

Self study note for A User's Guide to Network Analysis in R

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Chapter 2

- Size: Number of nodes (vertices or actors).
- Ties: edges or relations connecting nodes
- Density: Proportion of observed ties in a network to the maximum number of possible ties.
- Directed network has directions; A to B is different than B to A
- Directed network does not have directions; A to B is the same as B to A.
- Components: subgroup in which all nodes are connected.
- Path: series of steps required to go from A to B in a network.
- Diameter: longest of the shortest paths (geodesics) across all pairs of nodes.
- Measures the compactness or network efficiency.
- `'sna::component.largest()'`:
 - `'result = "membership"'`: returns the logical vector indicating membership in a maximum component
 - `'result = "graph"'`: returns the adjacency matrix (sociomatrix) of the subgraph induced by the maximum component.
- `'sna::geodist()'` calculates the shortest paths given adjacency matrix.
- Transitivity: The proportion of closed triangles (triads where all three ties are observed) to the total number of open and closed triangles (triads where two or three ties are observed).

Chapter 3

- Direct tie: arc
- Nondirect tie: edge
- Define a network object in R with an adjacency matrix or edge list with `network::network()`.
- `network` class is compatible with `ggplot2`
- `as.matrix` a `network` object after loading `statnet` gives the adjacency matrix.
- `%v%` calls a vertice from a network
- `%e%` calls an edge from a network
- Network object can be created with `igraph::adjacency` or `igraph::edgelist`.
- The `intergraph::asIgraph()` and `intergraph::asNetwork()` to go back and forth between `igraph` object and `network` object.
- Transforming a directed network to a non-directed network with `symmetrize()` a sociomatrix.
 - `rule = "weak"`: A to B **or** B to A implies non-directed relationship.
 - `rule = "strong"`: A to B **and** B to A implies non-directed relationship.