Glossary of Network Analytical Terms

1-mode network	'1-mode networks' have only one type of 'nodes', e.g. representing 'persons'.
2-mode network	'2-mode networks' have two type of 'nodes', e.g. representing 'persons' and 'texts'. In them, all 'edges' link one node of each type. See also 'affiliation network'.
actor	See 'node'.
adjacent matrix	In an 'adjacent matrix', 'networks' are represented in tabular format. Rows and columns represent a single 'node' types (here: persons), and the numeric values of the cells connecting them reveal whether they are connected or not.
affiliation network	'Affiliation networks' are 'networks' with two 'modes'. In them, the affiliation of one 'node' type to another node type is modelled. Here, 'persons' are linked to the 'texts' in which they are mentioned. See also '2-mode network'.
agent	See 'node'.
alter	In 'ego networks', and 'alter' is a 'node' that stands in a direct relationship to the 'ego'.
assortativity	See 'homophily'.
average degree	'Average degree' is measured on the 'network' level, and equals the sum of the 'degree' of each 'node' in it divided by the total number of nodes. See also 'degree'.
average path length	'Average path length' is measured on the 'network' level, and equals the average of all 'shortest paths' in it.
betweenness	See 'betweenness centrality'.
betweenness centrality	'Betweenness centrality' is measured on the 'node' level, and reveals how central nodes are in comparison to other nodes in a 'network' by means of calculating the frequency by which they appear on the 'shortest path' between any pair of nodes.
bimodal network	See '2-mode network'.
bipartite network	See '2-mode network'.
bridge	A 'bridge' is here defined as an 'edge' connecting otherwise weakly connected subsets of a 'network'. Cf. 'weak tie'.
broker	A 'broker' is a 'node' without which the 'paths' between its neighbours would become significantly longer. Cf. 'structural hole'.
case-by-variable matrix	In rectangular 'case-by-variable matrices', information is represented in tabular format. Rows represent cases and columns the variables.
centrality	Various types of 'centrality' are measured on the 'node' level to reveal how central nodes are relative to one another, and rank them accordingly. See also 'betweenness centrality', 'closeness centrality' and 'degree centrality'.
clique	A 'clique' is a maximally dense section of a 'network'.
closeness centrality	'Closeness centrality' is measured on the 'node' level, and reveals how central nodes are in comparison to other nodes in a 'network' by calculating how close they are to the other nodes.

cluster	A 'cluster' is here defined as a set of densely connected 'nodes' that are more sparsely connected to other nodes or clusters in a 'network'.
community	A 'community' is a well-connected section of a 'network'.
component	See 'connected component'.
connected component	A 'connected component' is a subset of a 'network' model, in which all 'nodes' are directly tied to at least one other node in it and not to any nodes which are not part of it.
core	See 'core component'.
core component	The 'core component' of a 'network' is its largest 'connected component', i.e. the component with the most 'nodes' and 'edges'.
degree	'Degree' is measured on the 'node' level, and a node's degree equals the number of edges it is involved in. See also 'average degree', 'in-degree', 'out-degree' and 'degree centrality'.
degree centrality	'Degree centrality' is measured on the 'node' level, and ranks nodes according to the number of 'edges' they are involved in.
degree distribution	'Degree distribution' is measured on the 'network' level, and reveals how the individual degrees of its nodes are distributed.
density	'Density' is measured on the 'network' level, and reveals how many of the potential 'edges' are materialised in the model.
depth	In 'ego networks', depth refers to the maximum 'path length' modelled 'nodes' may have from the 'ego'. With a depth of 1, the 'network' is restricted to the ego and its 'alters'; with a depth of 2, also nodes with direct ties to one or more alters are included.
diameter	The 'diameter' is measured on the 'network' level, and equals the length of its longest 'geodesic'.
directed edge	'Edges' are directed when they represent asymmetric or ordered relationships. Here, examples of directed relationships are payment, land sale and service, i.e. relations in which one of the involved parties is on the giving and the other on the receiving end. In 'network' models, directed edges are visualised as arrows pointing from the giving to the receiving 'node'. See also 'undirected edge'.
directed graph	A 'directed graph' is a 'network' model with only 'directed edges'. See also 'undirected graph' and 'mixed graph'.
dyad	A 'dyad' is a pair of 'nodes', which may be connected or unconnected to other nodes. Here, the term was predominantly used to refer to connected pairs of nodes that are not connected to any other nodes in the 'network'. Cf. 'string'.
edge	'Edges' represent the relationships of the 'network' under examination. What they represent therefore depends on the network characteristics. Here, the edges of 2-mode networks signal that a given person is mentioned in a given text; the edges of 1-mode networks connect persons that had a 'social' or 'economic' relationship. In the models, edges are visualised as lines drawn between 'nodes'. See also 'directed edge', 'undirected edge', 'weighted edge' and 'unweighted edge'.
edge attribute	An 'edge attribute' is an attribute qualifying a relationship between two 'nodes'.

edge colour	In 'network visualisations', 'edges' can be coloured so as to visually distinguish 'ties' with different 'edge attributes', e.g. signalling whether a relation was informed by a Greek (colour 1), Demotic (colour 2), or bilingual (colour 3) text.
edge list	An 'edge list' contains information about the edges of a 'network'.
ego	In 'ego networks', the 'ego' is the focal 'node'.
ego network	'Ego networks' are egocentric in that they place a particular node (the 'ego') at the centre of attention, and only nodes with direct (or indirect) 'edges' to the ego (and each other) are modelled.
geodesic	See 'shortest path'.
giant component	See 'core component'.
global clustering coefficient	'Global clustering coefficient' is measured on the 'network' level, and corresponds to the average of the 'local cluster coefficient' measured for all nodes.
graph	Here, 'graph' is used synonymously with 'network visualisation'.
Historical Network Research	'Historical Network Research' (HNR) is a subfield of network science that is concerned with relational data and (social) network analysis in historical and related disciplines.
homophily	'Homophily' concerns the tendency for similar nodes to be connected.
hub	See 'broker'.
hyperedge	A 'hyperedge' is a single 'edge' connecting multiple 'nodes'. Cf. 'hypergraph'.
hypergraph	A 'hypergraph' is a network model with 'hyperedges'.
in-degree	'In-degree' is measured on the 'node' level in 'directed networks'. A node's in-degree equals the number of 'directed edges' that point towards it. Cf. 'out-degree'. See also 'degree'.
incidence matrix	In an 'incidence matrix', 'networks' are represented in tabular format. The rows and columns represent two different 'node' types (here: texts and persons), and the numeric values of the cells connecting them reveal whether they are connected or not.
isolate	An 'isolate' is a 'node' that is not involved in any 'edges' and are therefore not connected to any other 'nodes' in the 'network'.
k-partite network	See 'multimodal network'.
link	See 'edge'.
local cluster coefficient	The 'LCC' metric measures the degree to which a given nodes' neighbours are also neighbours of one another. See also 'global clustering coefficient'.
main component	See 'core component'.
mixed graph	A 'mixed graph' is a 'network' model with 'undirected edges' as well as 'directed edges'. See also 'directed graph' and 'undirected graph'.
monomodal network	See '1-mode network'.
monopartite network	See '1-mode network'.
monoplex network	A 'monoplex network' is a 'network' with only one 'edge' type.
multigraph	A 'multigraph' is a network model with 'parallel edges'.
multilayer network	See 'multimodal network'.

multimodal network	'multimodal networks' have several type of 'nodes', e.g. representing 'persons', 'texts' and 'places'. In them, 'edges' link nodes of different types.
multilayer network	See 'multiplex network'.
multiplex edge	An 'edge' is monoplex when more than one type of relationship link the same pair of 'nodes'. Cf. 'parallel edge'.
multiplex network	A 'multiplex network' is a network model with more than one 'edge' type.
network	A 'network' consist of a set of 'nodes' and the 'edges' that represent their interconnectivity.
network analysis	'Network analysis' is an umbrella-term covering a number of specialised methods for structurally examining and analysing 'networks'.
network boundaries	'Network boundaries' define the limits of a given 'network'.
network density	See 'density'.
network diameter	See 'diameter'.
network mode	See '1-mode network' and '2-mode network'.
network scale	See 'whole network' and 'ego network'.
network thinking	'Network thinking' refers to the act of thinking in terms of 'networks', be it with or without applying formal network theories to the task.
network type	See 'monoplex network' and 'multiplex network'.
network visualisation	'Network visualisations' (here also called 'graphs') are graphic representations of 'networks' as sets of 'nodes' and 'edges'.
node	'Nodes' represent the units/agents/actors of a given 'network'. What they represent depends on the network characteristics. Here, the nodes of the '2-mode networks' represent texts and persons; those of the 1-mode networks persons only. In the network models, nodes are visualised as dots, between which 'edges' can be drawn.
node attribute	A 'node attribute' is an attribute qualifying a 'node'.
node colour	In 'network visualisations', 'nodes' can be coloured so as to visually distinguish various 'node attributes', e.g. signalling whether a node represents a text (colour 1) or a person (colour 2), or whether a person was male (colour 1), female (colour 2) or of unknown sex (colour 3).
node size	In 'network visualisations', the size of the 'nodes' can be modified so as to visually distinguish various characteristics, e.g. making female nodes larger, or making size proportionate to nodes' 'betweenness centrality' scores.
node list	A 'node list' contains information about the 'nodes' of a 'network'.
out-degree	'Out-degree' is measured on the 'node' level in 'directed networks'. A node's out-degree equals the number of 'directed edges' that point away from it. Cf. 'in-degree'. See also 'degree'.
PageRank	The 'PageRank' metric measures nodes' centrality, taking edges leading to and from it into account.

parallel edge	An 'edge' is 'parallel' when more than one relationship of the same type link the same pair of nodes. Cf. 'multigraph' and 'multiplex edge'.
path	A 'path' between two 'nodes' exist, if the given nodes can be reached through an unbroken chain of 'edges'. See also 'path length' and 'shortest path'.
path length	The length of a 'path' refers to the number of 'edges' that separate two 'nodes'.
personal network	See 'ego network'.
point	See 'node'.
positional role	Here, 'positional role' refers to the structural position of a 'node' in a 'network'. Cf. 'social role'.
reciprocity	'Reciprocity' is reached when directed edges run in both directions. On the level of the network, measuring reciprocity reveals the degree to which dyads form reciprocal relationships.
relation	See 'edge'.
relational tie	See 'edge'.
self-loop	An 'edge' that goes to and from the same 'node'.
single-layer network	See 'monoplex network'.
shortest path	The 'shortest path' is the shortest 'path length' measured between two 'nodes' in a 'network'.
Small world network	A 'small world network' is a network in which the 'shortest path' between any two random nodes grows proportionately to the logarithm of the number of nodes in the network.
social network	A 'social network' is a 'network' consisting of sets of social 'nodes' and 'edges'.
Social Network Analysis	'Social Network Analysis' (SNA) is a collective term referring to available conceptual, methodological and digital tools for analysing patterns of social relations through the employment of network theories.
social role	Here, 'social role' refers to the norms and behaviours associated with various positions in social structures. Cf. 'positional role'.
string	Here, 'string' was predominantly used to refer to strings of three or more 'nodes'. Cf. 'dyad' and 'triad'.
structural equivalence	'Nodes' or groups of nodes are in 'structural equivalence' when they uphold the same 'positional roles' in a 'network'.
structural hole	A 'structural hole' is the negative space that is filled by a 'broker'. Cf. 'broker'.
subgraph	A 'subgraph' is a part of a 'network', consisting of a selection of its 'nodes' and 'edges'.
subnetwork	See 'subgraph'.
subset	See 'subgraph'.
tie	See 'edge'.
transitivity	'Transitivity' concerns the tendency for similar nodes with shared connections to become connected. See also 'triadic closure'. On the level of the network, measuring transitivity reveals the degree to which triads are completely connected.

triad	A 'triad' is a set of three 'nodes', which may be connected or unconnected to other nodes. Here, the term was predominantly used to refer to closed triads of which no node is connected to any other nodes in the 'network'. Cf. 'string'.
triadic closure	'Triadic closure' is achieved when two nodes with a shared connection become connected. See also 'transitivity'.
undirected edge	'Edges' are undirected when they represent symmetric or unordered relationships. Here, examples of undirected relationships are neighbour, close-kin or collaboration. Either the 'tie' is there, or it is not. In 'network' models, undirected edges are visualised as lines drawn between sets of 'nodes'. See also 'directed edge'.
undirected graph	An 'undirected graph' is a network model with only 'undirected edges'. See also 'directed graph' and 'mixed graph'.
unweighted edge	'Unweighted edges' are 'edges' without values attached to them. Here, all edges are conceived as unweighted, since all relations were given a default weight of 1. See also 'weighted edge'.
unweighted network	'Unweighted networks' consist of 'nodes' connected by 'unweighted edges'. See also 'weighted network'.
valued edge	See 'weighted edge'.
valued network	See 'weighted network'.
vertex (vertices)	See 'node'.
weak tie	A 'weak tie' is a single 'edge' connecting two otherwise insular or disconnected sections of a 'network'. Cf. 'bridge'.
weighted edge	'Weighted edges' are 'edges' with values attached to them. What the value (or weight) represents depend on the characteristics of the 'network'. For example, numbers from 1 to 5 could be assigned to signal the closeness or strength of a relationship. See also 'unweighted edge'.
weighted network	'Weighted networks' consist of 'nodes' connected by 'weighted edges'. See also 'unweighted network'.
whole network	The 'whole network' is the full network including all 'nodes' and 'edges', i.e. consisting of all 'isolates', 'dyads', 'triads' 'strings' and larger 'connected components'.