

The Naming Game



UNIT OF
EXCELLENCE
MARÍA
DE MAEZTU

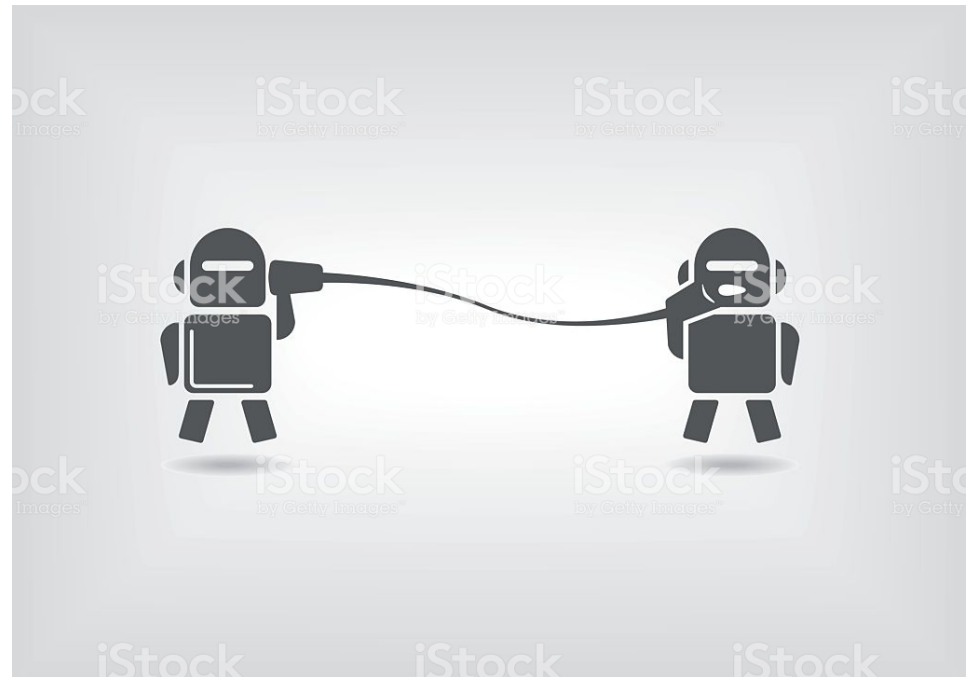


- Shared conventions emerge spontaneously in a population of agents.

Shared communication schemes in groups of robots, shared keys in sensor networks, collaborative tagging in humans.

- Organization.

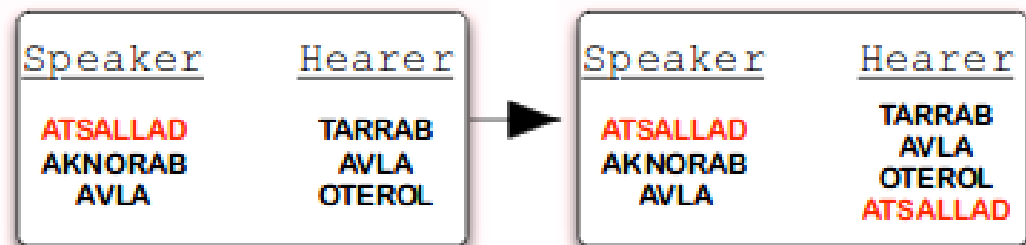
- Complete graphs
- Lattices
- Small-world networks
- Scalee-free networks
- Communities
- Committing agents



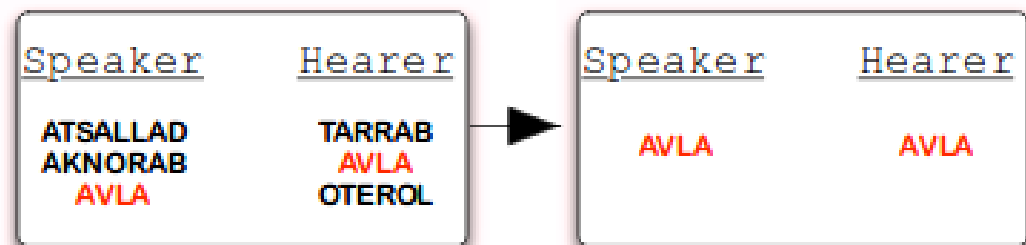
- Select one speaker and one hearer randomly
- Pronounce a word within the speaker dictionary
- Failure: enlarge hearer dictionary

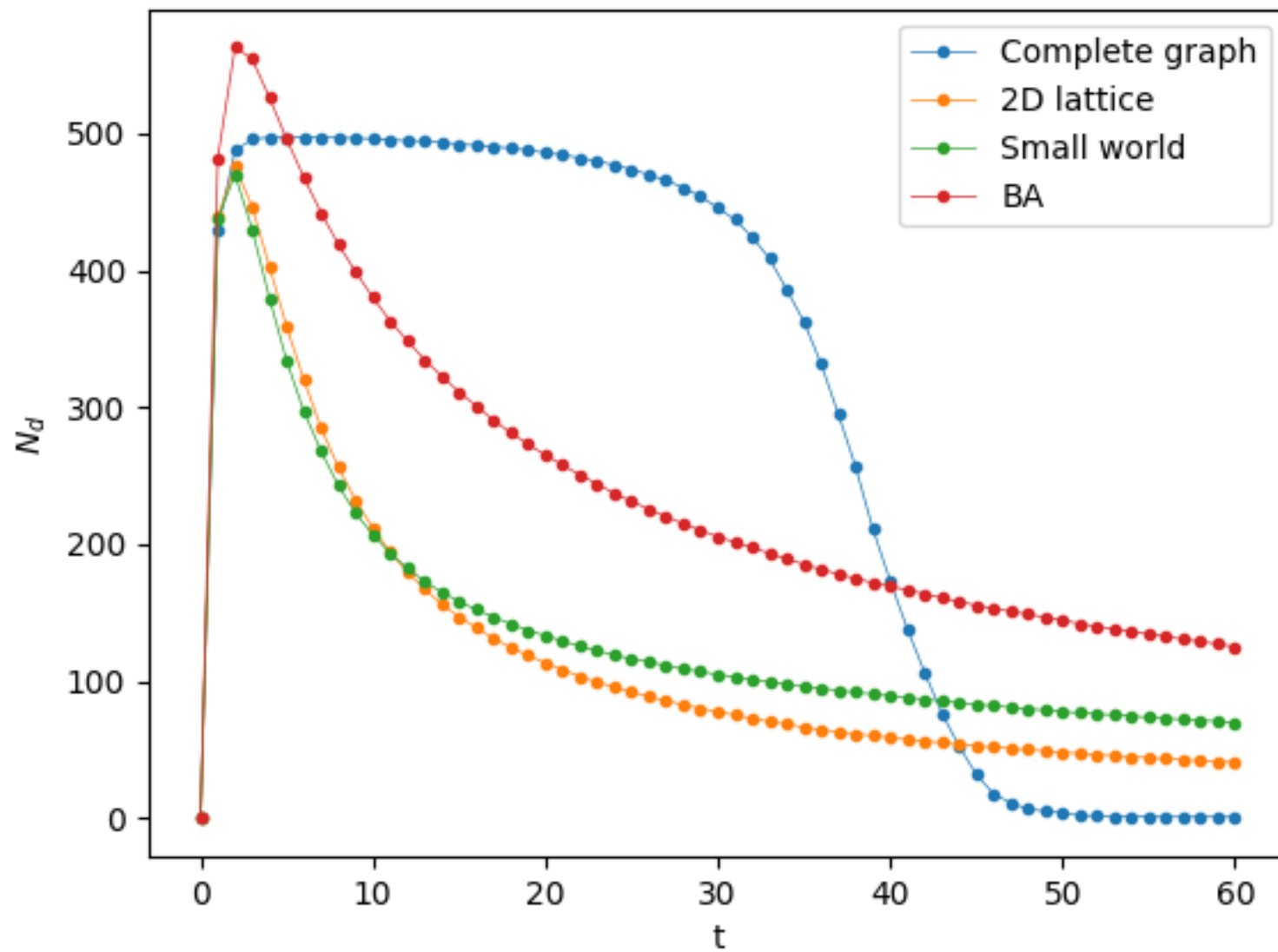
Success: keep successful word

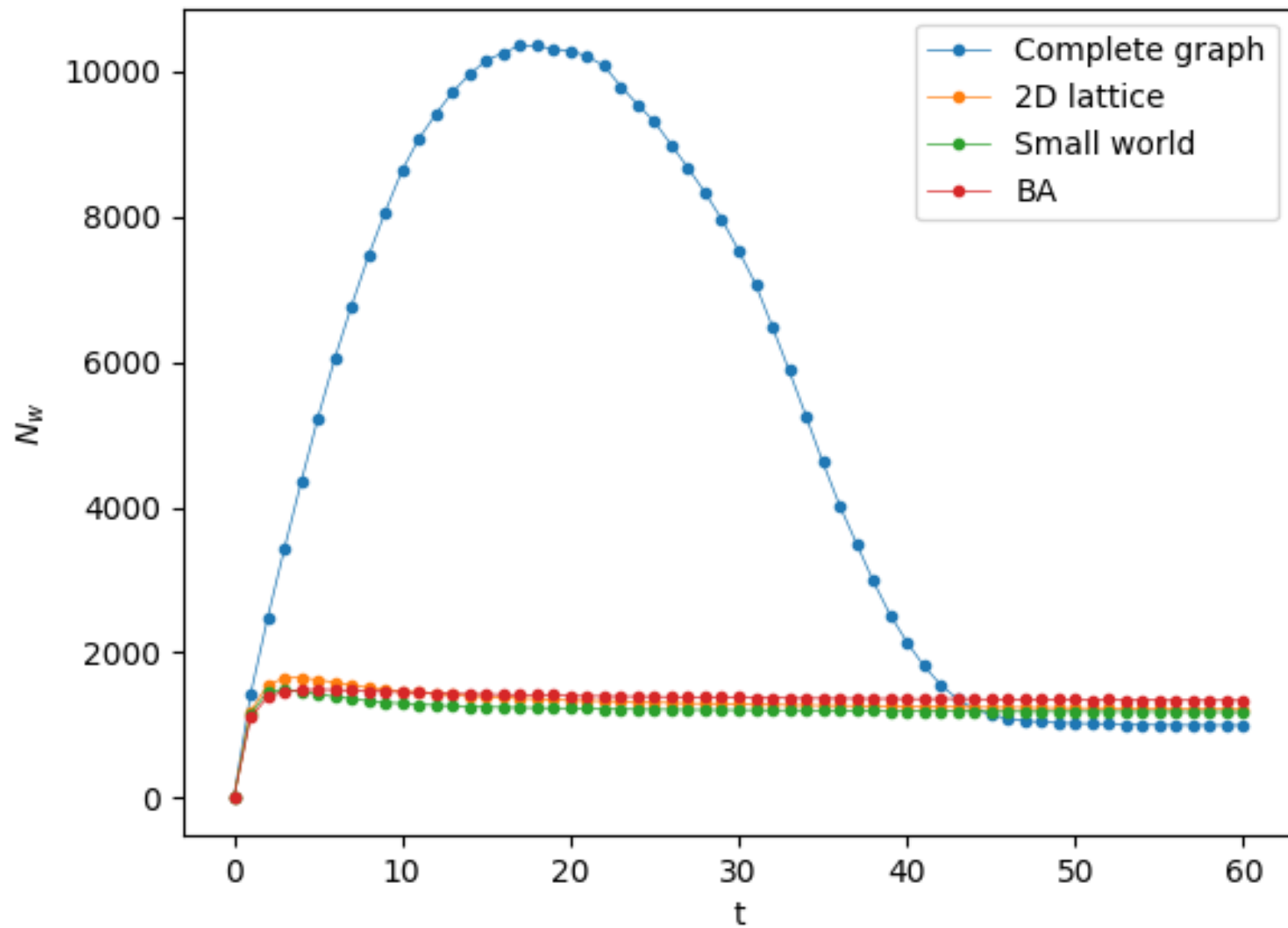
Failure

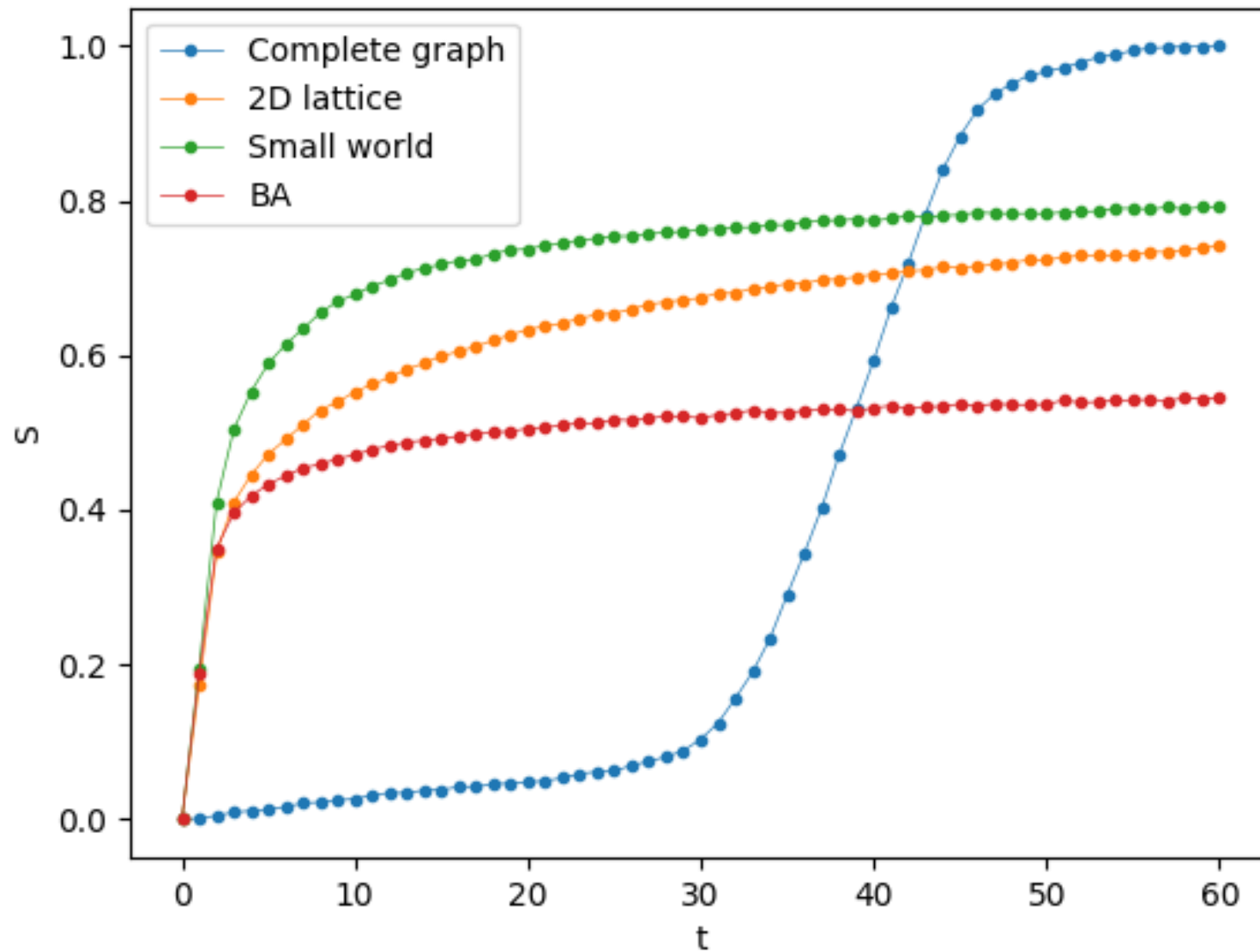


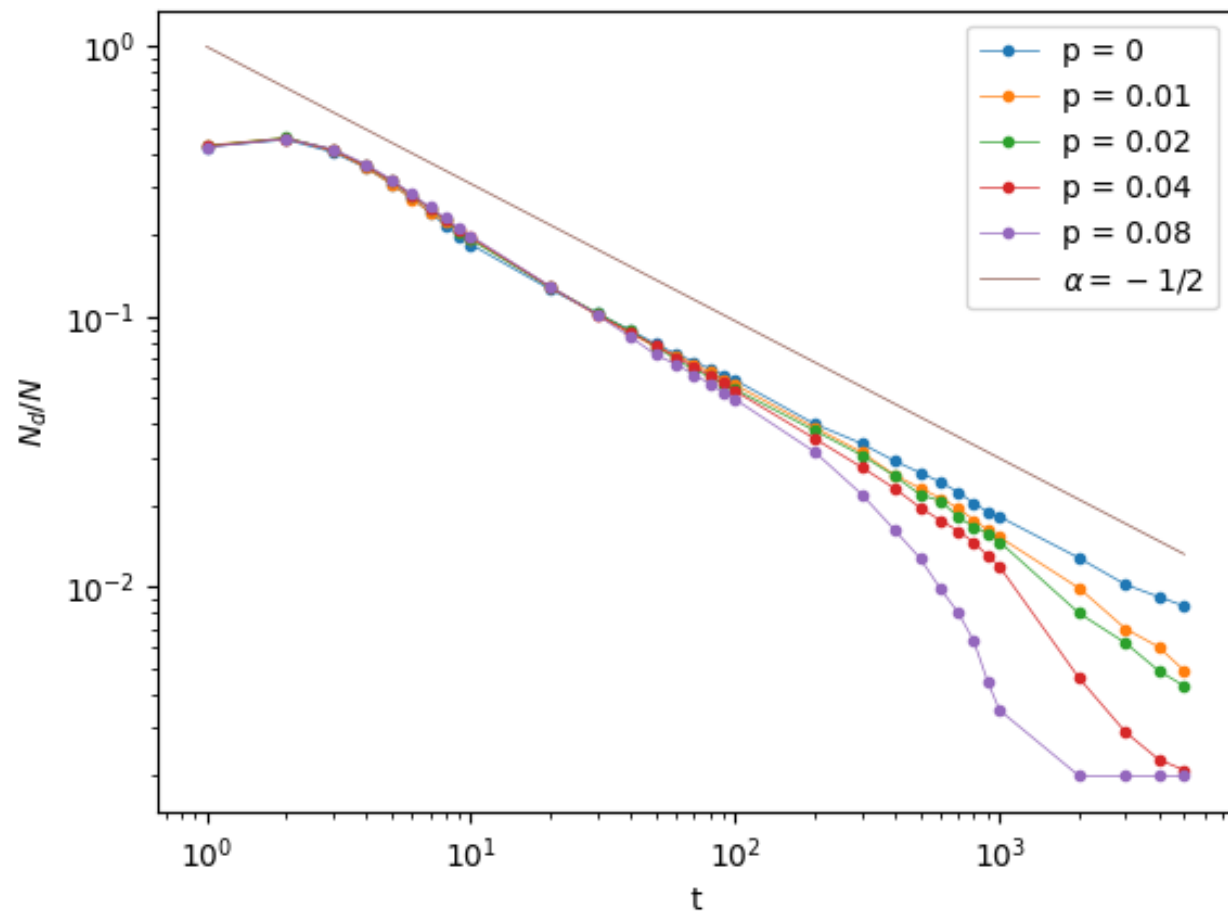
Success

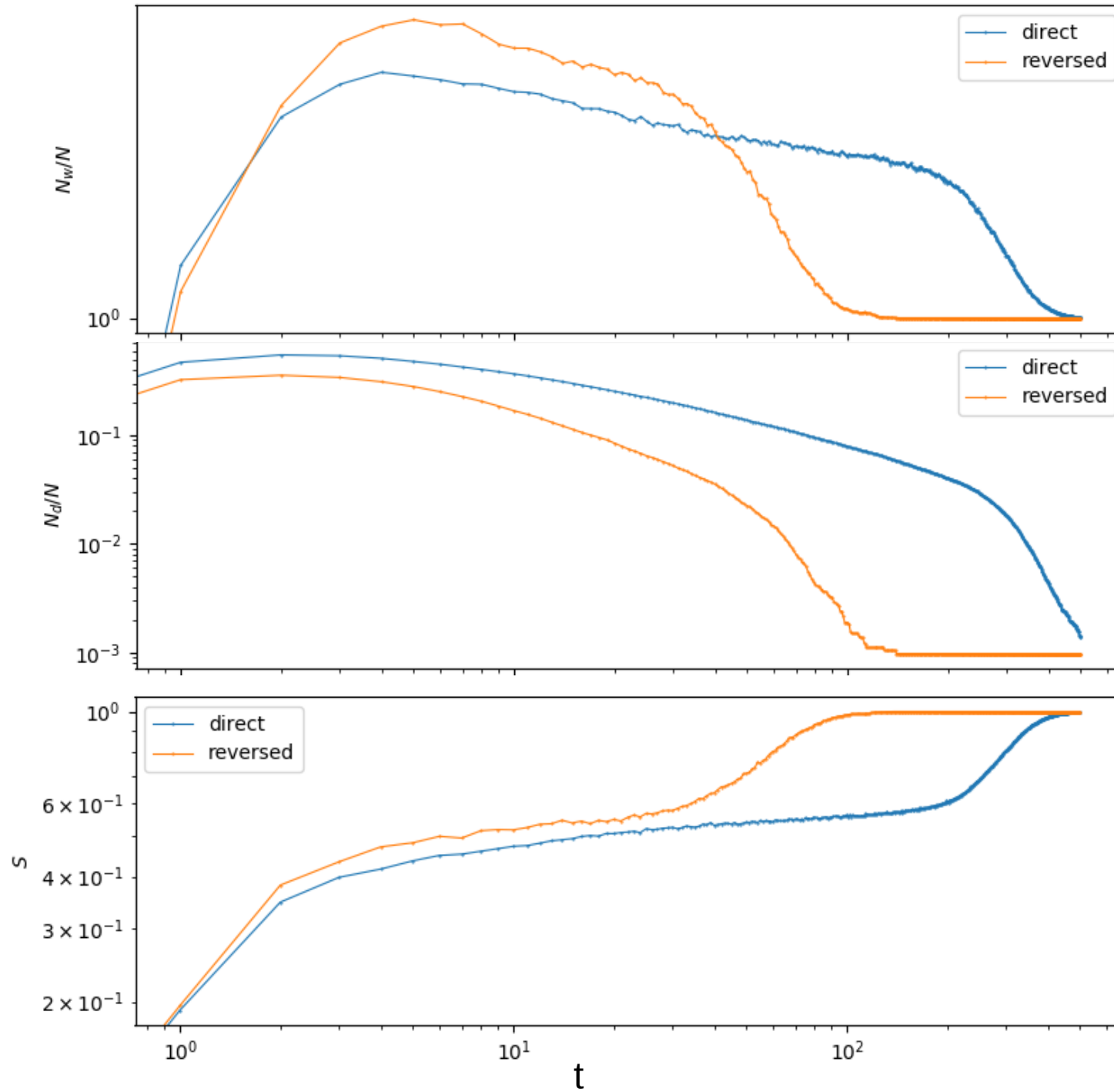




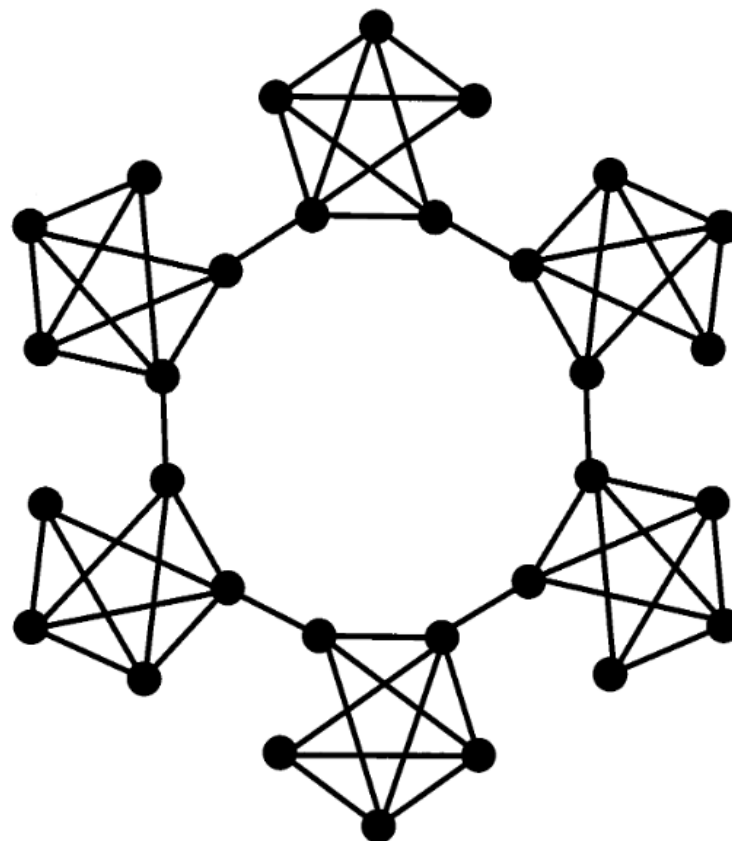






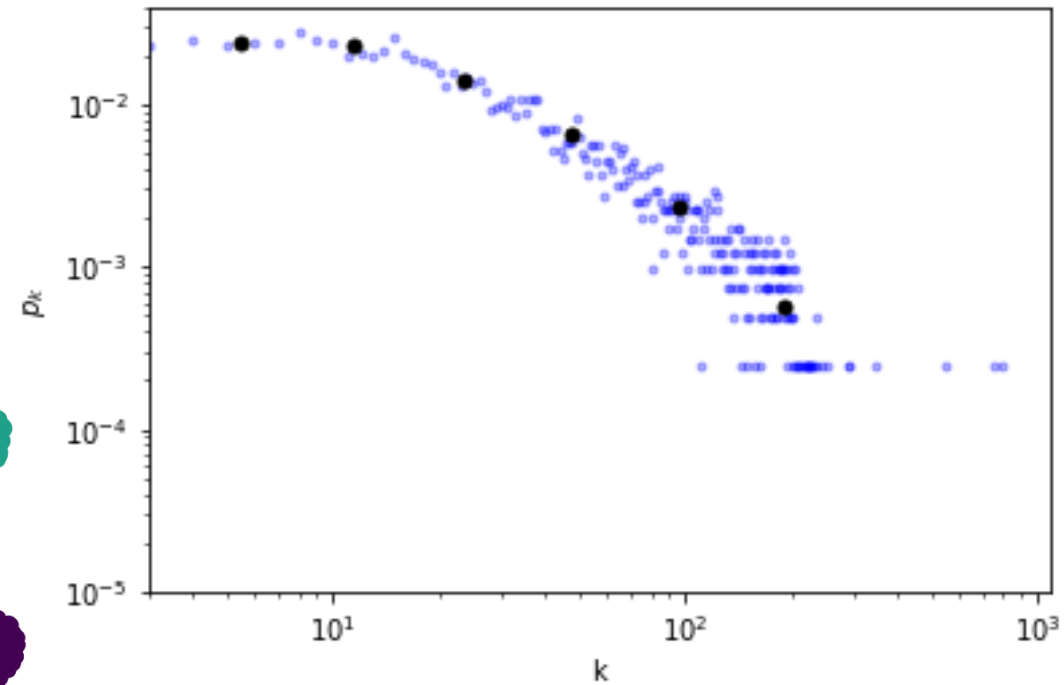
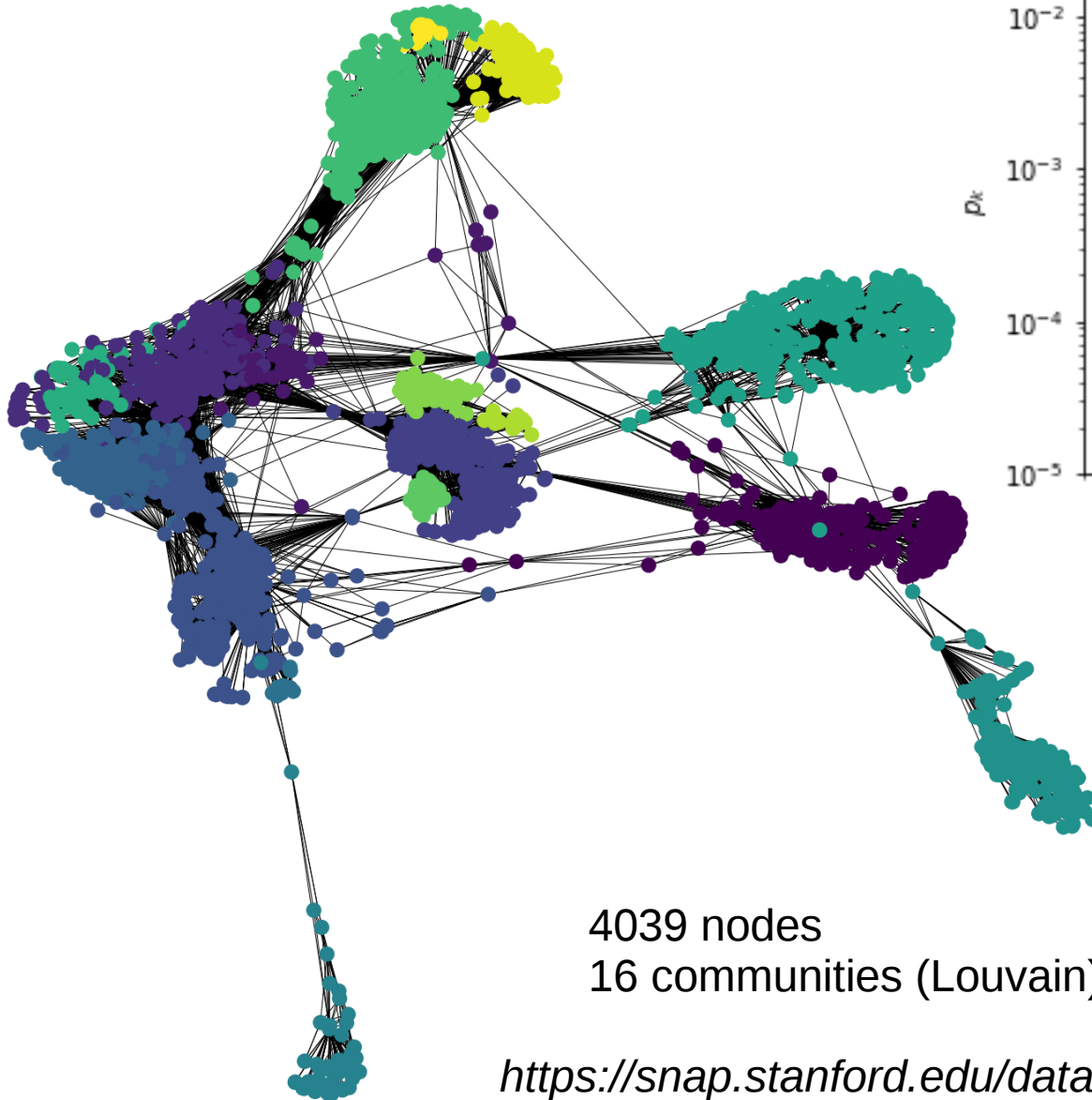


- No convergence to a unique word

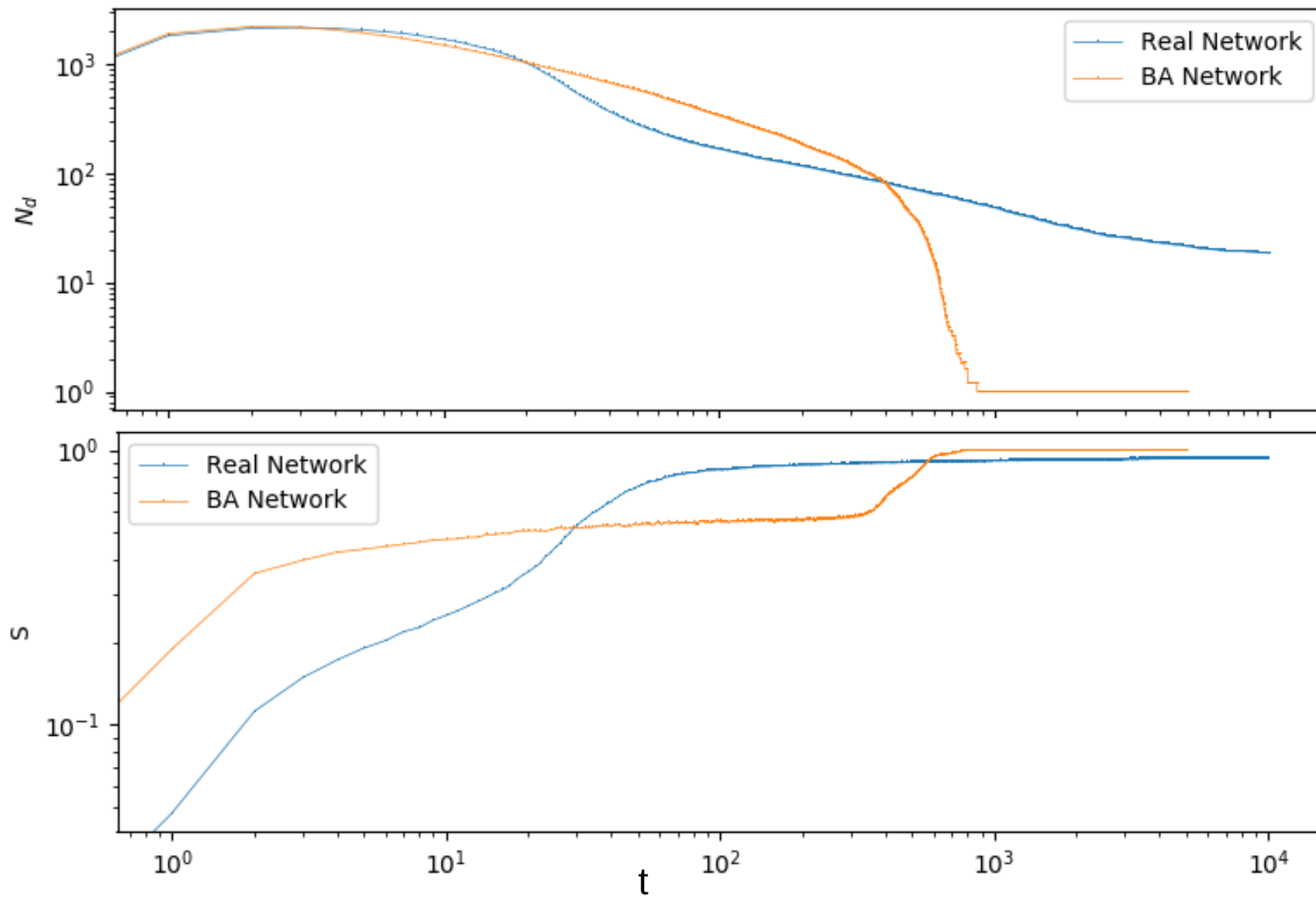


Caveman graph

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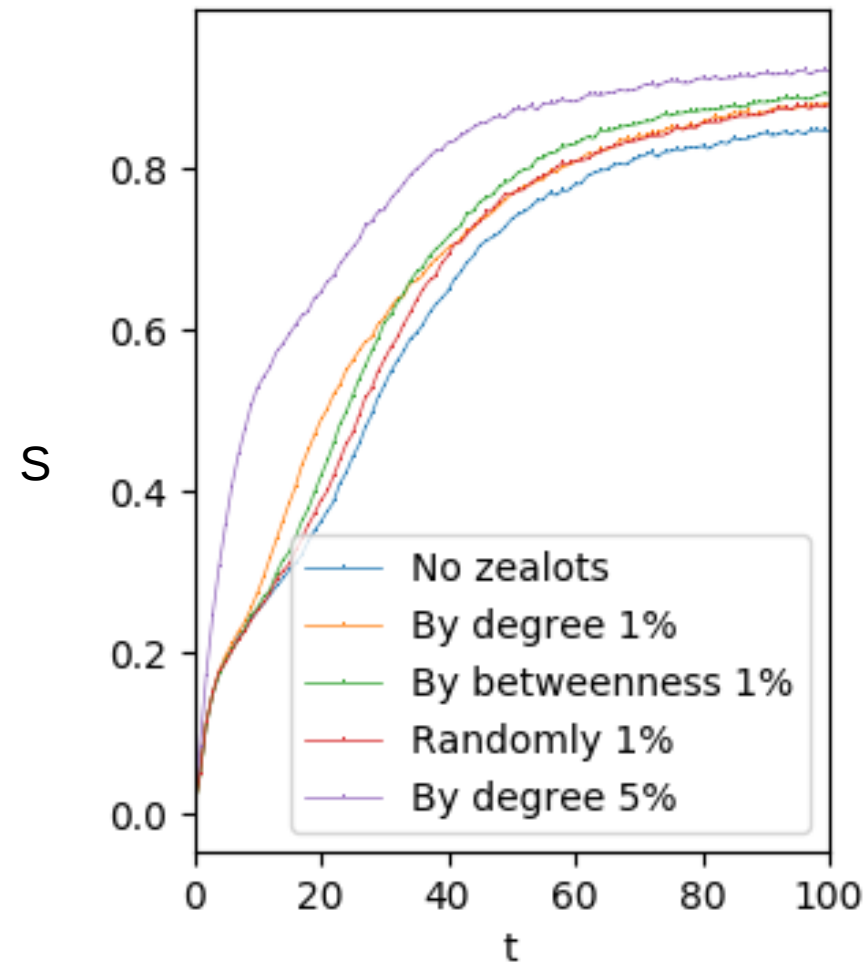


<https://snap.stanford.edu/data/egonets-Facebook.html>



$$N_d(t \rightarrow \infty) = 17 \pm 2$$

“Committed” agents who stick to a preferred word



- High influence of the topology in the dynamics
- Global consensus in no modular networks
- Inference in modular structure of the graph
- Betweenness centrality best measure to force consensus

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THANK YOU

for your attention