

Tables comparing observed network statistics at different time points with 95% intervals for bootstrap/jackknife differences and 95% intervals estimating the statistic using sampling by degree sequence

Alan Sun

7/20/2021

## Friendship Network

Time points 1 and 2

Statistic	T1	T2	T2 - T1	95% difference interval
Transitivity	0.508 DSE: [ 0.185, 0.323 ]	0.561 DSE: [ 0.321, 0.417 ]	0.053	boot: [ -0.01, 0.163 ] jack: [ 0.009, 0.084 ]
Mean Degree	4.846	6.538	1.692	boot: [ 2.462, 3.077 ] jack: [ 1.16, 2.1 ]
Edge Density	0.194	0.262	0.068	boot: [ 0.098, 0.123 ] jack: [ 0.048, 0.088 ]
Coreness, $k > 1$	25 DSE: [ 24, 25 ]	25 DSE: [ 24, 25 ]	0	boot: [ 2, 4 ] jack: [ -1.375, 2 ]

Table 1: Note: *DSE* indicates the 95% C.I. of the statistic as estimated by resampling the network 1000 times using its degree sequence.

Time points 2 and 3

Statistic	T2	T3	T3 - T2	95% difference interval
Transitivity	0.561 DSE: [ 0.321, 0.417 ]	0.554 DSE: [ 0.418, 0.497 ]	-0.007	boot: [ 0.011, 0.125 ] jack: [ -0.036, 0.039 ]
Mean Degree	6.538	7.462	0.923	boot: [ 1.769, 2.385 ] jack: [ 0.42, 1.4 ]
Edge Density	0.262	0.298	0.037	boot: [ 0.071, 0.095 ] jack: [ 0.017, 0.058 ]
Coreness, $k > 1$	25 DSE: [ 24, 25 ]	23 DSE: [ 22, 23 ]	-2	boot: [ -1, -1 ] jack: [ -3, 0 ]

Time points 3 and 4

Statistic	T3	T4	T4 - T3	95% difference interval
Transitivity	0.554 DSE: [ 0.418, 0.497 ]	0.447 DSE: [ 0.32, 0.409 ]	-0.108	boot: [ -0.196, -0.082 ] jack: [ -0.128, -0.082 ]
Mean Degree	7.462	6.615	-0.846	boot: [ -2.692, -2.152 ] jack: [ -1.21, -0.32 ]
Edge Density	0.298	0.265	-0.034	boot: [ -0.108, -0.086 ] jack: [ -0.05, -0.013 ]
Coreness, $k > 1$	23 DSE: [ 22, 23 ]	25 DSE: [ 25, 25 ]	2	boot: [ 1, 1 ] jack: [ 1, 3 ]

Time points 1 and 3

Statistic	T1	T3	T3 - T1	95% difference interval
Transitivity	0.508 DSE: [ 0.185, 0.323 ]	0.554 DSE: [ 0.418, 0.497 ]	0.047	boot: [ 0.067, 0.224 ] jack: [ 0.015, 0.074 ]
Mean Degree	4.846	7.462	2.615	boot: [ 4.538, 5.154 ] jack: [ 1.99, 3.06 ]
Edge Density	0.194	0.298	0.105	boot: [ 0.182, 0.206 ] jack: [ 0.083, 0.127 ]
Coreness, $k > 1$	25 DSE: [ 24, 25 ]	23 DSE: [ 22, 23 ]	-2	boot: [ 1, 3 ] jack: [ -3, 0 ]

Time points 2 and 4

Statistic	T2	T4	T4 - T2	95% difference interval
Transitivity	0.561 DSE: [ 0.321, 0.417 ]	0.447 DSE: [ 0.32, 0.409 ]	-0.114	boot: [ -0.134, -0.005 ] jack: [ -0.145, -0.069 ]
Mean Degree	6.538	6.615	0.077	boot: [ -0.615, 0 ] jack: [ -0.38, 0.67 ]
Edge Density	0.262	0.265	0.003	boot: [ -0.025, 0 ] jack: [ -0.016, 0.028 ]
Coreness, $k > 1$	25 DSE: [ 24, 25 ]	25 DSE: [ 25, 25 ]	0	boot: [ 0, 0 ] jack: [ -1, 2 ]

Time points 1 and 4

Statistic	T1	T4	T4 - T1	95% difference interval
Transitivity	0.508 DSE: [ 0.185, 0.323 ]	0.447 DSE: [ 0.32, 0.409 ]	-0.061	boot: [ -0.075, 0.095 ] jack: [ -0.098, -0.034 ]
Mean Degree	4.846	6.615	1.769	boot: [ 2.154, 2.769 ] jack: [ 1.11, 2.15 ]
Edge Density	0.194	0.265	0.071	boot: [ 0.086, 0.111 ] jack: [ 0.046, 0.09 ]
Coreness, $k > 1$	25 DSE: [ 24, 25 ]	25 DSE: [ 25, 25 ]	0	boot: [ 2, 4 ] jack: [ -1, 2 ]

## Tortoise Network