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Create Multiplex Visualizations

UNDER CONSTRUCTION

This page is designed to help users visualize multiplex network data. Multiplex data usually consists of nodes that have more than one type of relationship to each other.

Visualize each set of relationships on the same layout

We'll use Krackhardt's data again, looking at both the ADVICE and REPORTS_TO networks.

```
advadj = read.delim("Krack-High-Tec-ADVICE.tab", row.names = 1)
colnames(advadj) = 1:21
rptadj = read.delim("Krack-High-Tec-REPORTS_TO.tab", row.names = 1)
colnames(rptadj) = 1:21
```

In igraph, you need one graph object per set of relationships.
```
advnet = graph.adjacency(advadj)
rptnet = graph.adjacency(rptadj)
```
Now check the length of each edgelist.

```
length(E(advnet))
length(E(rptnet))
```

Now, let's create a single layout that we will use to show both sets of relationships. The ADVICE network (advnet object) has 189 edges and the REPORTS_TO network (rptnet object) only has 19. So, we should probably apply the layout optimization algorithm to the ADVICE network because it is usually much easier to read - sparse network visualizations are easier to read without layout optimization.

```
la = layout.fruchterman.reingold( advnet )
plot.igraph( advnet, layout = la )
```

Ok, our network looks good so far. A little cluttered though. So let's transform the ADVICE graph so that multiple edges become an edge-attribute (E(g)$weight) :

```
E(advnet)$weight <- count.multiple(advnet)
advnet <- simplify(advnet)
la = layout.fruchterman.reingold( advnet, weights = E( advnet )$weight )
plot.igraph( advnet, layout = la )
```

But we also want to

Works Cited:

Krackhardt, David (1992). "The Strength of Strong Ties: The Importance of Philos in Organizations." In chapter 8 of Networks and Organizations: Structure, Form, and Action. Eds. Nitin Nohria and Robert Eccles. Boston: Harvard Business School Press.

Borgatti, S. P., Everett, M. G., and Freeman, L. C. (2002). Ucinet 6 for windows: Software for social network analysis.

Fruchterman, T.M.J. and Reingold, E.M. (1991). Graph Drawing by Force-directed Placement. Software - Practice and Experience, 21(11):1129-1164.

Csardi G, Nepusz T: The igraph software package for complex network research, InterJournal, Complex Systems 1695. 2006. http://igraph.sf.net

RELEVANT ONLINE RESOURCES

R project website

get R and relevant sna packages here, plus many other resources

R - getting started

list of online books, short guides, and reference cards to get started using R

Intro to Social Network Methods

an excellent and free online book on social network analysis

statnet website

a series of R packages for network analysis, ideal for network/regression models

igraph website

an excellent package for working with network data and network visualization

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