

Social network analysis with R sna package

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This speech is mainly a share of learning experience about using sna package in R. For beginners it can also be used as a handbook for social network analysis. We hope to promote the use of sna in China and looking for more cases to practice the sna method.

Content catalog is listed here:

1. Social network definition
 - Actual graph: scale free, small world
 - Sample graph
2. Network description, GLIs
 - Vertex edges distribution-example: epidemiology
 - Exponential random graphs (ERGs)
 - Edge strength distribution
 - Basic measurement
 - Path and cycle census
 - Measure of structure
 - Connectedness, Hierarchy, efficiency, lubness
 - Graph centrality
 - degree, betweenness, closeness
3. Relation between GLIs
4. Graph distance and clustering:
 - 1) Graphs distance: hdist(Hamming Distances), sdmatrix, structdist
 - 2) Vertices distance: equiv.clust(structural equivalence), sedist, geodist
5. Graph cov based function
 - Canonical correlation
 - Prime component analysis
 - Linear/logit regression
 - Linear autocorrelation model
 - Combined theory-example: telecom client trend
6. Random graph models
 - Network evolution
 - Random
 - Biased
 - Statistic test
 - Bayesian Network