Social Network Analysis

Other models of empirical social networks

Federico Bianchi

NASP-ESLS Ph.D. Programme - University of Milan

7 June, 2021

Stochastic actor-oriented models for network panel data

- ERGMs are tie-based models (they estimate the probability of ties to occur)
- MCMCMLE works by toggling tie-variable values so that it maximises the likelihood of count-statistics of the model parameters
- Stochastic actor-oriented models (SAOM) assume a time-continuous evolution of a social network
- driven by actors' (nodes') tendency to optimize their weighted preferences towards their personal network
- SAOM model **change** probabilities of ties

Agent-based models of social networks

- ABMs are formal/computational models of actors (agents) and their environment (networks, interactions, institutions, etc.)
- Assumptions of an ABM concern agents' rules of action and interaction (decision-making)
- ABMs are not statistical models: they model deterministic processes, rather than stochastic
- Therefore, there are no parameters to be estimated
- Their goal is to simulate the evolution of a social system, they are not fitted to empirical data
- However, they can in principle be validated (i.e., simulation outcomes can be compared to empirically-observed networks)