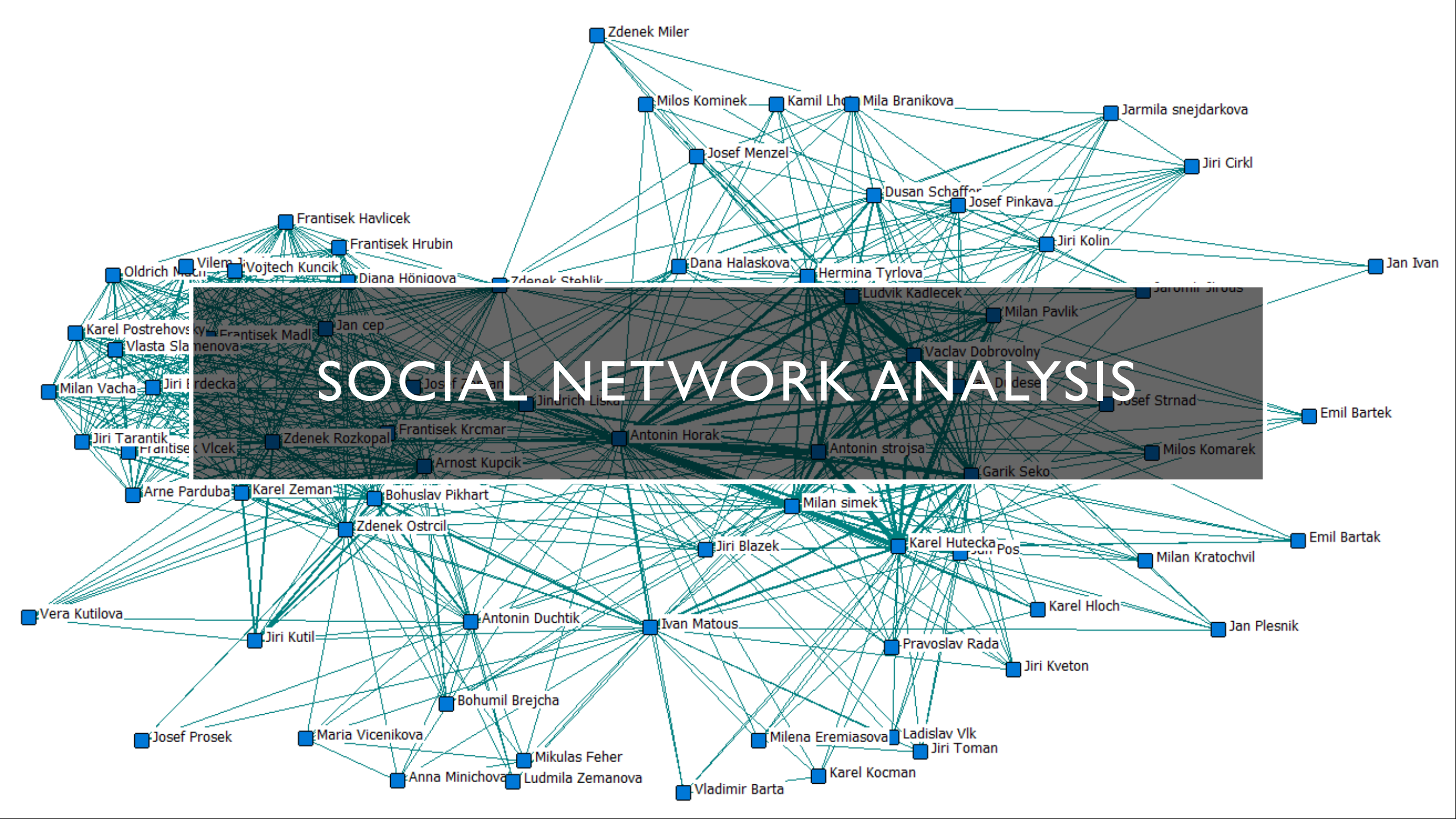


SOCIAL NETWORK ANALYSIS

SNA AND ANTHROPOLOGY

- ties that have been studied in anthropological research:
- kin relationships among family members, friendship ties among individuals, gift exchange ties among households, alliances ties among tribes, and economic exchange ties among villages
- ***node level:***
- researchers focus on where each individual node is located in the overall structure of the network. The concept of centrality
- *dyadic level*:
- researchers focus on the properties of pairs of actors. G*eodesic distance* (i.e., the number of links in the shortest path from one node to the other) and *structural equivalence* (i.e., the extent to which a pair of nodes has, or does not have, ties to the same third parties).
- ***network level*:**
- researchers focus on the structure of the network as a whole. Examples of network-level properties include *density* (i.e., the proportion of the number of ties that actually exist out of the maximum number of ties that could mathematically exist) and *centralization* (i.e., the extent to which the network revolves around a single node)

SNA AND ANTHROPOLOGY

- **Whole-network approach:**
- a set of nodes is predetermined by the researcher before data collection begins. the researcher attempts to get every node in the population to report on his or her ties with every other member of the population. For example, each individual in an organization might be asked to list every other organization member with whom the individual (a) has a friendship tie to, (b) has a conflict tie to, or (c) seeks advice from.
- A researcher needs a **75% to 80% response rate** to conduct a valid analysis of a whole network
- **Egocentric approach:**
- selecting a sample of respondents out of a population; to take a representative sample from a large population and then gather data on the personal networks of each ego.
- Interviews: name-generator queistons; name interpreter

- Travis J. Grosser – Stephen P. Borgatti, Network TheoryúSocial Network Analysis. In: Theory in Social and Cultural Anthropology: An Encyclopedia. Sage, 2013

READING

- **Nick Crossley – Tugba Aydin Ozturk, Music, social structure and connection: Exploring and explaining core-periphery structure in a two-mode network of music festivals and artists in Turkey. *Miscellanea Anthropologica et Sociologica* 2019, 20(2): 192–210**

- Music is a form of social interaction
- 98 festivals, 177 artists
- Formal SNA – structural property of the network: core-periphery structure
- The structure: influenced by: the agency of the social actors
- Network: its structure influences social processes; and are influenced by social interaction
- Inequalities --- core-periphery structure
- Two-mode network
- „Core“ – factors supporting membership

HYPOTHESIS TESTING
(VS. EXPLORATION)

- Hypothesis testing: unequal distribution of resources – does it generate a core-periphery division?
- Three dimensions of social structure:
- coordinated interaction according to conventions;
- exchange of resources (competencies, money, equipment, time, space);
- network as a social structure

- Conventions: resolve coordination problems
- **Research on: impact of gender, style, record label on network position**;
- impact of economic status, population size, size of the student population in the host city

- Isolate; component;
- Density: core, periphery, core-core, periphery-periphery

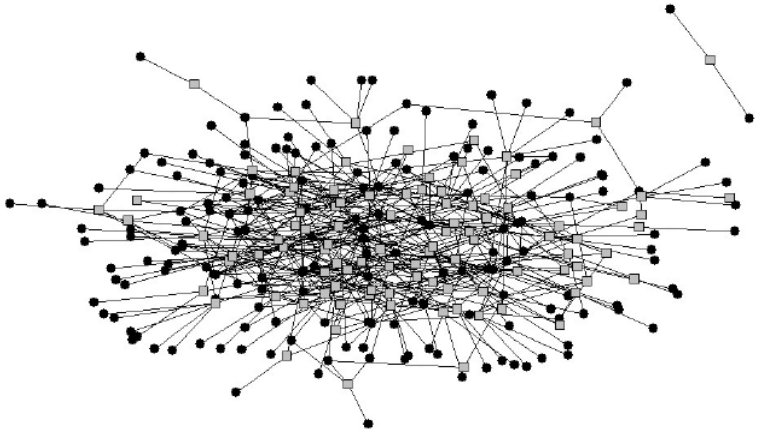


Figure 1. Turkish university music festivals and their artists 2012–2013
(artists are represented as black circles and universities as grey squares)

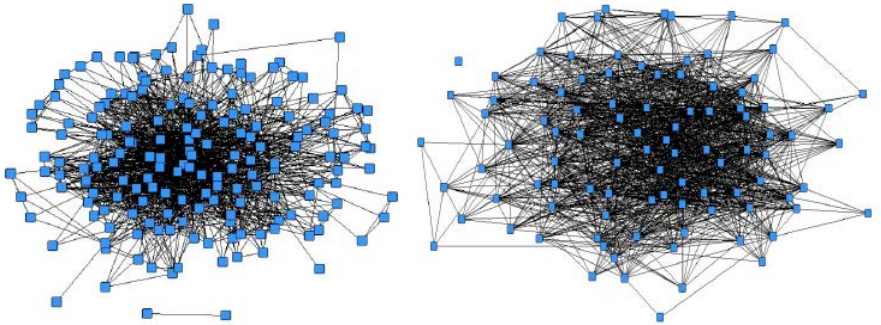
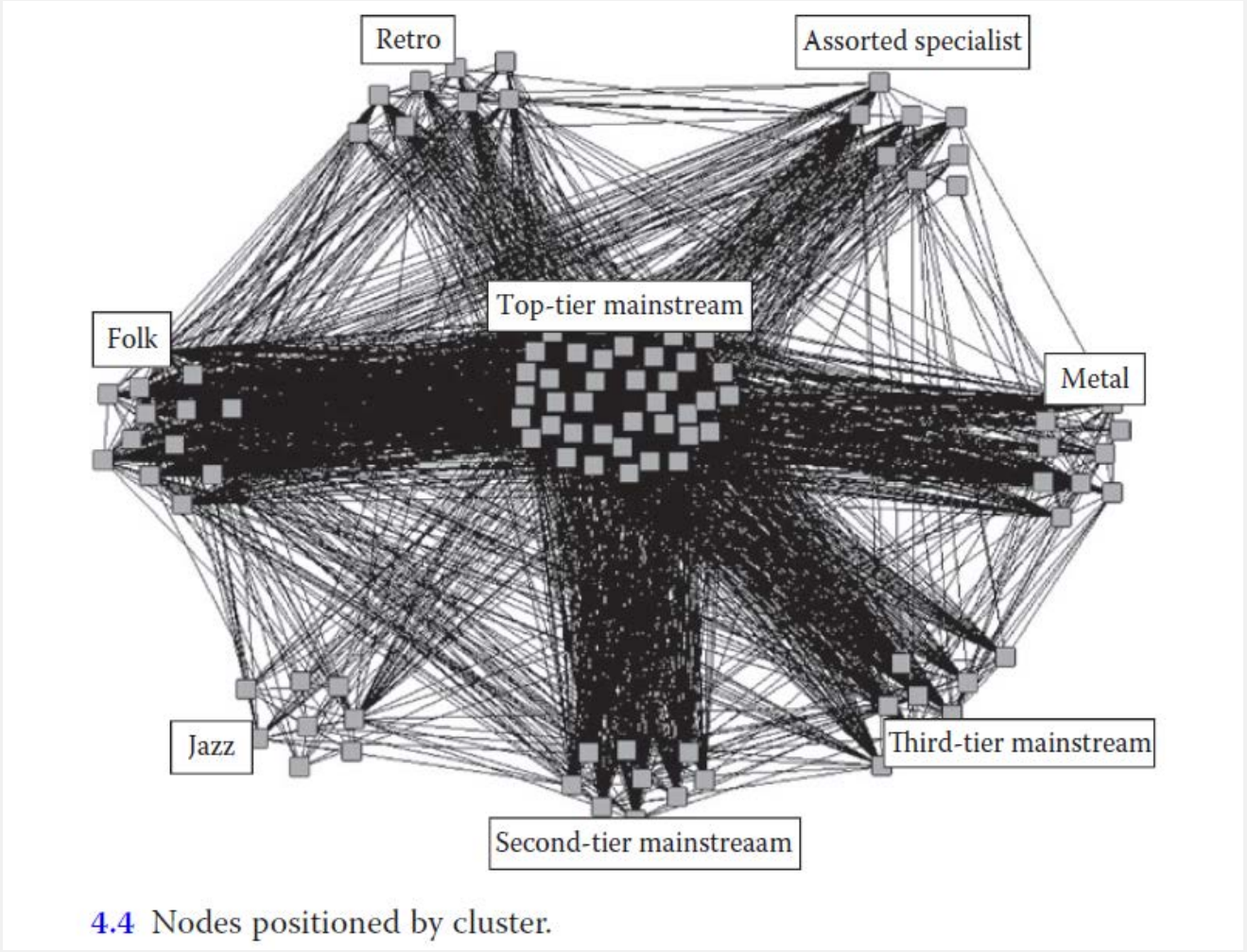


Figure 2. The artist and festival networks

TWO-MODE/SINGLE-MODE NETWORKS

NICK CROSSLEY: MUSIC WORLDS AS CLUSTERS IN THE MUSICAL UNIVERSE



4.4 Nodes positioned by cluster.

NICK CROSSLEY, NETWORKS OF SOUND, STYLE AND SUBVERSION THE PUNK AND POST-PUNK WORLDS OF MANCHESTER, LONDON, LIVERPOOL AND SHEFFIELD, 1975–80. MANCHESTER UNIVERSITY PRESS 2015

- Critical mass
- Homophily
- Foci
- Transitivity (Mark Granovetter)
- Strategic attachment
-

- [Centrality and Centralisation: A Social Network Analysis of the Early Soviet Film Industry, 1918-1953 | Apparatus. Film, Media and Digital Cultures of Central and Eastern Europe (apparatusjournal.net)]

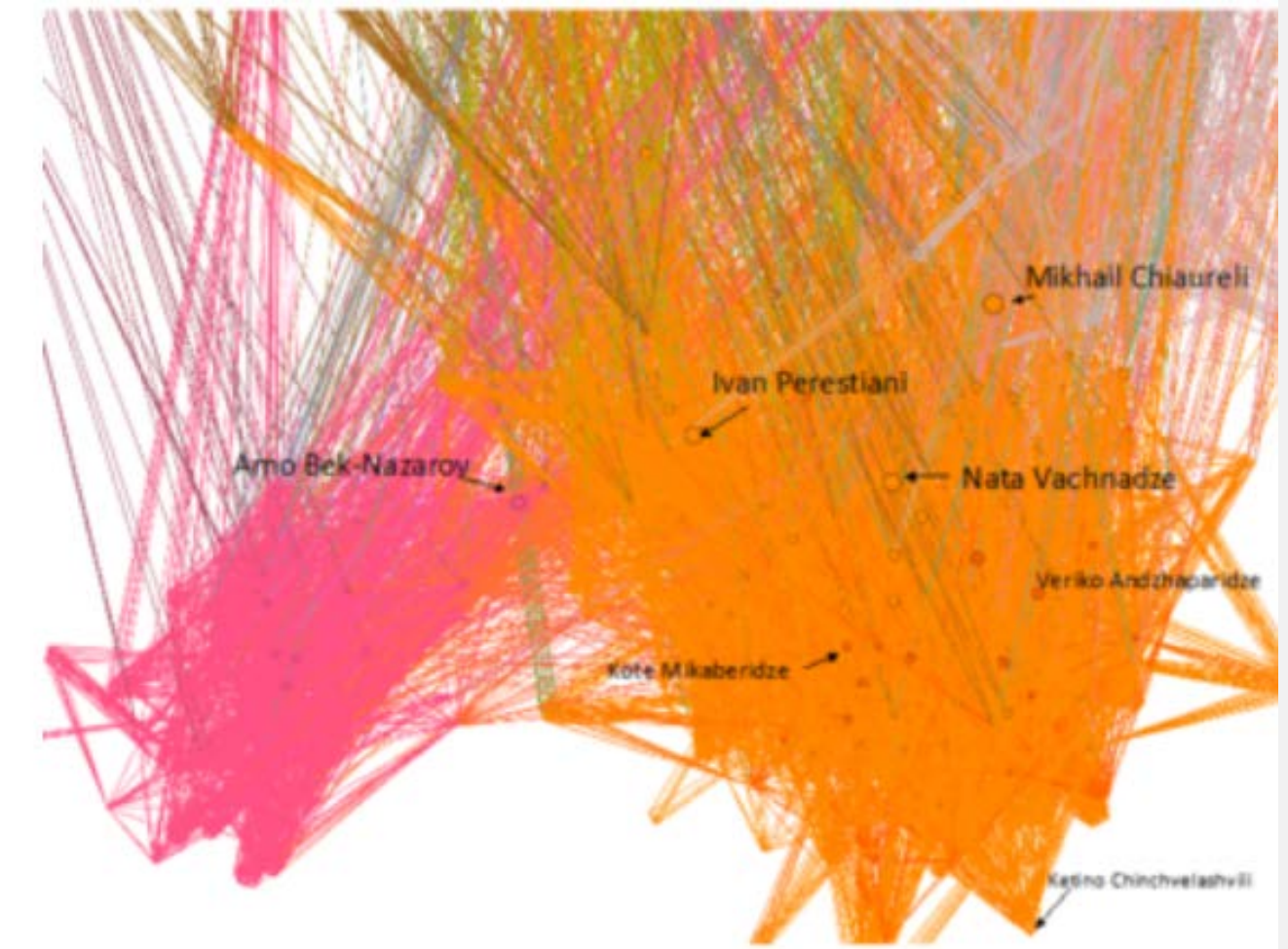


Fig. 4: Eigenvector centrality and communities, 1918–1953

UCI-NET

- Stephen P Borgatti – Martin Everett – Jeffrey Johnson, Analyzing Social Networks. Sage, 2013

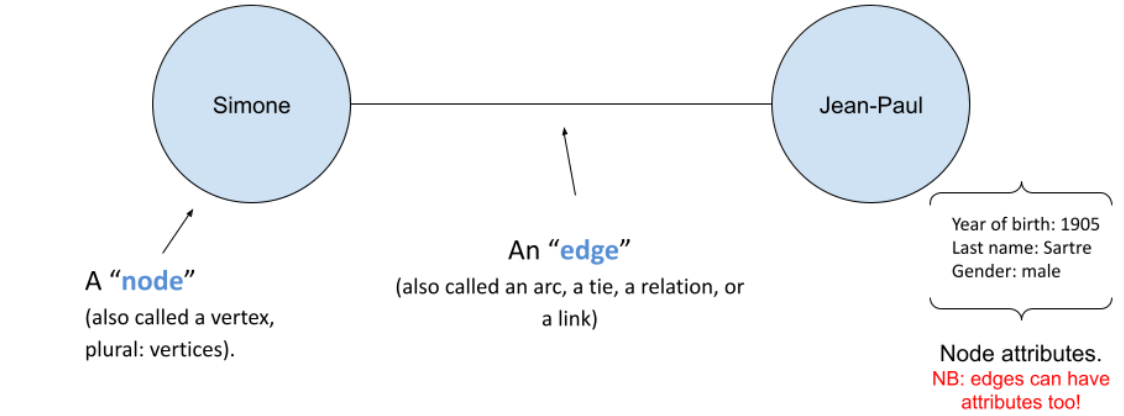
GEPHI

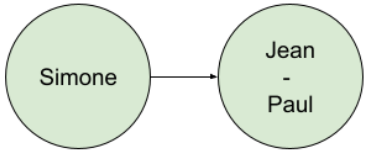
- Download (gephi.org)

DATASETS

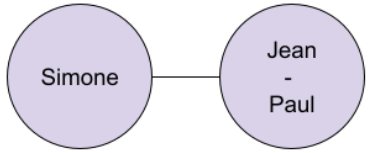
- Datasets · gephi/gephi Wiki · GitHub

[SIMPLE GEPHI PROJECT FROM A TO Z (SEINECLE.GITHUB.IO)]

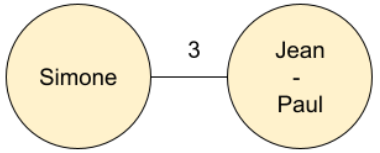




A directed network
(the direction of the relation matters).
Here, the arrow might mean "Simone writes a letter to Jean-Paul".



An undirected network
(the direction of the relation does not matter)
Here, the relation might mean "Simone and Jean-Paul are friends"



A weighted network
(the edges have a "strength" represented by a numerical value).
Here, the relation might mean "Simone and Jean-Paul have co-authored 3 books"

- **Average Degree** - The average number of edges connected to a node
- **Avg. Weighted Degree** - The average sum of the weights of edges connected to a node
- **Network Diameter** - The longest shortest path between nodes within the graph
- **Graph Density** - Measures how close the graph is to complete
- **Modularity** - Community detection algorithm
- **Avg. Path Length** - The average number of steps to get from one randomly selected node to another

- **Degree centrality -** Number of ties a node has
- **Eigenvector centrality** - A measure of node importance in a network based on a node's connections
- **Beta centrality -** Bonacich: If ego has neighbors who do not have many connections to others, those neighbors are likely to be dependent on ego, making ego more powerful
- **Closeness centrality** - sum of geodesic distances from a node to all other nodes
- **Betweenness centrality** - betweenness centrality views an actor as being in a favored position to the extent that the actor falls on the geodesic paths between other pairs of actors in the network

- **Les Miserables**: co-appearance weighted network of characters in the novel Les Miserables. D. E. Knuth, The Stanford GraphBase: A Platform for Combinatorial Computing, Addison-Wesley, Reading, MA (1993)
- GML (Graph Modeling Language) is a text file format supporting network data with a very easy syntax

LAYOUT

- Force Atlas 2
- Scaling – rozptyl nod v prostoru
- Prevent overlap
- Label adjust
- Appeareance – nodes: degree = možnost nastavit různé velikosti nod podle toho, kolik vazeb je navázáno na danou nodu (rozptyl velikosti od – do)
- Tutoriál k Layouts – vysvětlení vizualizací Tutorial Layouts (gephi.org)

- Základní tutoriál: [Simple Gephi Project from A to Z (seinecle.github.io)]