

Data and Culture

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November 28, 2022. Historical networks.

review

- ▶ making the *Hamlet* network
 - ▶ coding decisions are interpretations of being and agency
- ▶ are the network plots plots of plot?
 - ▶ *staging* as a proxy for action
 - ▶ reductive, but it is a crucial *context* of action
 - ▶ handy “model” or toy version of play
 - ▶ highlight distinction between Court and outside
- ▶ are *Hamlet* networks social networks?
 - ▶ the networks are a model of interaction in the play
 - ▶ the play is a model of social life
 - ▶ “The play’s the thing / Wherein I’ll catch the conscience of the King” (2.2.633–34)

network phrasebook

nodes entities, vertices

edges relations, links

neighbors the nodes connected to a given node

path a sequence of connected edges

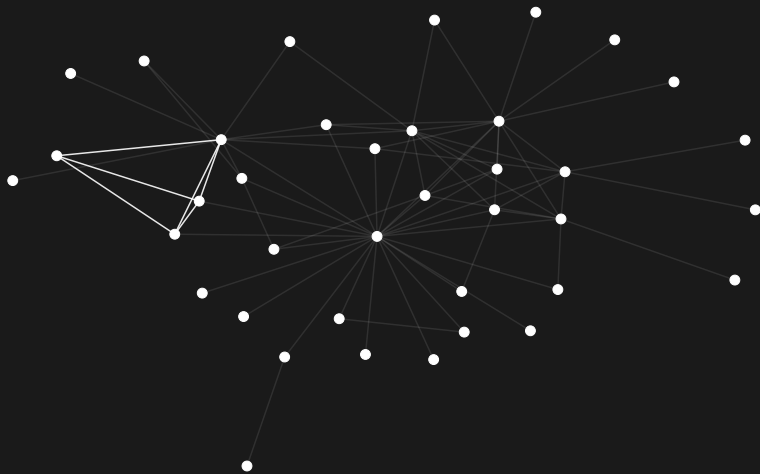
social facts again

The personal experience of individuals is closely bound up with larger-scale aspects of social structure, well beyond the purview or control of particular individuals.

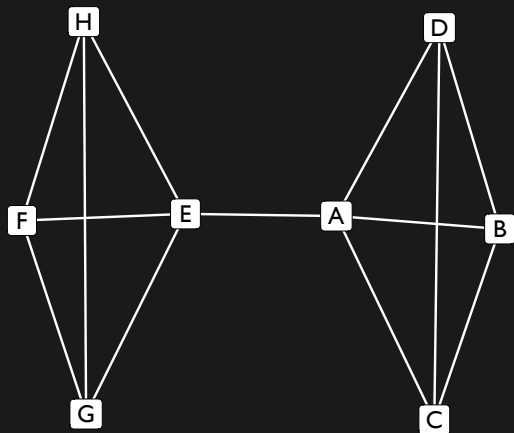
Mark S. Granovetter, "The Strength of Weak Ties," *American Journal of Sociology* 78, no. 6 (May 1973): 1377, [jstor.org/stable/2776392](https://www.jstor.org/stable/2776392).

How could this naming pattern be explained? It seemed, in a certain sense, like the ultimate example of a social process. (Lieberson, xii)

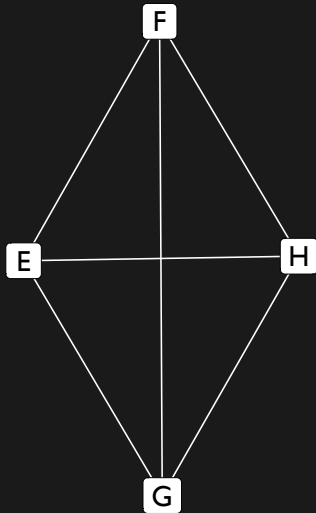
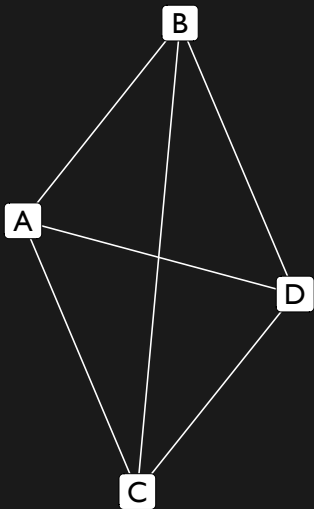
cliques: *Hamlet*, 1.1



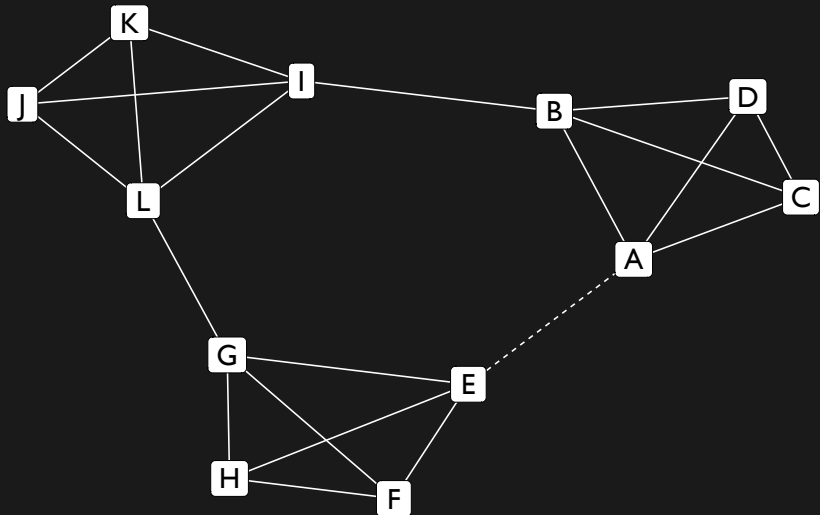
bridges

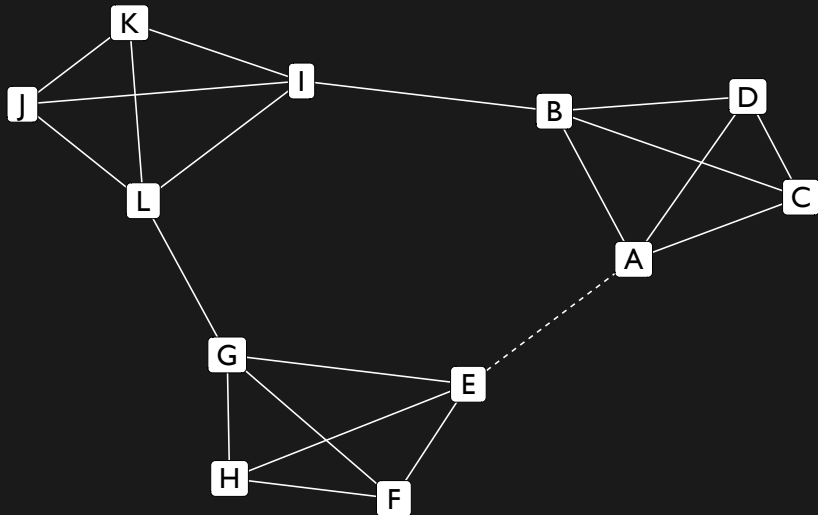


- ▶ Where are the cliques?
- ▶ Where is the bridge?
 - ▶ In terms of network properties, what makes a bridge?



bridge an edge the deletion of which increases the number of components of the graph

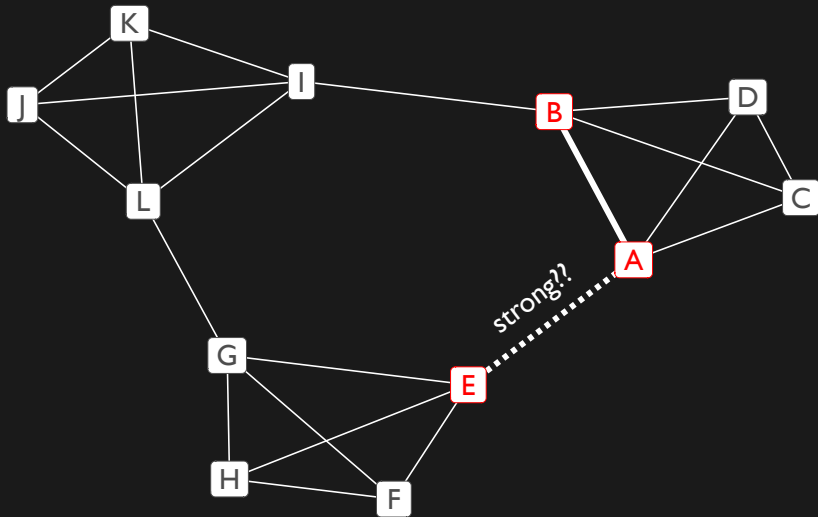




local bridge an edge connecting two nodes with no common neighbors

the strength of weak ties

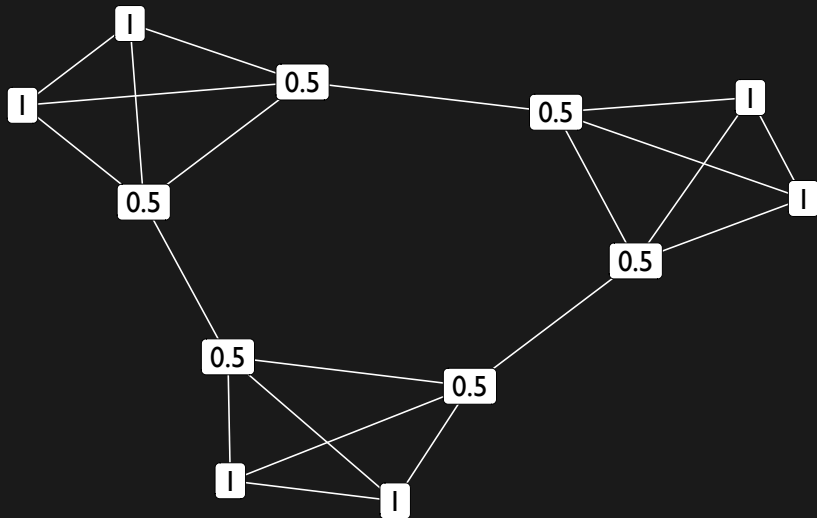
- ▶ suppose ties (edges) can be weak or strong
- ▶ suppose that strong ties are always transitive (“strong triadic closure”)
 - ▶ if X is strongly tied to Y and to Z , then Y is tied to Z
 - ▶ (the Y – Z tie could be weak, but it must exist)
- ▶ what do we know about local bridges in this case?



- ▶ Given strong triadic closure, if A–B is strong, can A–E be strong too?

bridges, node's-eye-view

clustering coefficient for a given node, the proportion of pairs of neighbors which are also connected by an edge



Only weak ties may be local bridges.

Weak ties...are here seen as indispensable to individuals' opportunities and to their integration into communities; strong ties, breeding local cohesion, lead to overall fragmentation.

Granovetter, 1365, 1378.

how to make revolution

1773	Boston Tea Party
1774	First Continental Congress
1775	Battles of Lexington and Concord

We hold these truths to be self-evident, that all men are created equal...

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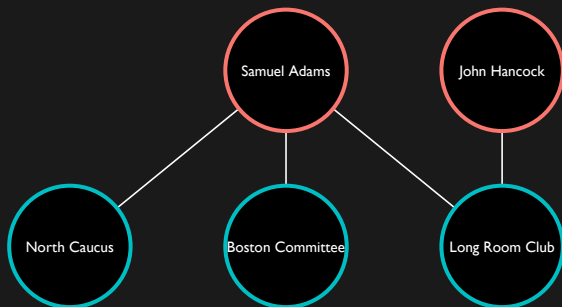
We hold these truths to be self-evident, that all men are created equal...NOT

The condescension of the better sort was often met by the resentment of the lower sort....The divide could have been a pernicious one for the movement. In fact, the resistance often took the form of *either* popular uprisings *or* petitions to the Crown....To mobilize men of all orders meant, more than anything else, to span this divide. (Han, 147)

The key feature that distinguished what happened in 1775 from all of the preceding events was its breadth of mobilization. (149)

persons and groups

bipartite graph nodes are of two kinds, edges are only allowed between nodes of different kinds



affiliation matrix adjacency matrix for two-mode networks

$A_{ij} = 1$ if node i is connected to node j

$A_{ij} = 0$ otherwise

node i is type 1, node j is type 2

	North Caucus	Boston Committee	Long Room Club
Samuel Adams	1	1	1
John Hancock	0	0	1

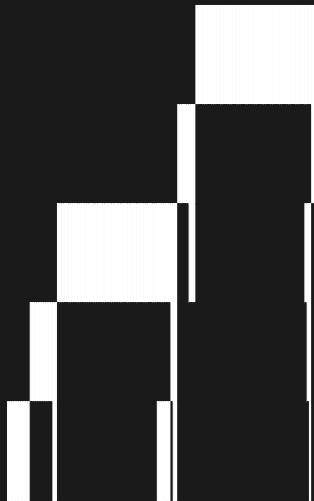
St. Andrews Lodge
1762

Loyal Nine
1766

North End Caucus
1771

Long Room Club
1773

Boston Committee
1774



Cf. Han, fig. 1, 151.

duality

Persons who are actors in one picture...are with equal legitimacy viewed as connections in the dual picture...and conversely for groups.

Ronald L. Breiger, "The Duality of Persons and Groups," *Social Forces* 53, no. 2 (December 1974): 184, [jstor.org/stable/2576011](https://www.jstor.org/stable/2576011).

- ▶ in the person graph, two people are connected by the memberships they share
- ▶ in the group graph, two groups are connected by the members they share
- ▶ the more shared persons/groups, the stronger the connection between groups/persons

know thy data

The data come from an appendix to David Hackett Fischer's *Paul Revere's Ride* (Oxford University Press, 1995). Put up to accompany this blog post: <http://kieranhealy.org/blog/archives/2013/06/09/using-metadata-to-find-paul-revere/>.

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- ▶ coding decisions are decisions about being and agency
 - ▶ social being, historical agency...