Week 09

Network growth

Thursday, October 21

INFO 5613: Network Science

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Agenda

- Networks are not static! Nodes, edges, and their attributes change in time
- Wrap up notebook: reproducing Kossinets & Watts (2006) figures, cumulative graph analysis
- Discussion of reading responses
- Module Assignment 03 & final assignment

Reading responses

Examples of temporal networks

- MG: DisInfoViz → user-hashtag engagement, include languages/geography?
- LD: Vaccine disinformation/distrust networks pre/post-pandemic
- JT: Character interactions in *Harry Potter* and MCU
- JG: Circulation of political appointees and cronyism/corruption
- DD: Connections among family member before and after family violence against women
- HB: Spread of vaccine hesitancy behavior among social media followers
- MP: Comparing dynamics of comics, cinematic, discussion boards around releases
- KW: Outlink ego-network around a Wikipedia article, differences in “embedding” practices
- DR: Rumoring social media users and information propagation
- CD: Social media interaction snapshots in aftermath of police press conference

Metrics for analyzing temporal networks

- EO: Comparing ego network changes around celebrities, migration of users & “gateway drugs”
- JR: Epistemic network analysis and frame density over time
- NP: Average network paradoxes, measuring strategic tie formation between different roles
- JS: Can email still predict offline social relations? Replicating for academic email around pandemic
- SD: Changes in size of components for gig worker communities, user-topic networks
- CD: Deactivation of relations rare but salient and missed in cumulative approaches
- CM: Conditioning information spread on following and temporal sequencing

Paretian vs. Gaussian thinking

- YL: Hierarchical modularity and cancer angiogenesis and cell differentiation
- SD: Niche proliferation and worker organizing/fragmentation

Module Assignment 3 & Final Assignment

Module Assignment 03

- November 12 deadline, want to push to November 19 (Friday before Fall Break)?

- Opening bid:
  - “Network contrarian” op-ed → “everything we’re doing about X is wrong because we’ve ignored networks”
  - Classic 750-1000 words and 10-12 short (75-100 word) paragraphs intended for a general audience
    - The OpeEdProject: https://www.theopedproject.org/oped-basics/
    - Paragraphs 1-2: Hook (why should someone care?) and nut (what’s your contribution?)
    - Paragraphs 3-5: Define the problem
    - Paragraphs 6-8: Outline the solution
    - Paragraphs 9-10: “To be sure” making anticipating and making concecessions to critics
    - Paragraphs 11-12: Summarize and call-to-action

Final Assignment: What to do?

- Solo vs. collaborative projects
- Theoretical/agenda-setting/review, research design, exploratory data analysis, …?
- Weeks 15 and 16 after Fall Break are wide-open: presentations, skill workshops, …?

Next class

Readings

- Diffusion, simple vs. complex contagion, threshold models

- Readings
  - Valente, T. W. (2012). Network interventions. *Science*, 337(6090):49–53
  - Guilbeault, D., Becker, J., and Centola, D. (2018). Complex contagions: A decade in review. In Lehmann, S. and Ahn, Y.-Y., editors, *Complex Spreading Phenomena in Social Systems*.