Exercise 1 - inserting data and analysing graph measures

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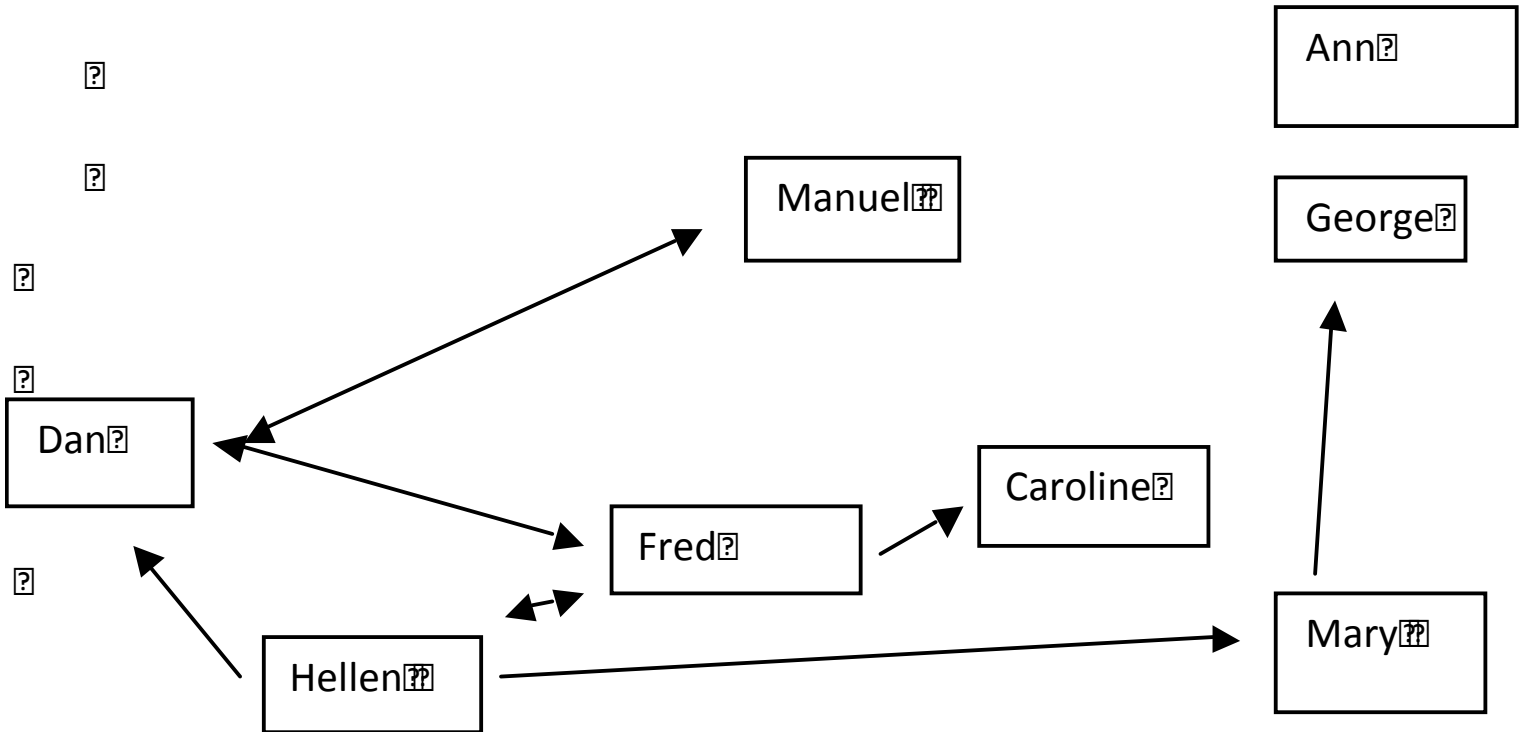
- Before starting define teh folder where you'd like to plce the ouputs:
  - File > create new folder; then Change default folder
  - Insrt data in UCINET : UCINET DATA> data editor> matrix editor or "spreadsheet" .
  - NOTE: these are diretional relations (non symmetric mode)
  - Name the new data base
- Visualize the matrix in Netdraw. open netdraw> open (filename)> ok
- 1) density : network>cohesion>density>density overall
- 2) geodesic distances : Network >cohesion>distance >geodesic distance old
- 3) degree centrality : Network >centrality and power >degree
- 4) components [networks>region>components>simple graphs]. (strong component)

Exercise 1

- Symmetrize matrix (Transform> symmetrize)
- Repeat steps 1,2,3,4 passos with a symmetric matrix and see the differerences.

Exercise 1

Insert the following graph in matrix format



Exercise 1

- In UCINET , in a new spreadsheet, make another data base this time a vector
  - Row – Name
  - Column – gender 1 – female / 0 – male
- Save it
- open Netdraw:
  - Import the 1st matrix and visualize it.
  - Next import the vector
  - Transform NODE (shape or color) according to gender

Interpretation of outputs

- Group discussion

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- A text or word file with the outputs – visualisation is not needed

Other formats to insert data

- What you did
  - Data insertion in Matrix formats
- one alternative- insertion in Node list format :
  - Used for binary data only
    - NO UCINET :DL Editor

Exercise 1 : results & interpretation: DENSITY

- Density overall: 0-1 (1= maximum density)
  - A measure of cohesion of the network
- To Note:
  - One can only have a notion of the density of the network by comparing it to similar networks – absolute values of density are hard to evaluate
  - The larger the network the less probable that it is very dense ;one expects different leves of density depending on the type of relation one is measuring (ex: intimate friends vs acquaintances)
  - As the density is very sensitive to the the dimension of the network the average degree is also used as a measure of cohesion); a high average degree of a network (it reveals that there are many direct relations) indicates high cohesion

Exercise 1 : results & interpretation: Distance

- Distance (geodesic distance)
  - The geodesic distance can be used to calculate other social netwrok measures , such as closeness closeness centrality, cliques...
  - One can find out the average distance of the whole network, which reveals teh distance – 1,2,3 links – on average for everyone to reach everyone else (within the same component)
  - One can correlate the matrix of distances with the matrix of friendships links for instance , to see how the distance is associated with friendship
    - Tools>testing hypothesis >Dyadic QAP
  - The average distance form each actor to all others can also be calculated (this value can , for instance be inserted in a regression model as an independent variable to answer : how does the average distance affects the performance/ access to knowledge /other?
    - It is known that the most distant tend to have the most filtered information and more difficulty to reach others

Exercise 1 : results & interpretation:degree

- Internal degree – number incoming ties – shows the tendency to be chosen
  - ex: popular person; country that imports goods; person receiving (debtor)
- external degree – number of outgoing ties– choices made /tendency to choose
  - ex: socially active/expansive individual; exporting country; person giving a loan

Wasserman e Faust , 1994, p.127

Exercise 1 : results & interpretation: components

- Weak (does not take direction of the links into account –symmetric network) and strong (asymmetric network) components

- Interpretation:
  - The largest the main component the greater the cohesion fo the network; the greater number of components and the smaller they are the lower the cohesion of the network

Exercise 1 : results & interpretation: symmetrisation

- Symmetrize : transform symmetrize
  - to symmetrize or not depends on the relations we are concerned about , for instance :
    - communication: OK to symmetrise
    - Advice – do not symmetrise if one wants to know the status differentials among actors in the network ; but ok to symmetrise if we look at it as flow of information

- What were the main changes in output comparing the symmetric (non directional) to the asymmetric(directional) matrix?