Artificial Intelligence (18CSC305J)

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Ex- 9 : Team Tesla 2.0

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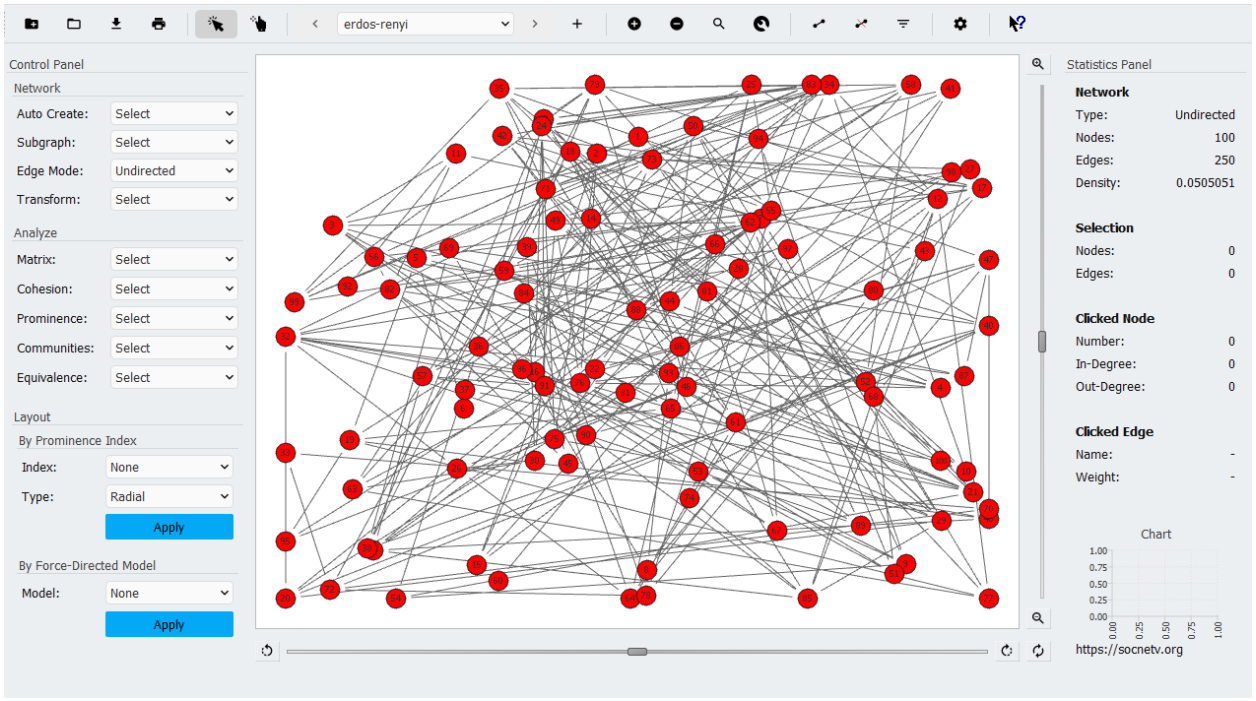
Experiment 9 - Case Study Explore the usage of Semantic Networks for a dataset and list the insights obtained from the Network.

Problem Statement:

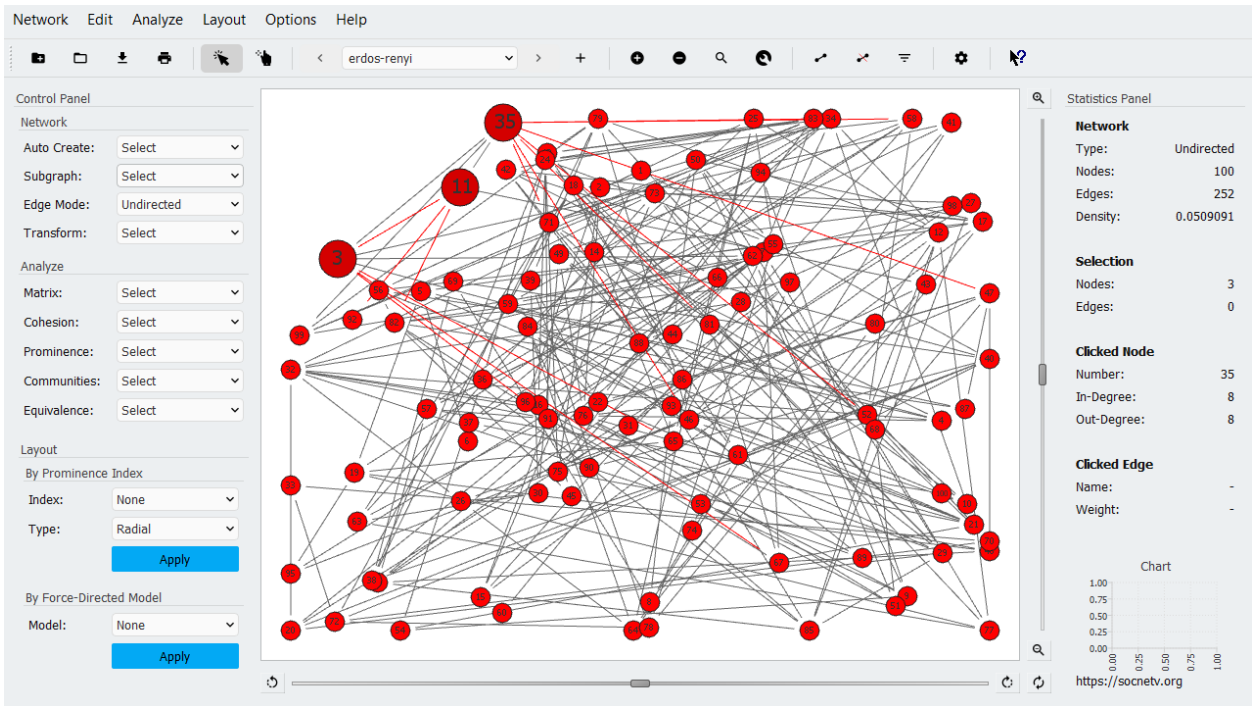
In the numerical field of chart hypothesis, the Erdős-Rényi model is both of two firmly related models for producing arbitrary diagrams or the development of an irregular organization. They are named after Hungarian mathematicians Paul Erdős and Alfréd Rényi, who previously presented one of the models in 1959, while Edgar Gilbert presented the other model contemporaneously and freely of Erdős and Rényi.

- Semantic networks are a way of representing relationships between objects and ideas.

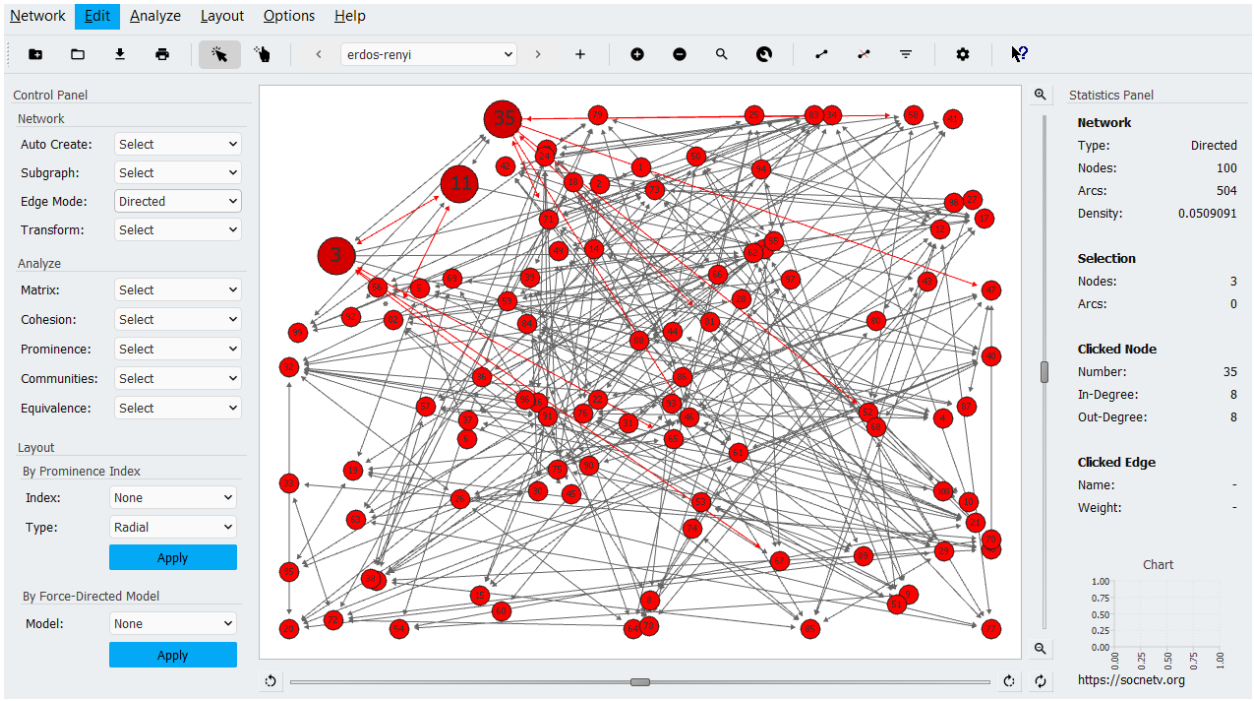
These rules are often used to determine inheritance in such tangled networks where multiple inheritance is allowed: – If X<A<B and both A and B have property P, then X inherits A's property.



Subgraph: Clique



Edge Mode: Directed



Matrix: Inverse Adjacency Matrix

INVERSE ADJACENCY MATRIX REPORT

Network name: Strong Ties
Actors: 100

Actor/Actor	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
1	-0.350	0.330	0.042	0.107	0.328	-0.515	-0.211	-0.384	-0.294	0.236	-0.289	-0.004	0.036	0.384	-0.010	0.108	-0.019	0.069	0.093	0.165	0.159	-0.128	0.073	-0.127	0.352	0.131	0.341	-0.362	0.111
2	0.330	0.645	-0.157	0.308	0.226	-0.886	-0.123	-0.791	-0.775	0.407	-0.929	0.413	-0.140	-0.559	0.052	0.626	-0.136	0.033	0.236	0.031	0.133	-0.321	-0.082	-0.309	0.832	0.189	0.977	-0.699	0.627
3	0.042	-0.157	-0.147	-0.009	-0.057	-0.018	0.108	0.064	0.108	-0.142	0.034	-0.021	-0.002	-0.094	0.026	-0.016	0.004	0.044	0.034	-0.038	0.027	0.018	-0.020	-0.017	-0.087	0.004	-0.111	0.074	-0.088
4	0.107	0.308	-0.009	-0.227	0.015	-0.090	0.069	-0.174	-0.024	0.209	-0.197	0.190	0.017	-0.239	0.050	0.305	0.132	0.060	0.080	-0.011	-0.039	-0.150	-0.150	0.086	0.331	-0.026	0.250	-0.037	0.100
5	0.328	0.226	-0.057	0.015	-0.117	0.032	-0.086	0.048	-0.135	0.090	-0.052	0.122	0.167	-0.083	-0.014	0.059	-0.050	-0.157	0.093	0.057	0.032	-0.077	0.015	0.097	0.276	-0.119	0.192	0.066	0.302
6	-0.515	-0.886	-0.018	-0.090	0.032	0.521	0.184	0.525	0.766	-0.466	0.617	-0.437	-0.172	0.146	-0.006	-0.394	0.061	0.290	-0.115	-0.058	0.033	0.269	-0.113	-0.015	-0.820	0.134	-0.679	0.275	-0.763
7	-0.211	-0.123	0.108	0.069	-0.086	0.184	-0.161	0.028	0.106	-0.082	0.196	-0.058	0.173	0.189	-0.239	0.083	0.067	-0.117	0.042	0.083	0.159	-0.015	0.022	0.260	-0.018	-0.020	-0.043	-0.081	-0.203
8	-0.384	-0.791	0.064	-0.174	0.048	0.525	0.028	0.365	0.482	-0.310	0.740	-0.408	0.175	0.682	0.021	-0.623	0.013	0.109	-0.290	-0.006	0.131	0.221	0.066	0.121	-0.745	-0.004	-0.747	0.485	-0.597
9	-0.294	-0.775	0.108	-0.024	-0.135	0.766	0.106	0.482	0.688	-0.533	0.949	-0.408	0.051	0.605	-0.166	-0.507	-0.081	0.046	-0.334	0.111	0.064	0.275	-0.108	0.316	-0.912	0.023	-0.850	0.552	-0.502
10	0.236	0.407	-0.142	0.209	0.090	-0.466	-0.082	-0.310	-0.533	0.082	-0.566	0.215	-0.101	-0.502	0.131	0.422	-0.083	-0.086	0.205	-0.024	-0.004	-0.103	-0.023	-0.254	0.532	0.010	0.586	-0.385	0.388
11	-0.289	-0.929	0.034	-0.197	-0.052	0.617	0.196	0.740	0.949	-0.566	0.626	-0.418	0.041	0.324	-0.061	-0.820	0.183	0.306	-0.385	-0.034	-0.117	0.326	0.007	0.202	-1.062	0.027	-1.034	0.744	-0.804
12	-0.004	0.413	-0.021	0.190	0.122	-0.437	-0.058	-0.408	-0.408	0.215	-0.418	-0.105	0.009	-0.224	-0.120	0.276	-0.077	-0.027	0.240	-0.019	-0.111	-0.118	0.133	-0.105	0.367	0.132	0.428	-0.368	0.237
13	0.036	-0.140	-0.002	0.017	0.167	-0.172	0.173	0.175	0.051	-0.101	0.041	0.009	-0.306	-0.136	-0.081	0.011	-0.077	0.003	-0.067	0.024	-0.028	0.229	-0.097	-0.034	-0.118	0.073	-0.093	0.067	0.022
14	0.384	-0.559	-0.094	-0.239	-0.083	0.146	0.189	0.682	0.605	-0.502	0.324	-0.224	-0.136	-0.900	0.261	-0.415	0.027	0.287	-0.068	0.006	-0.146	0.208	0.049	-0.281	-0.500	0.032	-0.431	0.441	-0.253
15	-0.010	0.052	0.026	0.050	-0.014	-0.006	-0.239	0.021	-0.166	0.131	-0.061	-0.120	-0.081	0.261	-0.167	-0.001	-0.082	-0.236	-0.023	-0.114	0.178	-0.098	0.140	0.063	0.085	-0.010	-0.014	-0.229	0.049
16	0.108	0.626	-0.016	0.305	0.059	-0.394	0.083	-0.623	-0.507	0.422	-0.820	0.276	0.011	-0.415	-0.001	0.404	-0.040	-0.267	0.302	0.004	0.015	-0.290	-0.077	0.047	0.812	-0.001	0.780	-0.438	0.574
17	-0.019	-0.136	0.004	0.132	-0.050	0.061	0.067	0.013	-0.081	-0.083	0.183	-0.077	-0.077	0.027	-0.082	-0.040	-0.331	-0.115	-0.151	-0.130	0.014	0.033	-0.088	-0.026	-0.054	0.061	-0.138	-0.119	0.144
18	0.069	0.033	0.044	0.060	-0.157	0.290	-0.117	0.109	0.046	-0.086	0.306	-0.027	0.003	0.287	-0.236	-0.267	-0.115	-0.227	0.085	0.087	0.087	-0.075	0.170	0.046	-0.179	-0.028	-0.156	-0.082	-0.074
19	0.093	0.236	0.034	0.080	0.093	-0.115	0.042	-0.290	-0.334	0.205	-0.385	0.240	-0.067	-0.068	-0.023	0.302	-0.151	0.085	0.052	-0.006	0.126	-0.187	0.048	-0.033	0.339	0.121	0.326	-0.315	0.198
20	0.165	0.031	-0.038	-0.011	0.057	-0.058	0.083	-0.006	0.111	-0.024	-0.034	-0.019	0.024	0.006	-0.114	0.004	-0.130	0.087	-0.006	-0.131	-0.087	0.176	0.087	-0.056	-0.118	0.042	-0.079	0.146	0.100
21	0.159	0.133	0.027	-0.039	0.032	0.033	0.159	0.131	0.064	-0.004	-0.117	-0.111	-0.028	-0.146	0.178	0.015	0.014	0.087	0.126	-0.087	-0.231	0.042	0.034	-0.242	0.056	-0.058	-0.023	0.130	0.143
22	-0.128	-0.321	0.018	-0.150	-0.077	0.269	-0.015	0.221	0.275	-0.103	0.326	-0.118	0.229	0.208	-0.098	-0.290	0.033	-0.075	-0.187	0.176	0.042	0.067	0.014	0.262	-0.275	-0.084	-0.312	0.389	-0.202
23	0.073	-0.082	-0.020	-0.150	0.015	-0.113	0.022	0.066	-0.108	-0.023	0.007	0.133	-0.097	0.049	0.140	-0.077	-0.088	0.170	0.048	0.087	0.034	0.014	-0.077	-0.175	-0.057	-0.021	-0.031	0.136	0.024
24	-0.127	-0.309	-0.017	0.086	0.097	-0.015	0.260	0.121	0.316	-0.254	0.202	-0.105	-0.034	-0.281	0.063	0.047	-0.026	0.046	-0.033	-0.056	-0.242	0.262	-0.175	-0.084	-0.196	0.114	-0.121	0.130	-0.115
25	0.352	0.832	-0.087	0.331	0.276	-0.820	-0.018	-0.745	-0.912	0.532	-1.062	0.367	-0.118	-0.500	0.085	0.812	-0.054	-0.179	0.339	-0.118	0.056	-0.275	-0.057	-0.196	0.844	0.125	0.943	-0.793	0.683
26	0.131	0.189	0.004	-0.026	-0.119	0.134	-0.020	-0.004	0.023	0.010	0.027	0.132	0.073	0.032	-0.010	-0.001	0.061	-0.028	0.121	0.042	-0.058	-0.084	-0.021	0.114	0.125	-0.284	0.182	0.134	0.131
27	0.341	0.977	-0.111	0.250	0.192	-0.679	-0.043	-0.747	-0.850	0.586	-1.034	0.428	-0.093	-0.431	-0.014	0.780	-0.138	-0.156	0.326	-0.079	-0.023	-0.312	-0.031	-0.121	0.943	0.182	0.753	-0.695	0.791
28	-0.362	-0.699	0.074	-0.037	0.066	0.275	-0.081	0.485	0.552	-0.385	0.744	-0.368	0.067	0.441	-0.229	-0.438	-0.119	-0.082	-0.315	0.146	0.130	0.389	0.136	0.130	-0.793	0.134	-0.695	0.410	-0.585

Cohesion: Geodesics Matrix

SHORTEST PATHS (GEODESICS) MATRIX REPORT

Network name: Strong Ties
Actors: 100

The geodesics matrix of a social network is a NcN matrix where each element (i,j) is the number of shortest paths(geodesics) from actor i to actor j, or infinity if no shortest path exists.

Actor/Actor	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
1	1	1	3	7	2	2	5	34	1	4	30	5	3	1	61	2	1	2	3	1	1	4	3	3	1	4	4	3	1	1	1	6	1	6	4	4	3	1	3	2	4
2	1	1	6	1	5	3	10	3	1	4	3	1	1	2	10	3	6	4	7	7	1	9	6	1	5	6	6	3	1	2	2	1	28	10	1	6	1	6	7	7	6
3	3	6	1	5	6	2	1	4	3	4	1	10	7	1	1	3	5	1	1	5	7	6	6	1	1	4	6	4	7	5	3	1	1	8	6	3	5	2	4	5	3
4	7	1	5	1	4	2	8	5	6	1	1	10	7	6	5	1	7	8	3	1	1	1	8	8	1	1	1	1	8	7	49	1	2	8	11	3	4	4	2	1	1
5	2	5	6	4	1	2	7	1	1	3	3	8	6	1	6	4	8	6	4	4	7	5	5	1	1	3	4	3	6	5	2	6	1	1	6	2	1	3	2	2	3
6	2	3	2	2	2	1	3	1	2	41	1	5	4	14	2	3	4	3	1	2	1	2	3	2	3	2	2	1	2	1	1	2	6	3	6	2	1	1	1	1	1
7	5	10	1	8	7	3	1	4	4	6	5	1	1	3	13	6	1	1	1	12	12	1	1	1	1	5	1	2	1	6	1	1	2	1	13	6	8	7	7	1	6
8	35	3	4	5	1	1	4	1	2	1	1	6	1	2	1	3	1	4	58	4	3	4	2	2	3	2	3	1	4	1	1	5	1	2	4	30	4	1	3	1	3
9	1	1	3	6	1	2	4	2	1	2	32	7	4	3	2	3	1	1	5	3	1	1	3	3	4	3	5	1	1	3	1	1	1	7	8	1	4	4	3	1	2
10	4	4	4	1	3	39	6	1	2	1	5	1	8	3	2	5	6	3	4	7	7	1	2	5	1	6	5	2	5	4	1	5	19	8	1	2	4	1	2	3	1
11	34	3	1	1	3	1	5	1	35	5	1	4	2	35	3	4	3	3	1	5	5	5	6	2	3	3	4	2	2	1	2	5	10	5	4	37	1	2	38	3	1
12	5	1	10	10	8	5	1	6	7	1	4	1	1	1	9	8	13	7	1	6	1	10	1	1	13	1	1	4	1	7	5	16	2	14	1	6	1	1	1	11	1
13	3	1	7	7	6	4	1	1	4	8	2	1	1	2	9	6	6	1	9	1	1	1	5	1	9	7	6	2	8	4	3	14	3	13	1	4	1	1	1	1	5
14	1	2	1	6	1	15	3	2	3	3	30	1	2	1	2	3	4	2	1	1	2	3	1	3	5	4	4	4	6	2	13	1	1	2	70	1	1	37	2	2	3
15	54	10	1	5	6	2	13	1	2	2	3	9	9	2	1	3	3	1	1	7	11	9	6	1	7	4	1	3	5	4	1	1	2	12	1	1	6	3	4	6	1
16	2	3	3	1	4	3	6	3	3	5	4	8	6	3	3	1	7	5	3	1	4	5	1	2	3	1	1	1	7	6	2	6	1	8	10	1	5	1	4	4	5
17	1	6	5	7	8	4	1	1	1	6	3	13	6	4	3	7	1	4	7	8	1	6	7	7	1	10	10	5	1	7	2	8	2	1	1	8	7	7	1	3	8
18	2	4	1	8	6	3	1	4	1	3	3	7	1	2	1	5	4	1	1	1	6	1	6	12	1	5	7	5	3	1	2	12	1	12	8	3	6	7	5	1	3
19	3	7	1	3	4	1	1	58	5	4	1	1	9	1	1	3	7	1	1	3	1	8	1	1	1	6	5	2	8	2	2	9	1	12	1	1	6	6	6	2	4
20	1	7	5	1	4	2	12	4	3	7	5	6	1	1	7	1	8	1	3	1	8	1	1	8	10	1	1	1	9	8	3	1	3	10	9	3	5	5	5	7	8
21	1	1	7	1	7	1	12	3	1	7	5	1	1	2	11	4	1	6	1	8	1	11	6	16	1	1	9	4	14	3	2	1	1	1	1	1	1	7	7	6	1
22	4	9	6	1	5	2	1	4	1	1	5	10	1	3	9	5	6	1	8	1	11	1	5	1	1	8	6	4	4	1	3	11	3	14	1	5	5	7	3	7	1
23	3	6	6	8	5	3	1	2	3	2	6	1	5	1	6	1	7	6	1	1	6	5	1	8	5	5	1	5	1	4	1	9	22	1	8	4	5	6	4	5	5
24	3	1	1	8	1	2	1	2	3	5	2	1	1	3	1	2	7	12	1	8	16	1	8	1	1	6	6	3	9	4	3	1	2	1	1	1	10	5	6	5	6
25	1	5	1	1	1	3	1	3	4	1	3	13	9	5	7	3	1	1	1	10	1	1	5	1	1	1	4	4	9	7	3	10	3	1	12	7	5	4	4	5	1
26	4	6	4	1	3	2	5	2	3	6	3	1	7	4	4	1	10	5	6	1	1	8	5	6	1	1	1	1	8	6	34	10	2	8	1	4	5	5	1	4	1
27	4	6	6	1	4	2	1	3	5	5	4	1	6	4	1	1	10	7	5	1	9	6	1	6	4	1	1	1	1	1	4	1	2	10	8	2	5	6	4	1	5

Prominence: IR Closeness Centrality

INFLUENCE RANGE CLOSENESS CENTRALITY (IRCC)

Network name: Strong Ties
Actors: 100

The IRCC index of a node u is the ratio of the fraction of nodes reachable by node u to the average distance of these nodes from u (Wasserman & Faust, formula 5.22, p. 201)
Thus, this measure is similar to Closeness Centrality but it counts only outbound distances from each actor to other reachable nodes.
This measure is useful for directed networks which are not strongly connected (thus the ordinary CC index cannot be computed).
In undirected networks, the IRCC has the same properties and yields the same results as the ordinary Closeness Centrality.
Read the Manual for more.
IRCC is standardized.

IRCC range: 0 ≤ IRCC ≤ 1 (IRCC is a ratio)

Node	Label	IRCC	%IRCC'
1	1	0.518325	51.832461
2	2	0.562500	56.250000
3	3	0.562500	56.250000
4	4	0.578947	57.894737
5	5	0.553073	55.307263
6	6	0.485294	48.529412
7	7	0.600000	60.000000
8	8	0.510309	51.030928
9	9	0.521053	52.105263
10	10	0.543956	54.395604
11	11	0.512953	51.295337
12	12	0.614907	61.490683
13	13	0.582353	58.235294
14	14	0.500000	50.000000
15	15	0.556180	55.617978
16	16	0.553073	55.307263
17	17	0.568966	56.896552
18	18	0.568966	56.896552
19	19	0.553073	55.307263
20	20	0.582353	58.235294
21	21	0.600000	60.000000
22	22	0.575581	57.558140
23	23	0.562500	56.250000
24	24	0.596386	59.638554
25	25	0.589286	58.928571
26	26	0.556180	55.617978
27	27	0.572254	57.225434
28	28	0.532258	53.225806
29	29	0.589286	58.928571
30	30	0.523810	52.380952
31	31	0.473684	47.368421

Communities: Triad Census

TRIAD CENSUS (TRC) REPORT

Network name: Strong Ties
Actors: 100

A Triad Census counts all the different types (classes) of observed triads within a network.
The triad types are coded and labeled according to their number of mutual, asymmetric and non-existent (null) dyads.
SocNetV follows the M-A-N labeling scheme, as described by Holland, Leinhardt and Davis in their studies.
In the M-A-N scheme, each triad type has a label with four characters:
- The first character is the number of mutual (M) dyads in the triad. Possible values: 0, 1, 2, 3.
- The second character is the number of asymmetric (A) dyads in the triad. Possible values: 0, 1, 2, 3.
- The third character is the number of null (N) dyads in the triad. Possible values: 0, 1, 2, 3.
- The fourth character is inferred from features or the nature of the triad, i.e. presence of cycle or transitivity. Possible values: none, D ("Down"), U ("Up"), C ("Cyclic"), T ("Transitive")

Type	Census
003	78264
012	0
102	64148
021D	0
021U	0
021C	0
111D	0
111U	0
030T	0
030C	0
201	16074
120D	0
120U	0
120C	0
210	0
300	3214

Equivalence: Pearson Coefficients

PEARSON CORRELATION COEFFICIENTS (PCC) MATRIX

Network name: Strong Ties
Actors: 100

Input matrix: Adjacency

Variables in: Rows

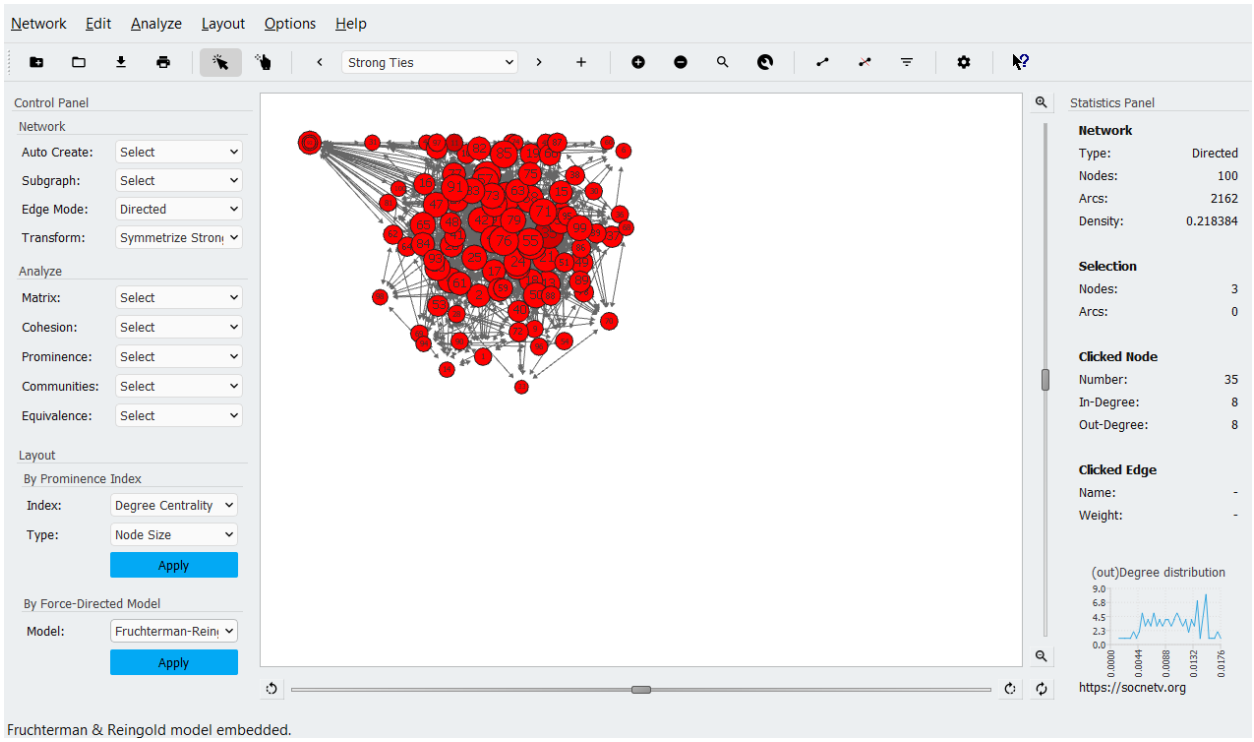
Diagonal: Not included

PCC range: -1 < C < 1

Analysis results

Actor/Actor	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	1.000	-0.038	-0.035	0.159	-0.065	0.080	-0.003	-0.166	0.270	0.078	-0.174	-0.039	-0.089	0.440	-0.235	-0.075	0.310	-0.110	-0.015	0.119	0.079	-0.018	-0.044
2	-0.038	1.000	-0.006	0.044	-0.002	0.074	0.061	-0.031	0.185	-0.061	-0.047	0.185	0.252	-0.067	0.213	-0.132	-0.034	-0.127	0.080	-0.048	0.475	0.080	-0.020
3	-0.035	-0.006	1.000	-0.095	0.094	0.011	0.095	0.067	-0.020	-0.028	-0.157	0.065	0.010	0.061	0.238	-0.101	-0.048	-0.009	0.274	-0.107	-0.050	-0.030	0.021
4	0.159	0.044	-0.095	1.000	-0.092	-0.030	-0.084	0.076	0.119	0.167	0.152	-0.044	-0.077	0.194	-0.095	0.261	-0.020	0.047	-0.175	0.382	0.027	0.116	0.047
5	-0.065	-0.002	0.094	-0.092	1.000	0.042	0.033	-0.116	-0.126	-0.045	0.021	0.044	0.021	-0.093	0.094	0.008	0.187	0.081	-0.004	-0.102	0.022	-0.024	0.021
6	0.080	0.074	0.011	-0.030	0.042	1.000	0.024	-0.007	0.091	-0.146	-0.015	0.152	0.133	-0.106	0.011	0.126	0.167	0.090	0.154	-0.036	0.222	-0.024	0.090
7	-0.003	0.061	0.095	-0.084	0.033	0.024	1.000	-0.024	-0.044	-0.022	0.018	-0.034	0.041	-0.048	0.268	-0.039	0.109	0.128	0.025	0.089	0.025	0.106	0.333
8	-0.166	-0.031	0.067	0.076	-0.116	-0.007	-0.024	1.000	0.012	0.225	0.037	0.068	0.177	0.052	-0.146	0.026	-0.160	0.057	-0.204	0.001	-0.095	0.019	-0.083
9	0.270	0.185	-0.020	0.119	-0.126	0.091	-0.044	0.012	1.000	-0.053	-0.167	0.103	-0.009	0.132	-0.088	0.010	0.197	-0.165	0.142	-0.081	0.231	-0.194	-0.029
10	0.078	-0.061	-0.028	0.167	-0.045	-0.146	-0.022	0.225	-0.053	1.000	0.169	0.021	0.134	0.071	-0.150	0.072	0.068	-0.099	-0.004	0.066	0.022	0.238	-0.159
11	-0.174	-0.047	-0.157	0.152	0.021	-0.015	0.018	0.037	-0.167	0.169	1.000	-0.077	-0.137	-0.145	-0.020	0.083	-0.038	-0.029	-0.142	0.045	0.009	0.065	0.174
12	-0.039	0.185	0.065	-0.044	0.044	0.152	-0.034	0.068	0.103	0.021	-0.077	1.000	0.315	-0.210	0.016	0.023	0.172	-0.101	0.087	-0.243	0.308	-0.027	0.028
13	-0.089	0.252	0.010	-0.077	0.021	0.133	0.041	0.177	-0.009	0.134	-0.137	0.315	1.000	-0.089	0.116	0.005	-0.072	0.289	0.152	-0.014	0.075	0.217	-0.109
14	0.440	-0.067	0.061	0.194	-0.093	-0.106	-0.048	0.052	0.132	0.071	-0.145	-0.210	-0.089	1.000	-0.044	0.061	0.089	-0.052	-0.107	0.372	-0.123	-0.010	-0.127
15	-0.235	0.213	0.238	-0.095	0.094	0.011	0.268	-0.146	-0.088	-0.150	-0.020	0.016	0.116	-0.044	1.000	-0.101	-0.158	0.164	0.274	-0.002	0.153	0.129	0.021
16	-0.075	-0.132	-0.101	0.261	0.008	0.126	-0.039	0.026	0.010	0.072	0.083	0.023	0.005	0.061	-0.101	1.000	0.110	0.006	-0.079	0.530	-0.156	-0.040	0.337
17	0.310	-0.034	-0.048	-0.020	0.187	0.167	0.109	-0.160	0.197	0.068	-0.038	0.172	-0.072	0.089	-0.158	0.110	1.000	-0.116	0.094	0.018	0.147	-0.059	0.048
18	-0.110	-0.127	-0.009	0.047	0.081	0.090	0.128	0.057	-0.165	-0.099	-0.029	-0.101	0.289	-0.052	0.164	0.006	-0.116	1.000	0.078	0.168	-0.116	0.359	0.007
19	-0.015	0.080	0.274	-0.175	-0.004	0.154	0.025	-0.204	0.142	-0.004	-0.142	0.087	0.152	-0.107	0.274	-0.079	0.094	0.078	1.000	-0.185	0.121	0.110	-0.041
20	0.119	-0.048	-0.107	0.382	-0.102	-0.036	0.089	0.001	-0.081	0.066	0.045	-0.243	-0.014	0.372	-0.002	0.530	0.018	0.168	-0.185	1.000	-0.112	0.151	0.116
21	0.079	0.475	-0.050	0.027	0.022	0.222	0.025	-0.095	0.231	0.022	0.009	0.308	0.075	-0.123	0.153	-0.156	0.147	-0.116	0.121	-0.112	1.000	0.061	-0.116
22	-0.018	0.080	-0.030	0.116	-0.024	-0.024	0.106	0.019	-0.194	0.238	0.065	-0.027	0.217	-0.010	0.129	-0.040	-0.059	0.359	0.110	0.151	0.061	1.000	-0.098

Force Directed Model:



Result: Semantic Networks Case Study is successfully implemented.