


Attributed Stream-Hypernetwork analysis:

Homophilic Behaviors in Pairwise and Group Political Discussions on Reddit

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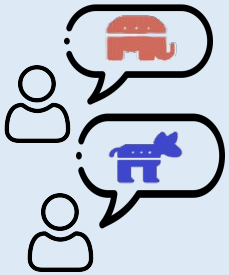
Attributed Stream-Hypernetwork (ASH)

A

Node Attributes



Correlation between structure and metadata

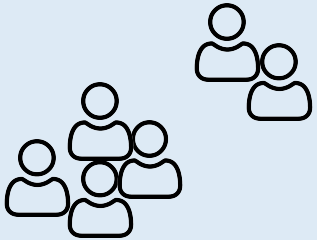
S

Evolving Topologies

Structures (and metadata) vary over time

H

High-order Interactions



Beyond pairwise/dyadic connectivity patterns

Attributed Stream-Hypernetwork (ASH)

A — **A**ttributed networks

S — **S**tream Graphs *(Latapy et al., 2018)*

H — **H**ypergraphs

New Modeling:

- Combining well-known frameworks;

New Data:

- Social network data with users' annotations (e.g., age, gender...) and time of interactions;

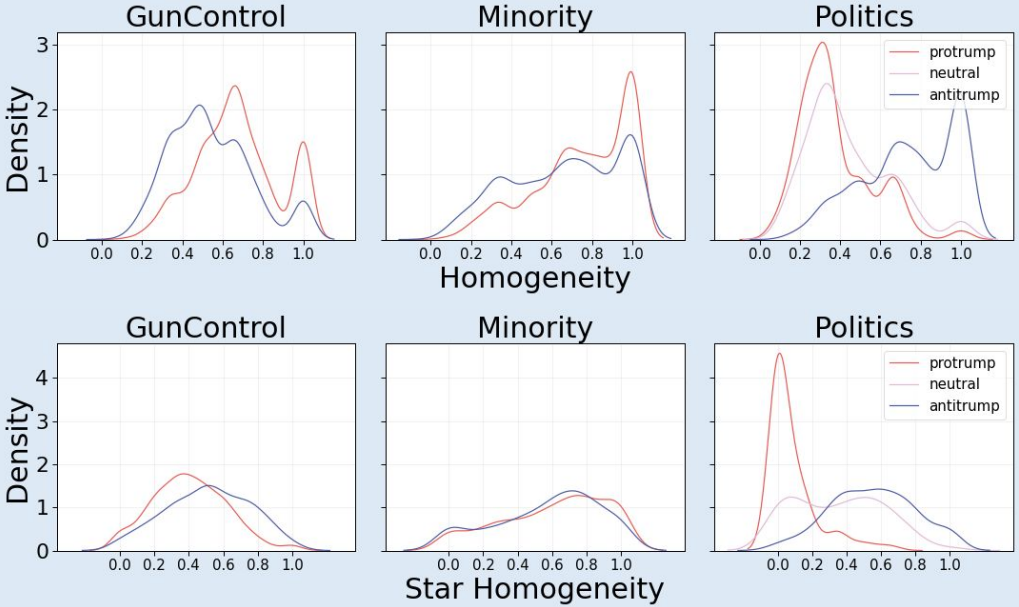
New Mining:

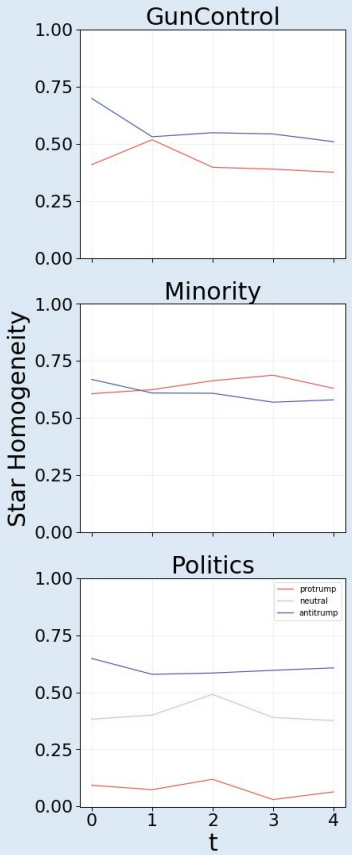
- Homophily in High-Order Networks;
- Temporal trend of homophily.

Group Political Discussions as ASHs

Idea: Users in Online Discussions are embedded in *contexts* and not in pairwise interactions:
Do homophily behaviors change?

Data: Reddit Political Discussions on several categories (e.g., GunControl, Minority);
Users annotated with their time-varying political leaning.





Conclusion

Summing up...

- ASH as a composite model inherited from Stream Graphs and Hypergraphs;
- Analysis on Reddit's political discussion boards unveils mixing differences in pairwise vs. group interactions, and overall constant homogeneity time-wise

Future Directions:

- Statistical Framework for ASH-analysis validation
- New concepts, measures, and tools to study dynamic and/or attributed hypergraphs
- Application scenario: detection, evaluation, and longitudinal tracking of polarized online settings (e.g., echo chambers)