Social Network Analysis Data structures

Federico Bianchi

NASP-ESLS Ph.D. Programme - University of Milan

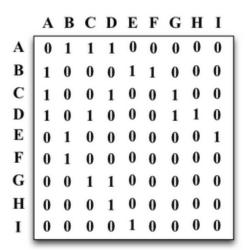
10 May, 2021

Case-by-variable matrix

case	Y	X1	X2
1	-0.97	-0.63	-0.82
2	2.51	0.18	0.49
3	-0.19	-0.84	0.74
4	6.53	1.60	0.58
5	1.00	0.33	-0.31

- matrices are made by vectors
- vectors can either be row- or column-vectors
- each single piece of information is represented as a scalar
- each row-vector contains data of one observation (case)
- each column-vector contains variables (factors, features...), i.e. data observed across observations

Adjacency matrix



- sociomatrix (synonim for social network data)
 - square matrix (# of rows = # of columns)
- both row- and vector-columns relate to observations (i.e., nodes)
- where are then variables?
- the whole matrix is a (network-)variable

Weighted networks

Р	J	Α	М
	2	0	1
0		0	1
0	0		3
1	1	1	
	_	0	2 0

Edge list

Peter	\rightarrow	John	2
Peter	\rightarrow	Mary	1
John	\rightarrow	Mary	1
Anna	\rightarrow	Mary	3
Mary	\rightarrow	Peter	1
Mary	\rightarrow	John	1
Mary	\rightarrow	Anna	1

- A list of all the edges in a network $(x_{ij} \neq 0)$
- two (or three) columns:
 - sender *i*
 - receiver *j*
 - value of the edge

Reading

Robins (2015), Ch. 4

References

Robins, Garry. 2015. Doing Social Network Research.

Network-Based Research Design for Social Scientists. London:
Sage.