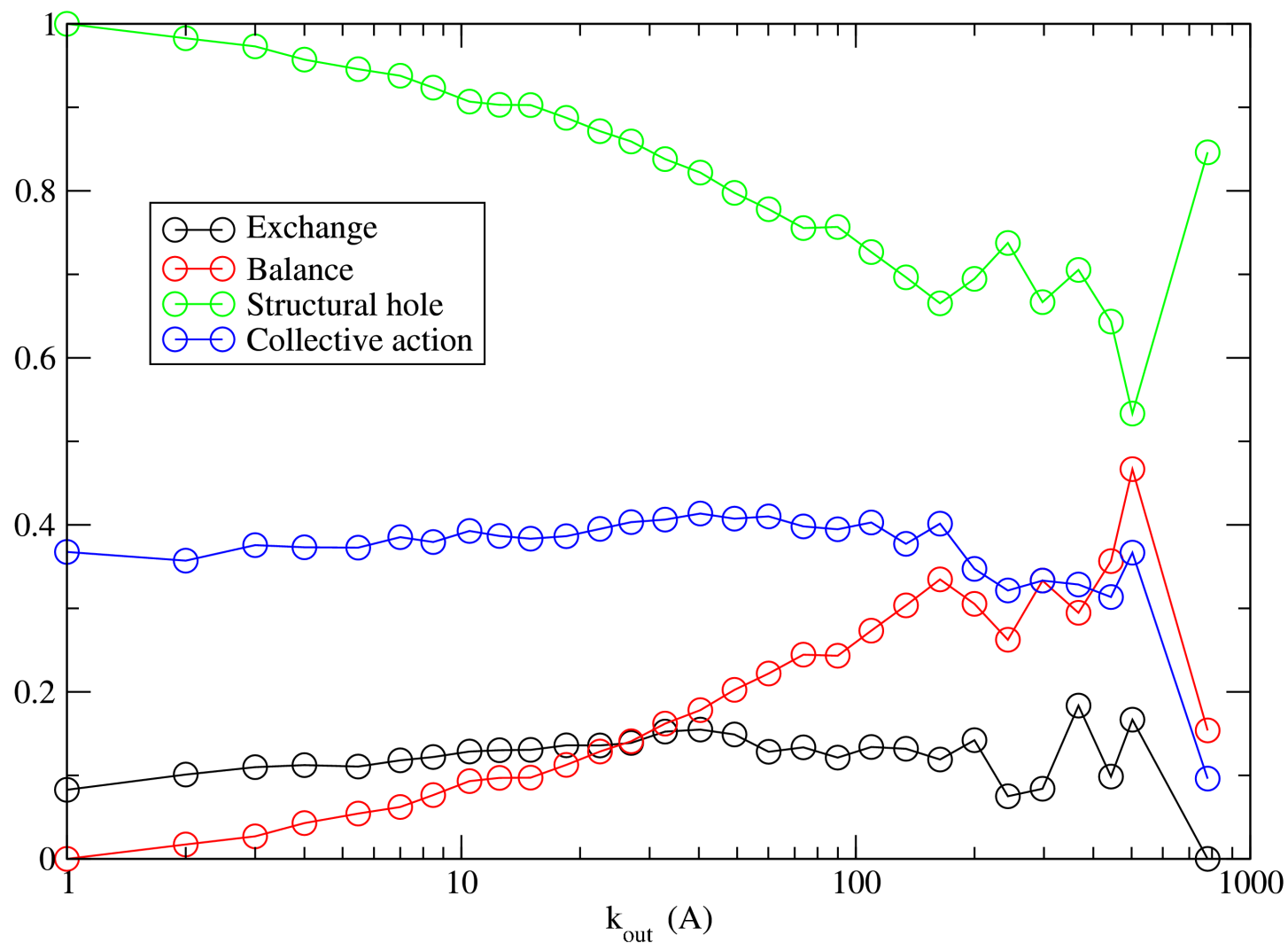


Top: Average probability of a mechanism, compared to random selections
Bottom: Time evolution of the mechanism probabilities

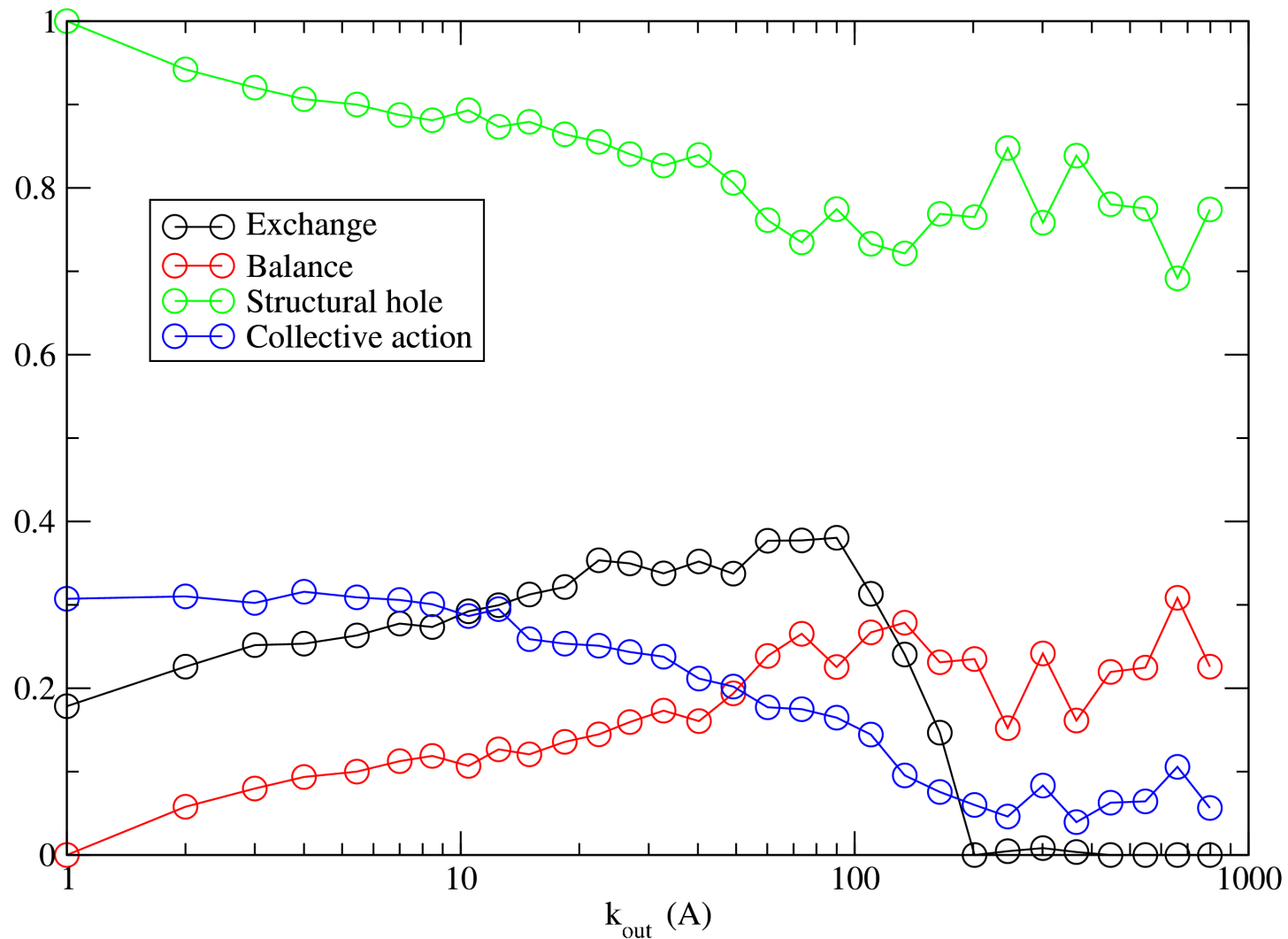
OC1 - favorites



OC1 - guestbook



OC2 - guestbook



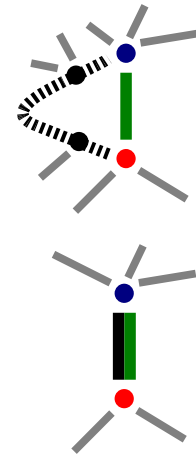
Summary

Quantification of Social Drivers in social online communities.

Dominant processes

absolute: Structural Hole Theory

relative: Exchange Theory



Stable in time, almost independent of data set

Members with different degree behave differently.

thank you for your attention