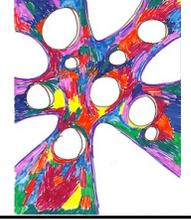




## Easy Social Network Analysis (for Evaluating Modular Adhocracies)

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### Social Network Analysis (SNA) Vocabulary

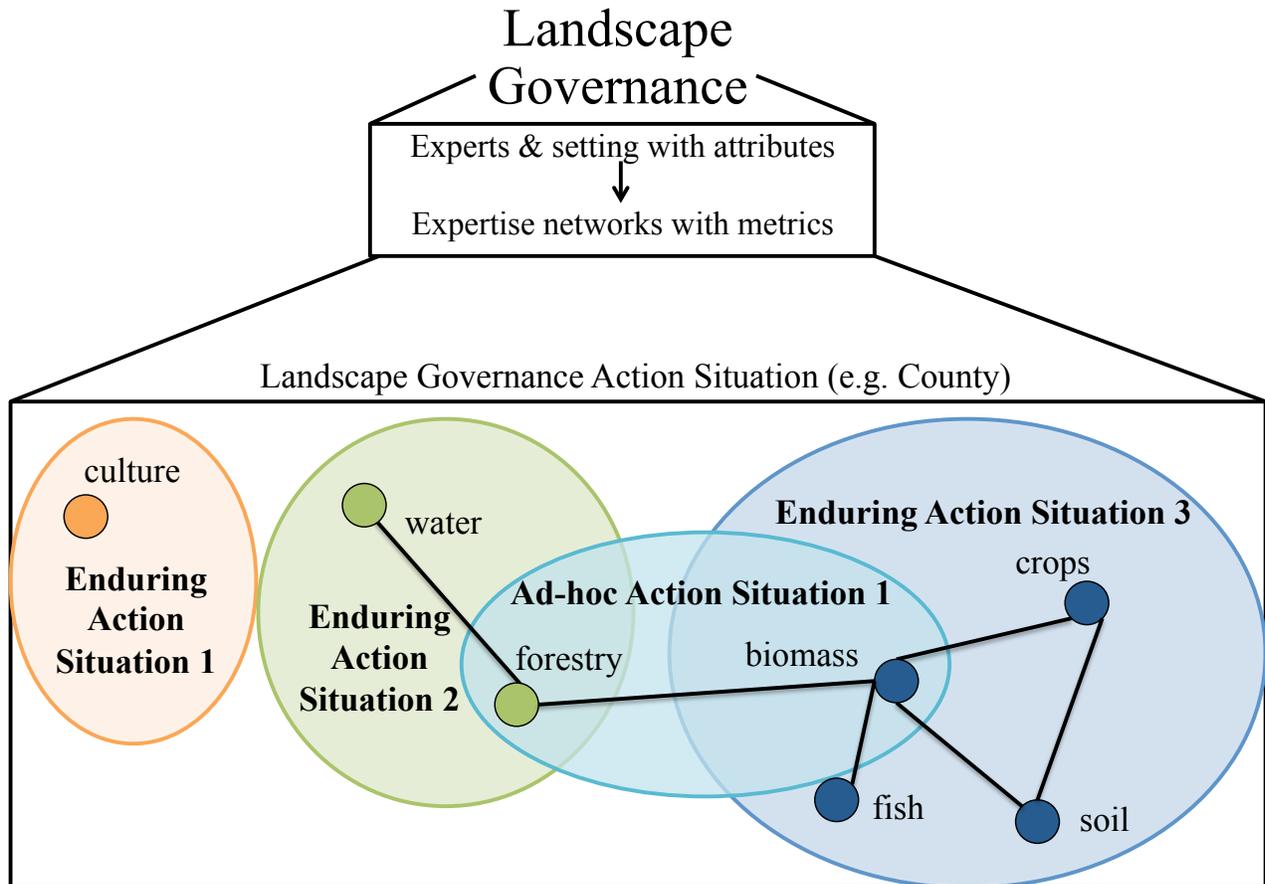
See also Scott & Carrington, 2011; Prell, 2011; and Borgatti, Everett, & Johnson, 2013.

1. **Social network**—a group of social entities connected by a particular relationship. The networks we analyze are MODELS of real networks, i.e. the analyst—somewhat artificially—bounds the network and defines what counts as the “relationship” in focus.
2. **Node**—a social entity, e.g. person, organization, expertise
3. **Ego**—the node in focus, e.g. a respondent
4. **Alter**—the nodes connected to the ego
5. **Tie/relation**—the resource flowing between the nodes. To make valid inferences, there can only be one type of tie in each network analyzed. Can have strength and/or direction.
6. **Attribute**—a variable describing the node or tie, e.g. gender, tie strength
7. **Mode**—a type of node, e.g. person vs. organization. To make valid inferences in a 2-mode network, there can only be ties between the different modes, not within the modes, e.g. person-organization NOT person-person.
8. **Co-/Affiliation**—the similarity between two nodes based on some shared attribute(s). Calculated several different ways in UCINET.
9. **UCINET**—the most commonly used SNA software (Borgatti, Everett, & Freeman, 2002)
10. **Network survey**—getting the network data from the nodes directly, as opposed to secondary data mining. Can be conducted orally, online, or in writing.
11. **UCINET best practices**—creating a separate folder for each project, setting the working directory to this folder (CTRL+F), naming each file very descriptively, printing off key outputs, emailing both the .##d and .##h files to collaborators, saving spiffy Netdraw diagrams as .vna files, trust your key statistics to UCINET not Netdraw, use the SOcNET listserv and UCINET Yahoo groups for technical and research support.



# Modular Adhocracies: The Standard

Figure 1: Theoretical standard for governance of a complex system such as a landscape, based on the Adaptive Co-management and Institutional Analysis and Diversity frameworks. This diagram can represent one or more governance levels depending on the evaluation focus (Laursen, 2013).



**Modular** = clusters of subgroups, each addressing some action situation

**Adhocracies** = some clusters respond to emerging issues by transforming weak ties into strong ties, while some clusters endure

Hahn *et al* (2006) describe such an “adhocracy” as

An innovative and collaborative organization ‘that is able to fuse experts drawn from different disciplines into smoothly functioning ad hoc project teams that avoid all the trappings of bureaucratic structure, notably sharp divisions of labor. Coordination can no longer be planned but must come through interaction. The structure of the Adhocracy must be flexible, self-renewing, organic’ (Mintzberg, 1979, pp.432-3).

Qualitative factors determine (1) what counts as an action situation, (2) if brokers can in fact turn weak ties into strong ties, i.e. the evaluator **must conduct a mixed methods study** to assess the adaptive co-management capacity of the network.

## Easy SNA for Evaluating Modular Adhocracies

### **1. Import 2-mode data to UCINET.**

### **2. Convert 2-mode network to 1-mode co-affiliation network.**

This reveals the extent of commonalities between the subgroups. What do they have in common? The other mode of the dataset. In this case: individual experts. There is a theoretical/conceptual reason this matters for the evaluation's framework. (Collaborative information sharing depends on having people to transmit and integrate the information unique to each expertise; the cross-product tells us how the experts' prestige affects the strength of the tie). Do you have a theoretical/conceptual reason co-affiliation measured this way matters for your evaluation case?

### **3. Run the F-groups routine to find the strong/medium/weak tie thresholds.**

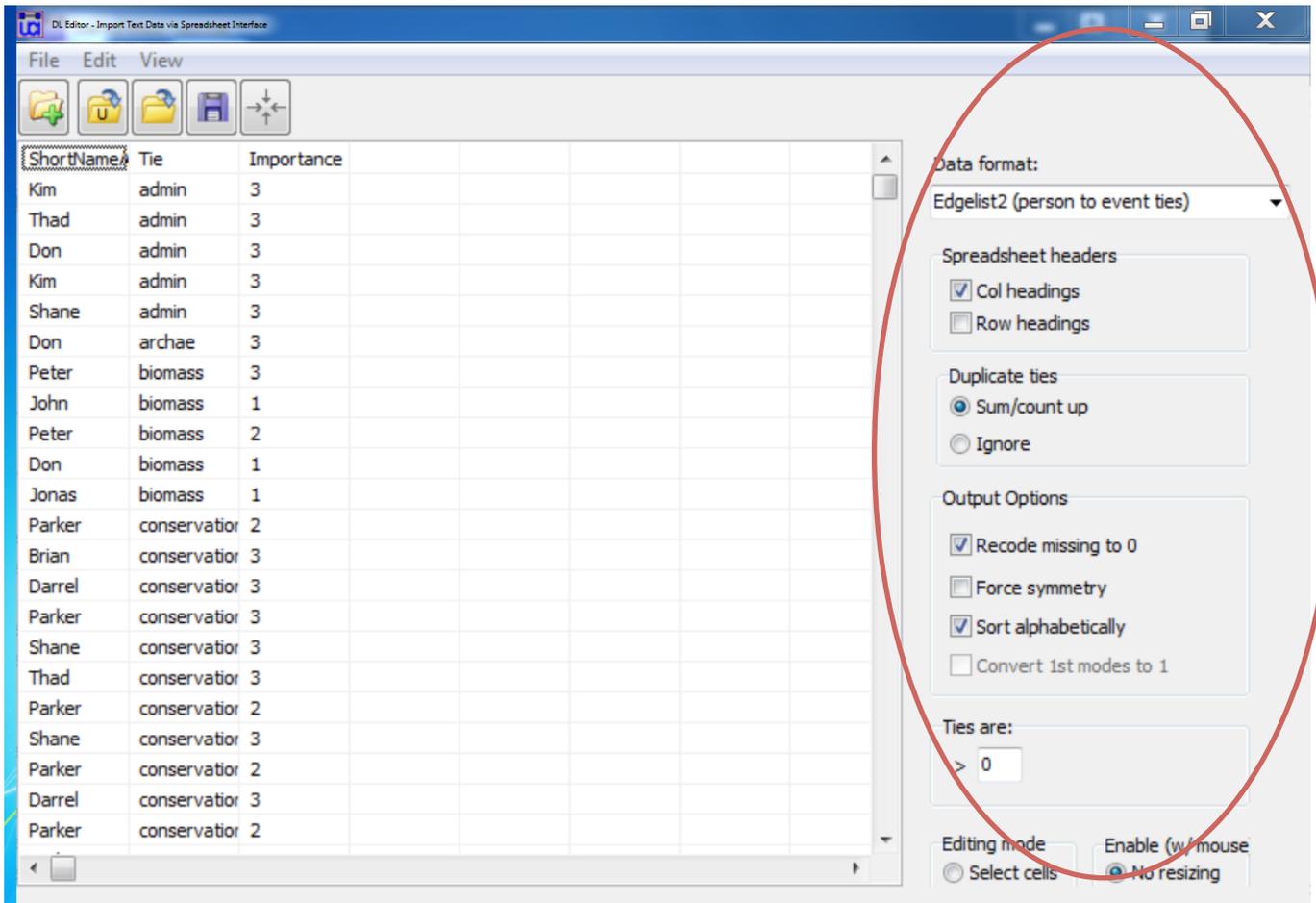
This routine defines this strong threshold value,  $s$ , to be the strength of the tie that enables weakly transitive triples. Weakly transitive triples have ties between nodes A and B and between B and C both stronger than  $s$ , and a tie between A and C stronger than an analyst-defined minimum value for a weak tie (in our case zero) but not stronger than  $s$ .

### **4. Graph the weak, medium, and strong tie networks to observe modules.**

### **5. Optional: confirm clustering is not just a figment of your imagination by running the Clustering Coefficient routine in UCINET. Network > Cohesion > Clustering Coefficient. If the weighted clustering coefficient >> network density, there is a notable tendency to cluster (Hanneman & Riddle, 2011).**

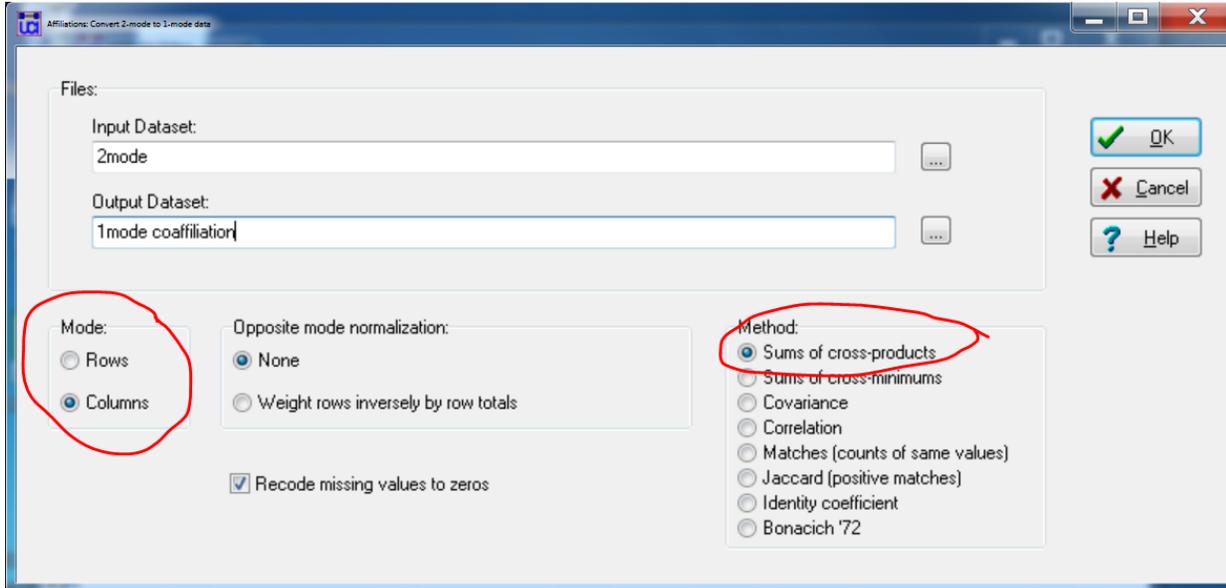
# 1. Import 2-mode data to UCINET

- a. Copy-paste the list from Excel to the DL editor
- b. Select “col headings,” “sum/count up,” and “recode missing to 0”
- c. Save file as EdgeList2. In the resulting matrix, the first column becomes row headers (e.g. Names); the second column becomes column headers (e.g. Expertise Areas).



## 2. Convert 2-mode network to 1-mode co-affiliation network.

- a. Data > Affiliations (2-mode to 1-mode)
- b. Select “columns” from the Mode list to co-affiliate the Expertise Areas.
- c. Select “sums of cross-products” from the Method list.
- d. Create new file name and click “OK.”

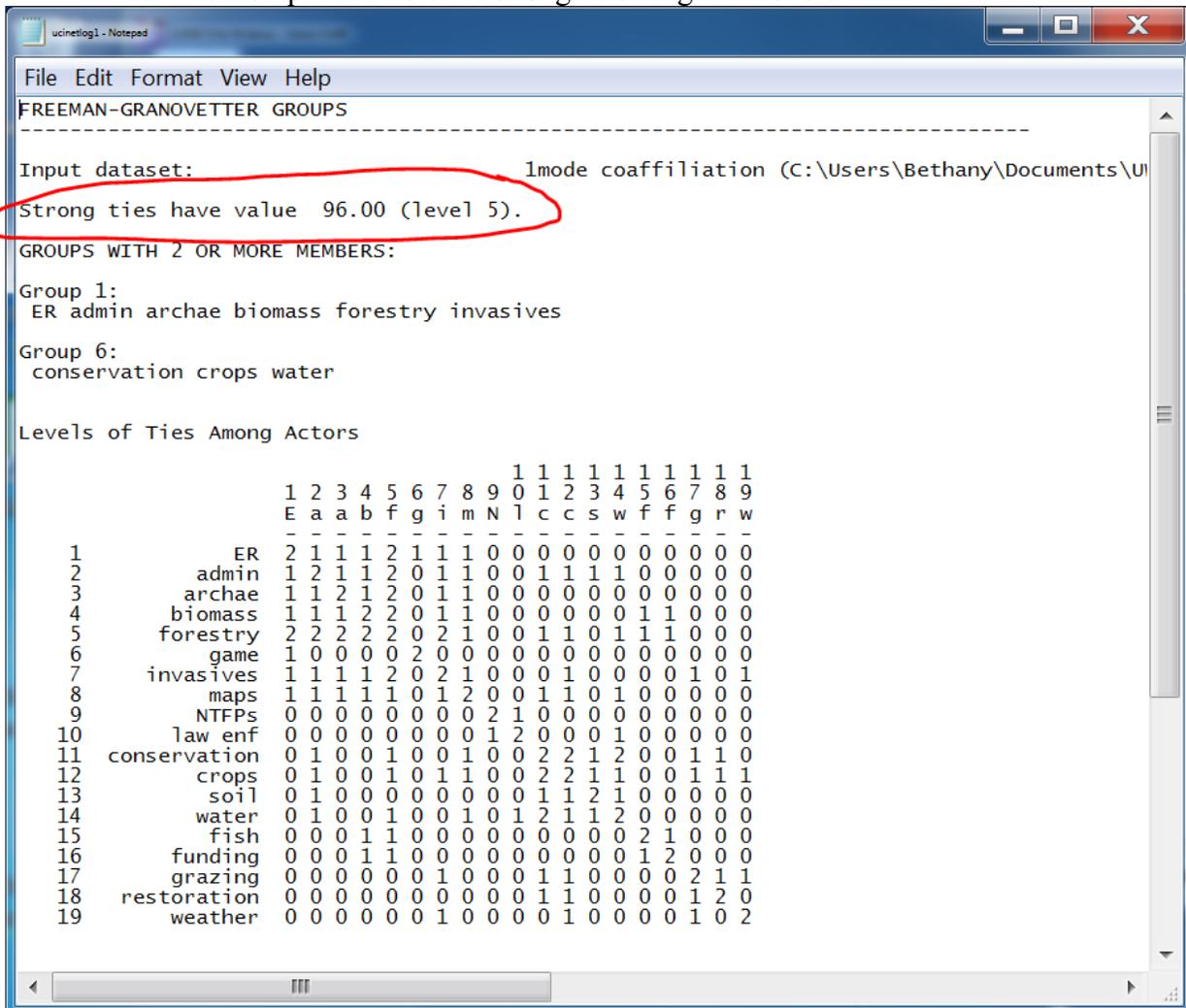


### 3. Run the F-groups routine to find the strong/medium/weak tie thresholds.

- a. Network > Subgroup analysis > f-groups
- b. Set the cut-off values for absent ties to be zero (default). This means as long as a tie is present, it will be included in the analysis.
- c. Create output file name and click "OK."



- d. View output and note the strong tie strength threshold.

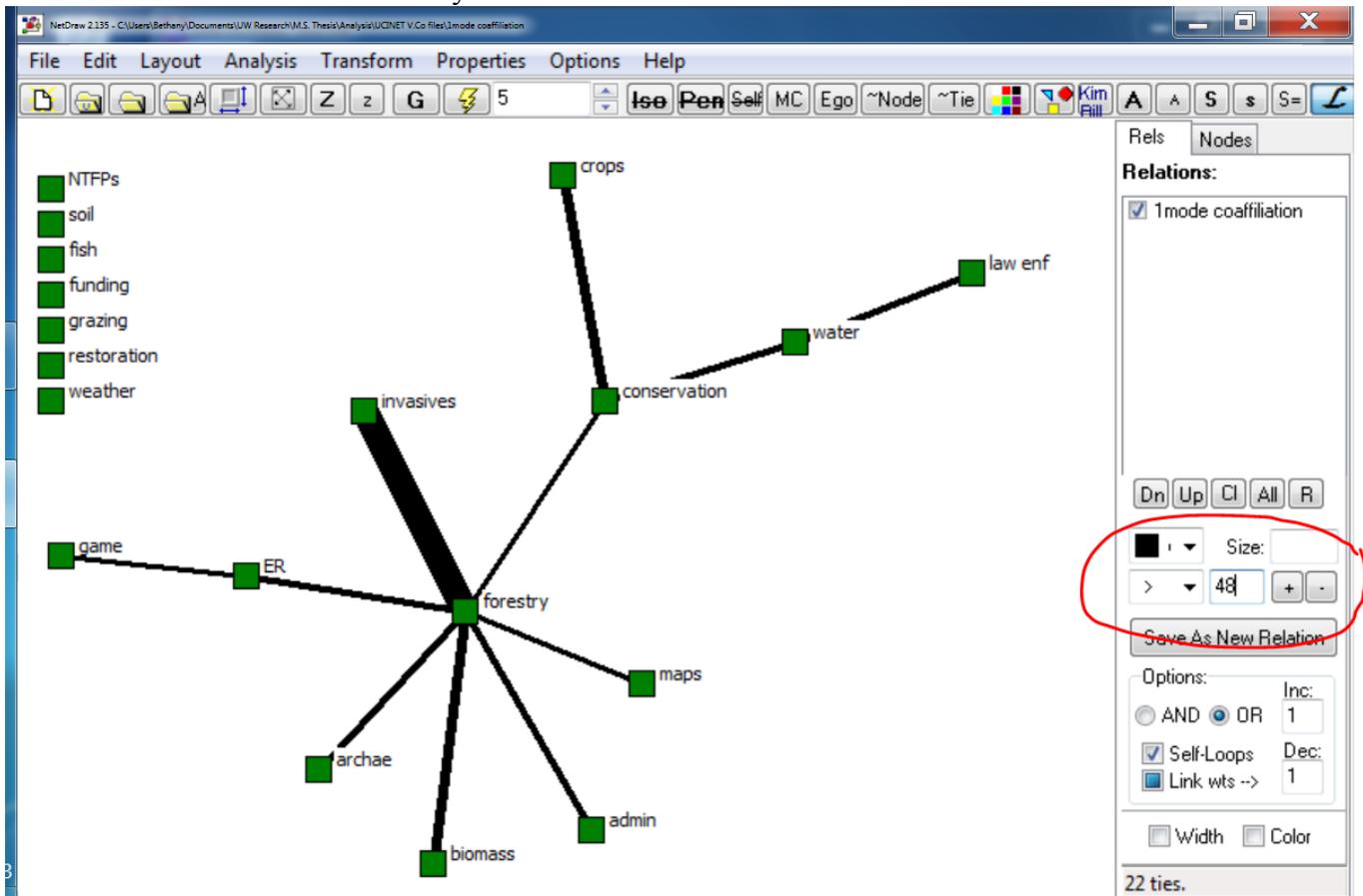


- e. Calculate the medium tie strength threshold as the midpoint between zero and this strong tie threshold, e.g.

Tie Strength	Threshold Value
Weak	0
Medium	48.0
Strong	96.0

#### 4. Graph the weak, medium, and strong tie networks to observe modules.

- f. Open the 1-mode co-affiliation network in Netdraw. Optional: turn off arrowheads, and weight lines by tie strength.
- g. Filter the ties shown by setting the tie strength in the lower right corner of the Rels tab: > the medium threshold, then > the strong threshold. Push the “lightning bolt” button each time to get a pretty picture. Optional: <= medium threshold shows weak ties only.



- h. Observe modules and bridges. Optional: color code nodes by module, and run centrality measures to find nodes with high betweenness centrality (brokers).

**5. Optional: confirm clustering is not just a figment of your imagination by running the Clustering Coefficient routine in UCINET. Network > Cohesion > Clustering Coefficient. If the weighted clustering coefficient >> network density, there is a notable tendency to cluster (Hanneman & Riddle, 2011).**

## **References**

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