Individuals' Formal Power in Groups and Their Social Network Accuracy

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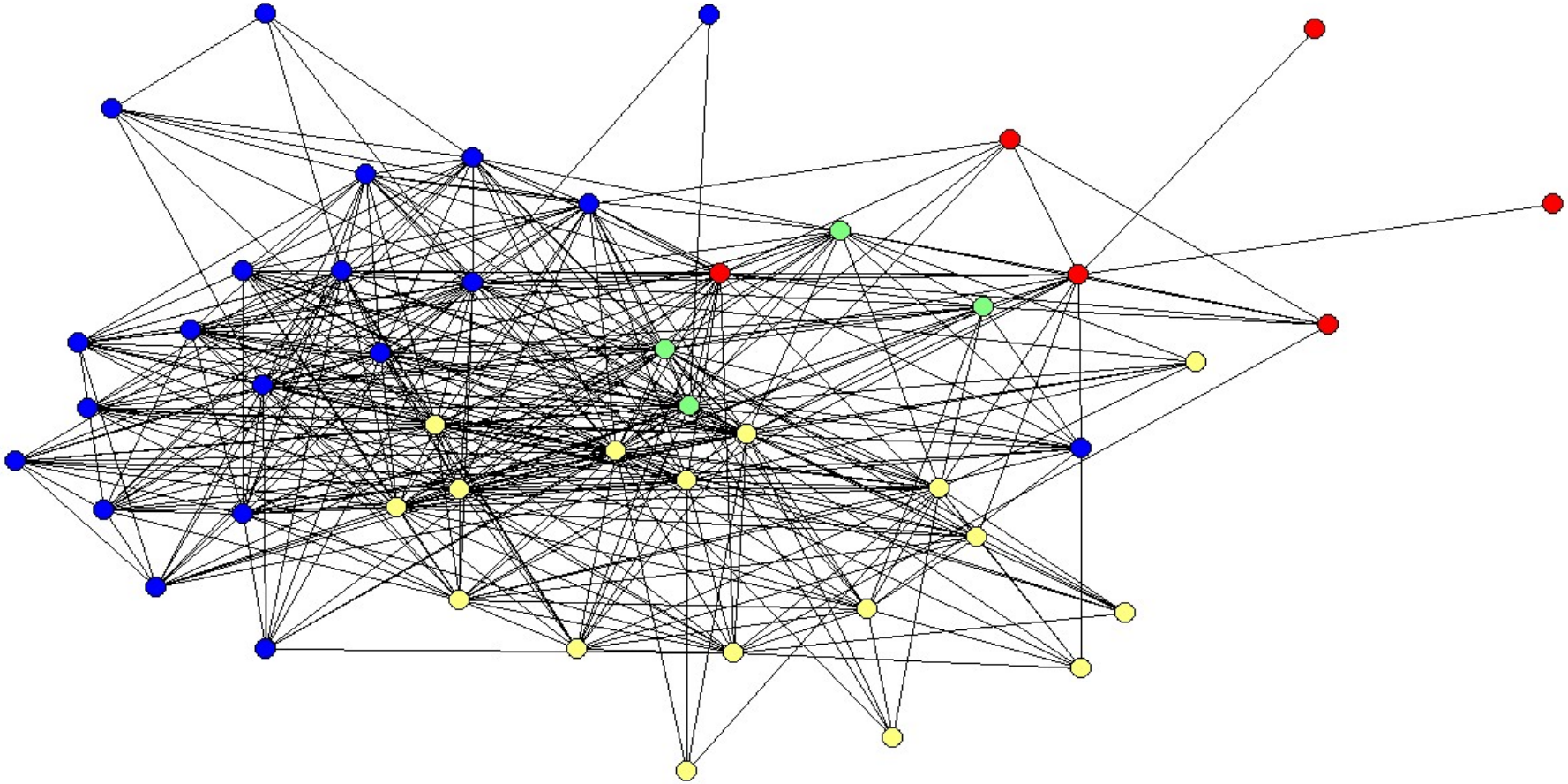
October 4, 2013

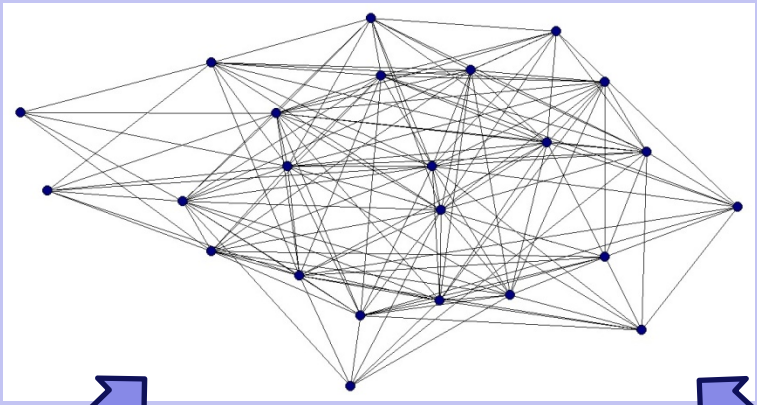
Objective view of networks in organizations and groups:



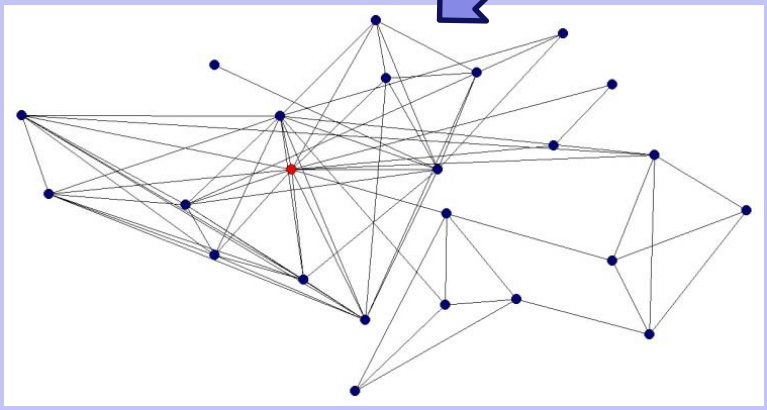
Cognitive View of Social Networks

- Individuals have differing perceptions of network relationships
  - These perceptions of informal relationships form individuals' mental maps of the social world, or *cognitive social structures (Krackhardt, 1987)*
  - Individuals' cognitive maps—or social network perceptions—vary and are prone to error

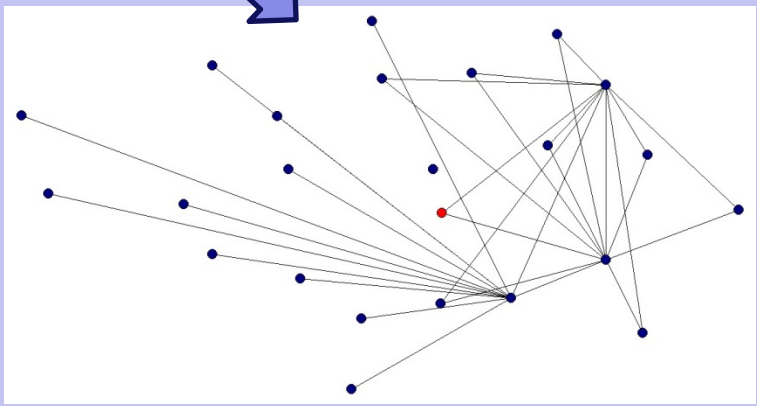
Network Accuracy: Friendship Network



"True network"



Highest Accuracy



Lowest Accuracy

Cognitive View of Social Networks

- Even in a small network with 25 individuals there are 600 (N*N-1) potential relationships in the network.
- This potential for information overload makes errors highly likely, and errors can have real life consequences.

Consequences of Network Accuracy

- How one views the network affects how one behaves in the network
- Managers' knowledge of the network might be important for outcomes, and doing the job of managing

Does formal power relate to network accuracy?

•Casciaro, 1998: Formal position was negatively related to accuracy of the advice and friendship networks.

•Simpson, B., Markovsky, B., & Steketee, M. 2011: Power was related to significantly more errors in learning the influence network than low power.

•**Bottom line: Powerful as cognitive misers**

Power and Perception

- Social psychology has been focusing recently on the consequences of power (i.e., Kipnis, 1976; Galinsky et al., 2010)
- This work has been clear in showing that individuals with power actually process and perceive the world differently than low power individuals (e.g., Fiske, 1993)
- Recent work suggests that **powerful individuals aren't cognitive misers, but are flexible and focused** (e.g., Guinote, 2010; Galinsky et al., 2010)
  - Situated focus theory of power
    - Power is associated with differences in attention and perception of social information, based on the situation
    - Power allows individuals to attain desired outcomes more easily, thus they can devote more attention to central aspects of the situation (e.g., goals in an organizational setting)

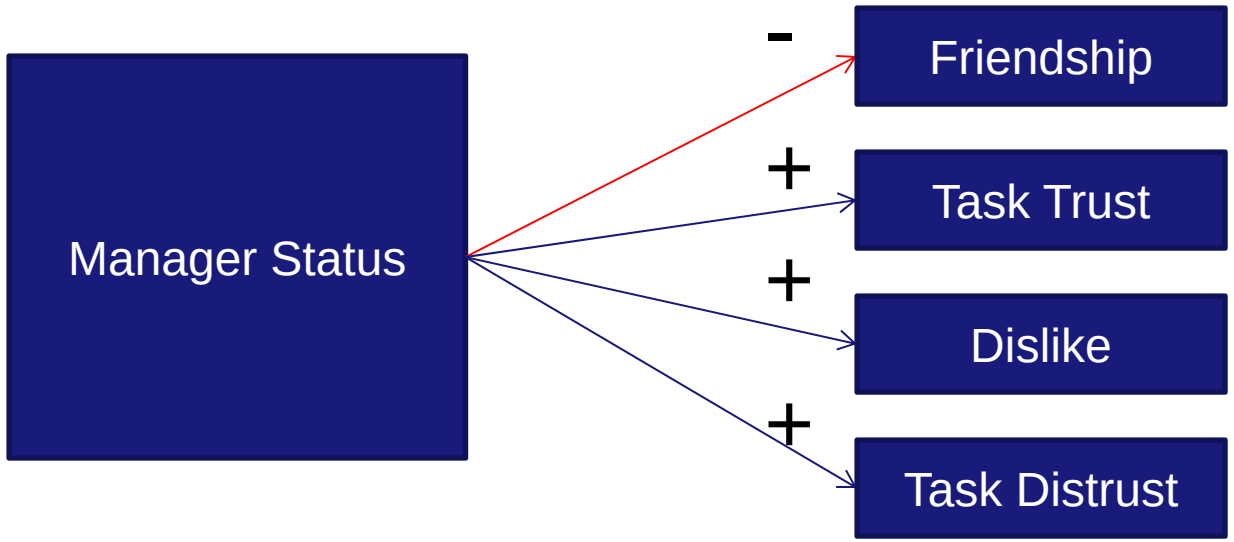
Relational Ties of Interest

	POSITIVE	NEGATIVE
INSTRUMENTAL	Task Trust	Task Distrust
AFFECTIVE	Friendship	Dislike

Main Research Question

Is formal power (e.g., manager rank) within production groups related to social network accuracy in these four types of network types?

Empirical Model Predictions

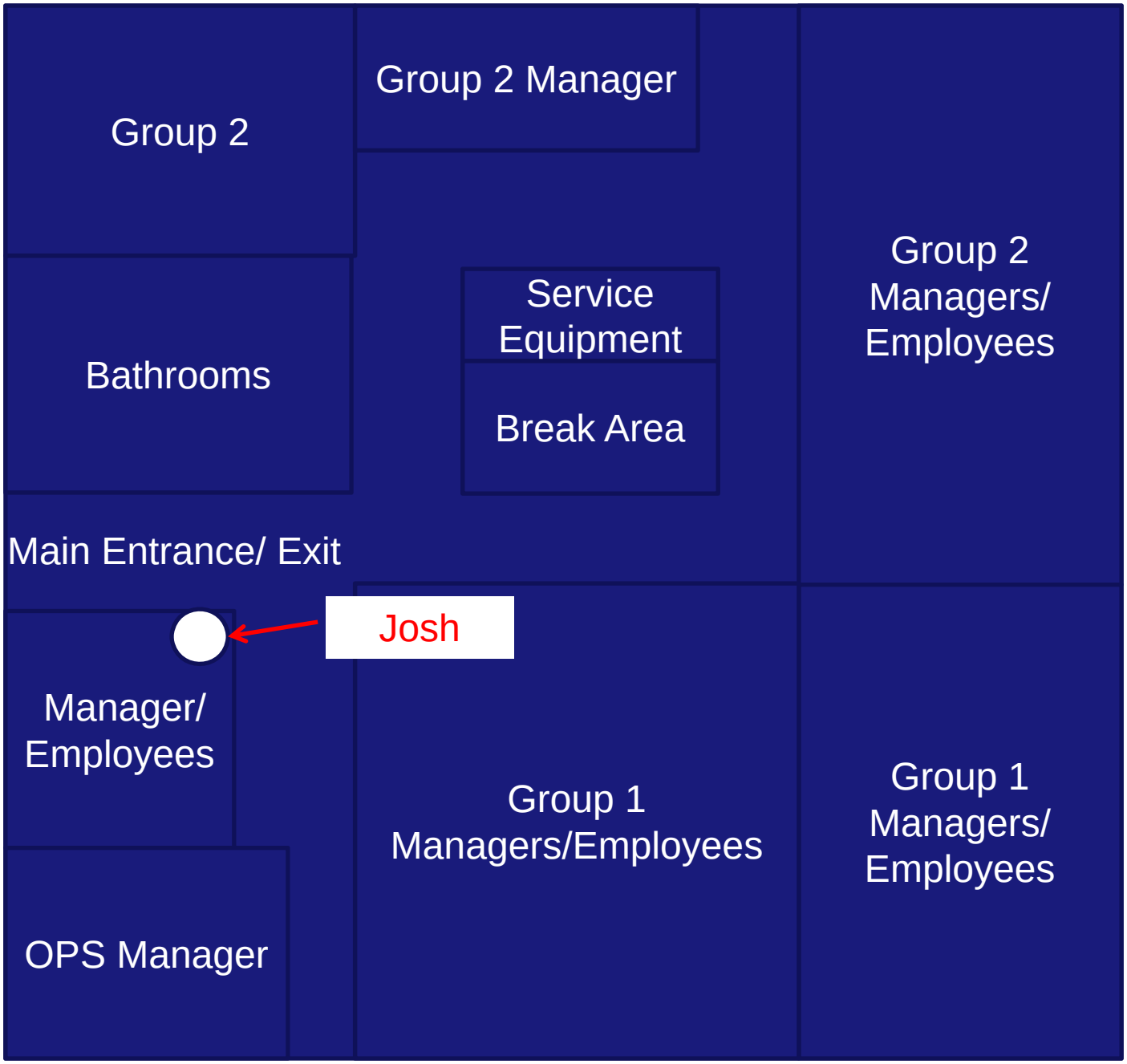


Research Setting

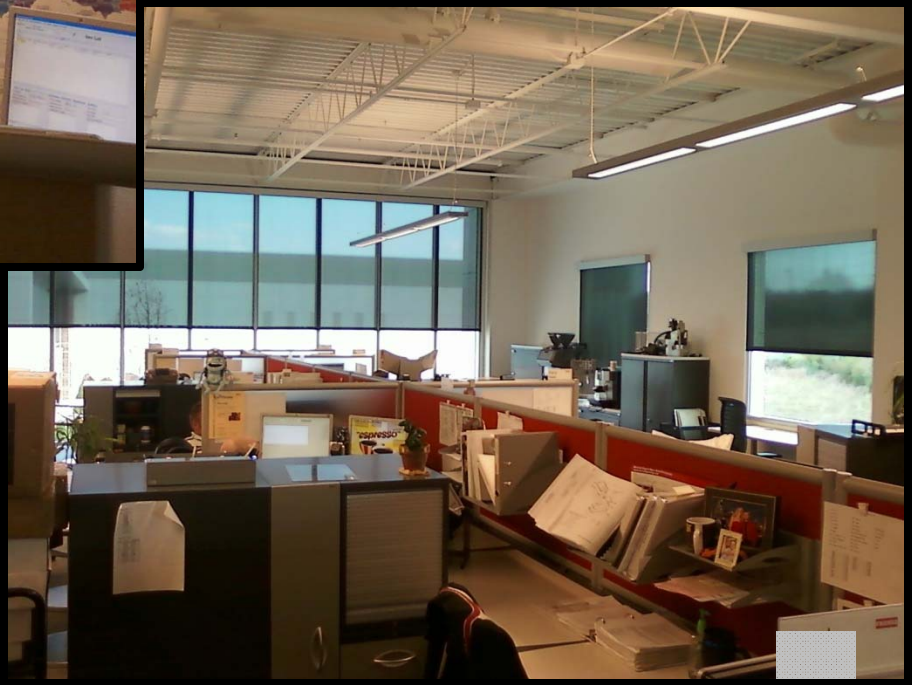
- Division of a large, European-based manufacturer and services firm of restaurant equipment in the US
  - Call center responsible for technical service calls with customers and service providers.
  - Primarily dealing with coffee machines and professional restaurant equipment
  - Highly trained individuals
  - Technical work

Sample

- Complete CSS data from 39 individuals out of 42 in two work groups
  - Group 1 25 individuals (88% response)
  - Group 2 17 individuals (100% response)
  - 10 managers (100% response)
  - 41% female; 38% minority
- Bolstered by three weeks of qualitative work


Group 2
Group 2 Manager
Group 2 Managers/ Employees
Bathrooms
Service Equipment
Break Area
Main Entrance/ Exit
Josh
Manager/ Employees
Group 1 Managers/Employees
Group 1 Managers/ Employees
OPS Manager

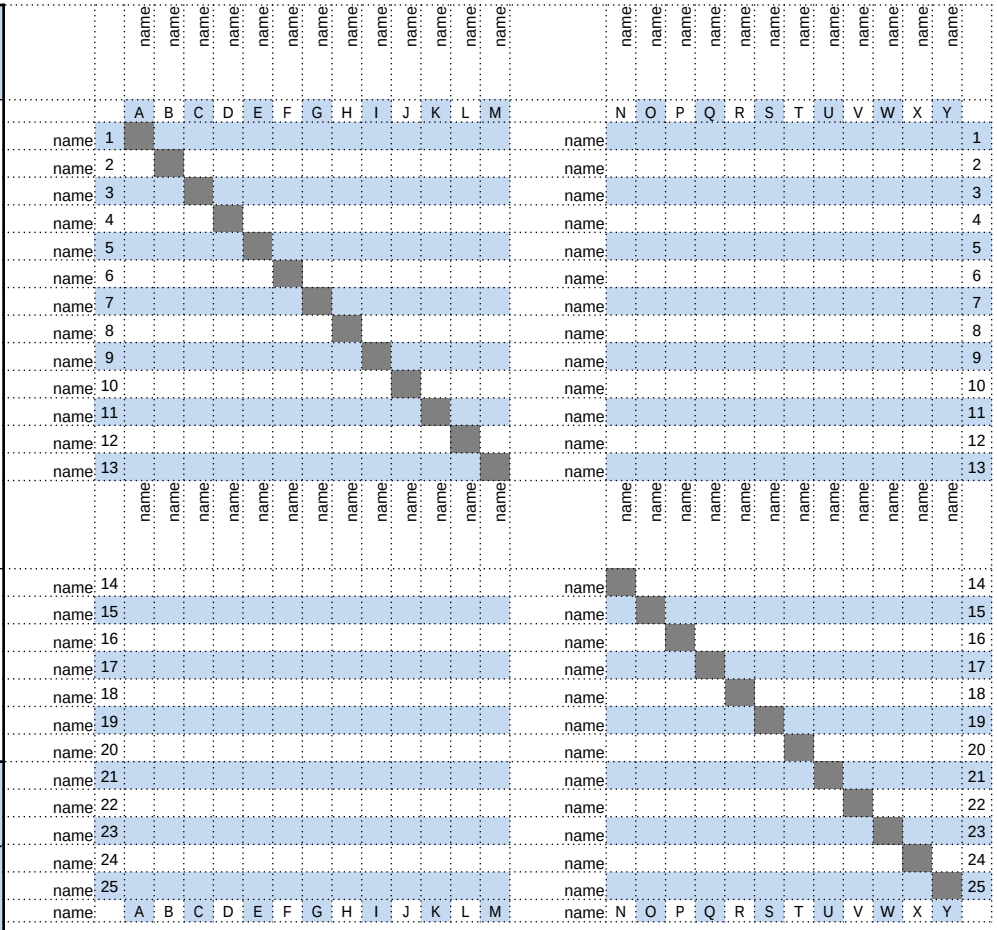
Group 1 area



Group 2 area

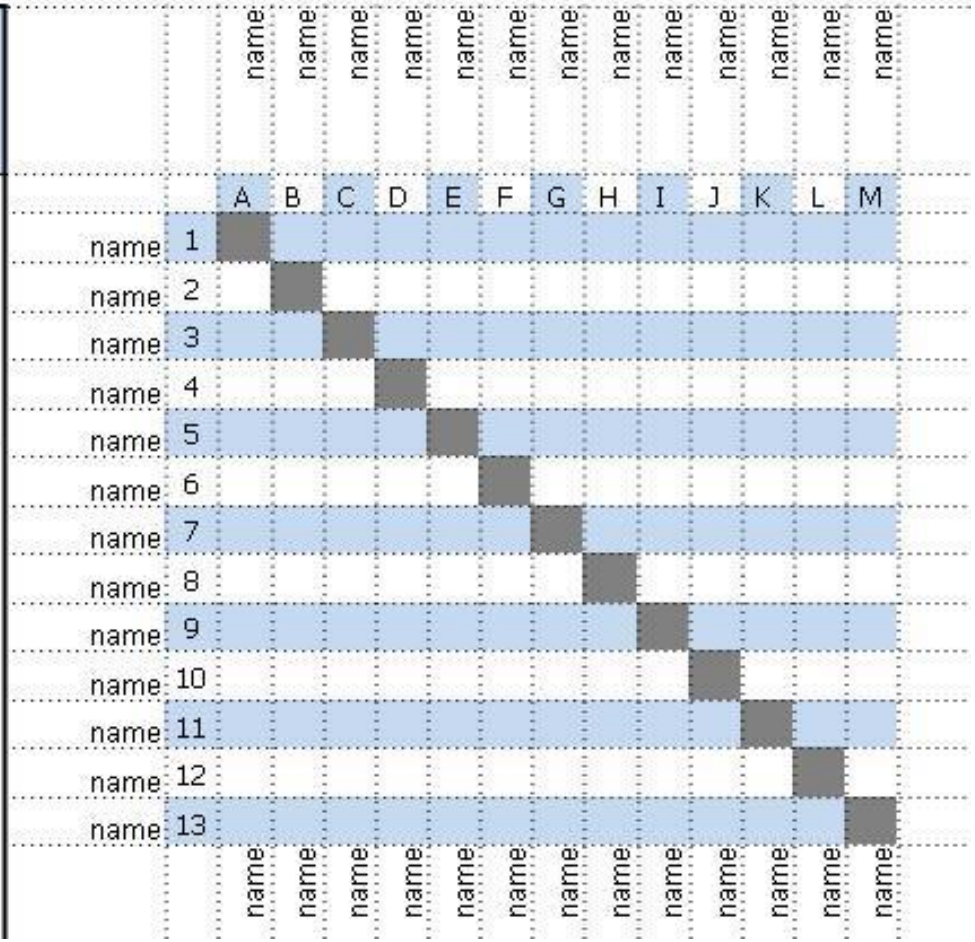
EXAMPLE MATRIX (CSS) QUESTION

PERSONAL FRIEND (1) DISLIKE (2)
Write a 1 in the box for personal friend or a 2 for dislike, or leave box empty for neither for each name in the ROWS (1-25).
If you are unsure about an answer, please leave it blank. For your name, please only mark those for whom you actually are personal friends or dislike.



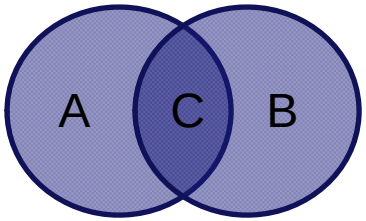
CSS Networks

PERSONAL FRIEND (1) *DISLIKE (2)*
Write a 1 in the box for personal friend or a 2 for dislike, or leave box empty for neither for each name in the ROWS (1-25).



Measures

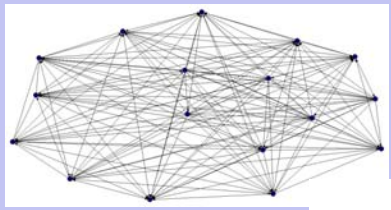
- **Network Accuracy** is the Jaccard Index of the actual network and individuals' network perceptions (UCINET)
  - Set theory approach
    - A = ego's perception of the network
    - B = actual network
    - C = intersection of A and B
    - (Friendship and Dislike Relationships)

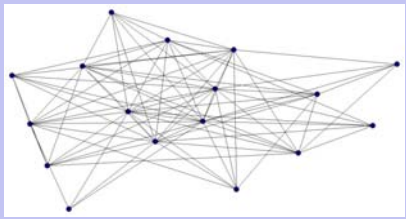


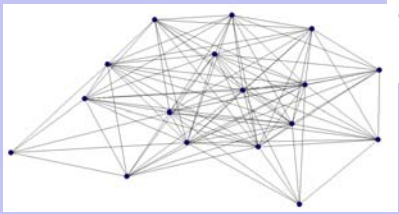
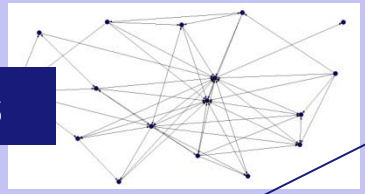
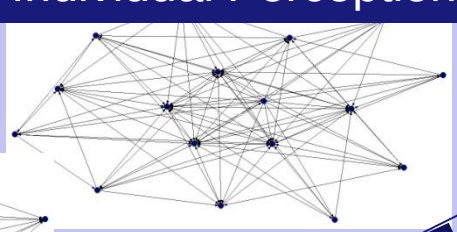
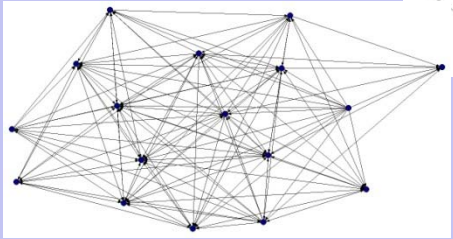
$$J(A,B) = \frac{A \cap B}{A \cup B}$$

  - "Actual" network is based on a row-dominated LAS (Krackhardt, 1987)
  - Also reanalyzed this using a Bayesian Network Accuracy Model (Butts, 2003)

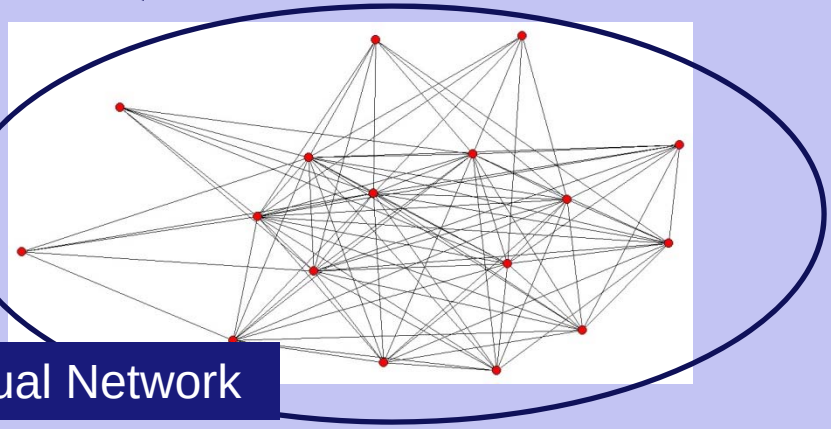
The "Actual" Network





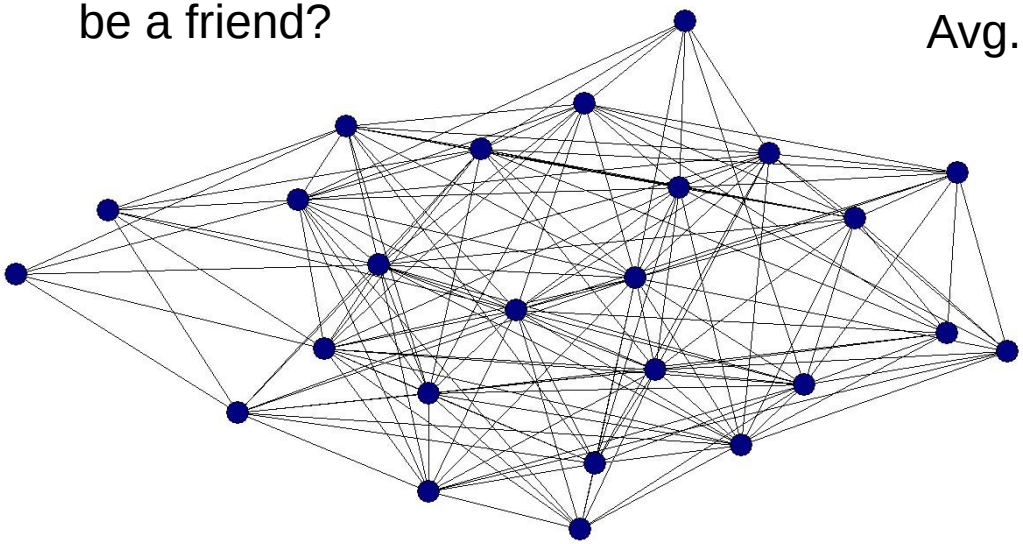
Individual Perceptions



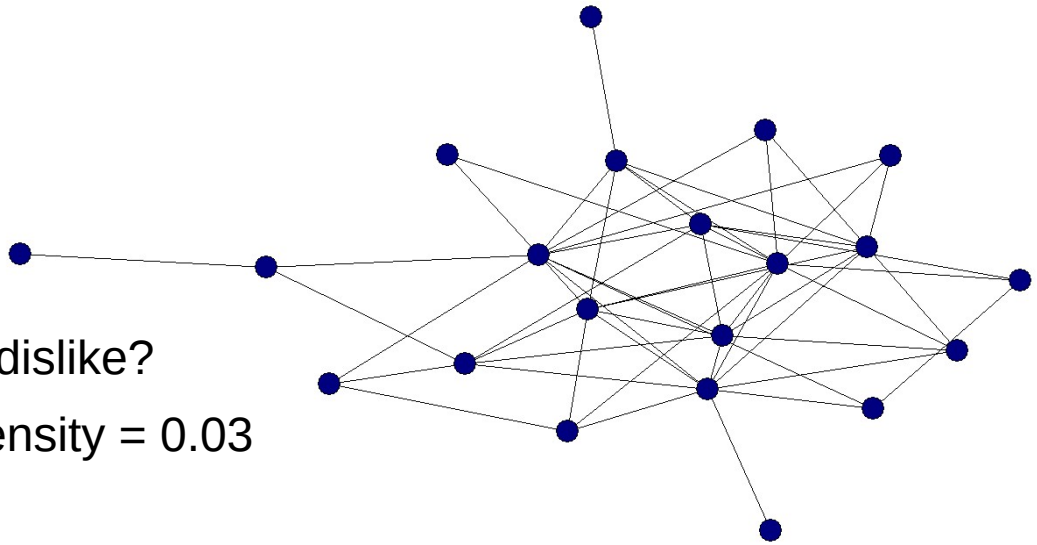
Actual Network

Friendship and Dislike

Who do you consider to be a friend?



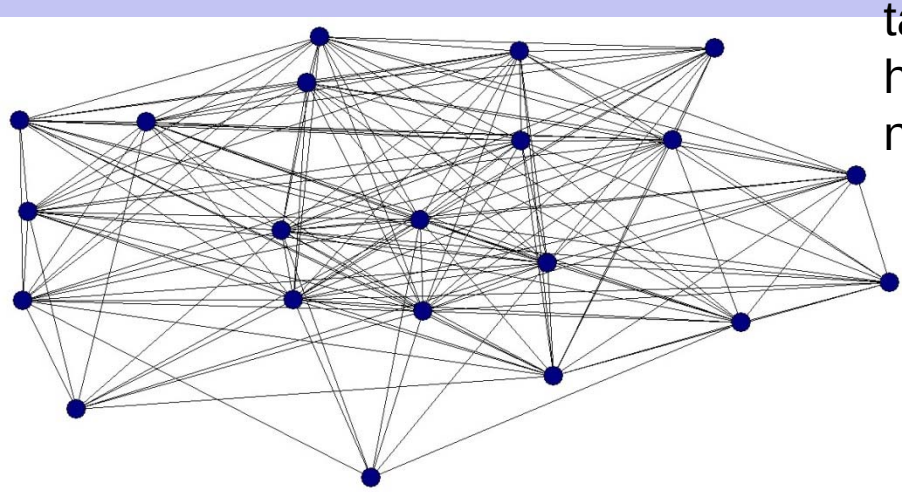
Avg. CSS Density = 0.24



Who do you dislike?

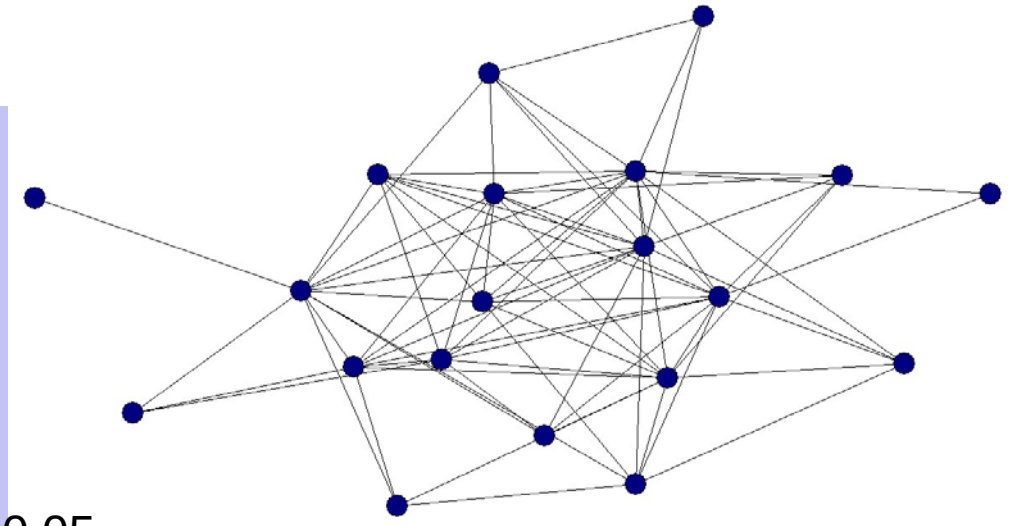
Avg. CSS Density = 0.03

Task Trust and Task Distrust



Who do you trust (distrust) to complete a task that he or she had agreed to do and has the knowledge and competence needed to get tasks done?

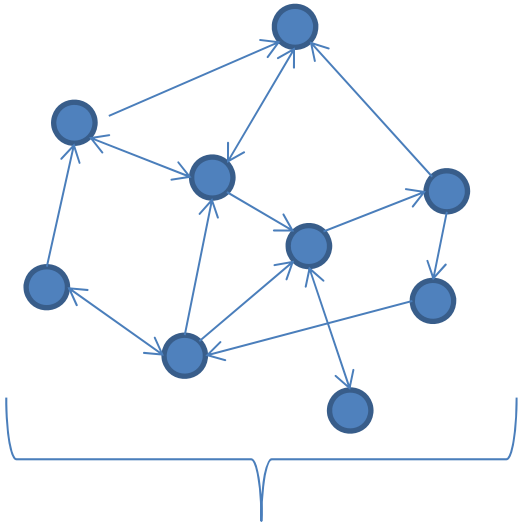
Avg. CSS Density = 0.36



Avg. CSS Density = 0.05

Level of analysis

WHOLE
NETWORK



Ego's perception of
the whole network

* doesn't include ego's own network, which we'll analyze later

Sample Descriptives

		Network Accuracy			
GROUP		Dislike	Friendship	Task Trust	Task Distrust
Total	Mean	.04	.14	.18	.09
	Std. Dev	.04	.06	.09	.09
	Range	.13	.24	.34	.30

Total n = 39

Control Variables

- Network Position (indegree centrality):
  - Friendship, Dislike, Task Trust, Task Distrust, Work Flow
- Homophily and Attributes:
  - Gender similarity and gender
  - Ethnic similarity and ethnicity
  - Tenure similarity and tenure
- Informal Influence (Brass, 1984; Krackhardt, 1990)
- Simmelian Ties
- Political Skills Inventory (Ferris et al., 2005)
- Positive and Negative Affectivity (Watson, Clark, & Tellegen, 1988)
- Self-Monitoring (Snyder & Gangestad, 1986)
- Need for Achievement/Need for Affiliation (Steers & Braunstein, 1976)
- Ego's CSS Density

Empirical Model RESULTS

Analytical Approach: Generalized linear model from the binomial family with a logit link (clustered around supervisors for relevant hypotheses; in the dyadic models, respondents were pooled by group membership)

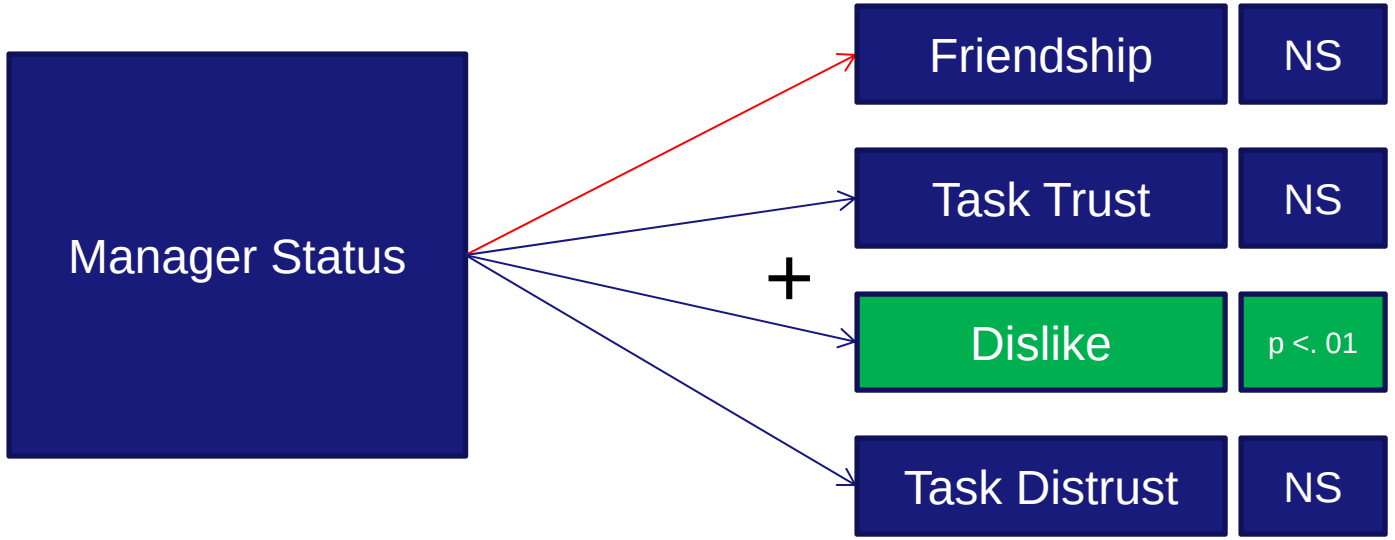


Table 3. Analysis for Whole Network Accuracy and Manager (Formal Power)

	Dislike		Friendship		Task Distrust		Task Trust	
Org. Tenure	3.44**	1.90*	-0.77*	-0.95**	-1.16	0.14	0.01	0.12
	(3.18)	(2.05)	(-2.30)	(-2.65)	(-0.64)	(0.06)	(0.03)	(0.36)
Group	9.62**	10.63**	1.53**	1.64**	-1.12	-1.67	1.15**	1.08**
	(4.05)	(3.69)	(4.00)	(3.48)	(-1.00)	(-1.11)	(4.72)	(3.85)
Work Required Ties	-1.60	-1.96	1.03*	0.95**	-0.47	0.09	0.88+	0.92+
	(-0.93)	(-0.94)	(2.31)	(2.67)	(-0.23)	(0.04)	(1.84)	(1.83)
Negative Ties	-0.69	-2.24	0.35	0.30	9.57**	9.87**	-0.01	0.06
	(-0.21)	(-0.45)	(0.59)	(0.53)	(2.75)	(2.86)	(-0.01)	(0.08)
Positive Ties	-1.78	-2.82	-0.28	-0.31	3.12	3.93	-0.08	-0.00
	(-1.47)	(-1.18)	(-0.47)	(-0.52)	(0.87)	(1.03)	(-0.19)	(-0.00)
Network Perception	5.37**	5.66**	3.69**	3.57**	9.74**	10.11**	3.59**	3.65**
	(4.63)	(4.67)	(4.93)	(4.15)	(3.59)	(3.77)	(16.43)	(15.23)
Manager		**3.97***		0.42		-2.24		-0.26
		(2.26)		(0.94)		(-1.14)		(-1.01)
Pseudo Log-Likelihood	-6.58	-6.51	-14.19	-14.18	-6.15	-6.14	-15.41	-15.40

Note: n = 39. Standardized beta coefficients; t-statistics in parentheses. Standard errors clustered around supervisor (n = 9) are robust. Manager = 1, non-Manager = 0; Group 2 = 1, Group 1 = 0.

*p< .05 ; **p<.01 , two-tailed

Implications

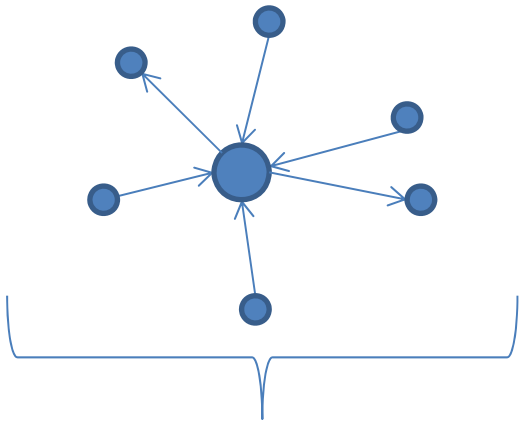
- Formal power is associated with *increased* accuracy of negative ties at the whole network level
- Manager status is associated with more accuracy, suggesting the powerful are not simply cognitive misers – they are just focused elsewhere

Quote from a manager

" […] both are fantastic guys. But together they're tough to tame…they will sit there and argue and they're talking about the same thing. So I'm cautious in having those two folks in an event together."

Dyadic level of analysis

DYADIC (Object)



Ego's perception of specific others' incoming and outgoing ties

Managers' perceptions of subordinates' ties

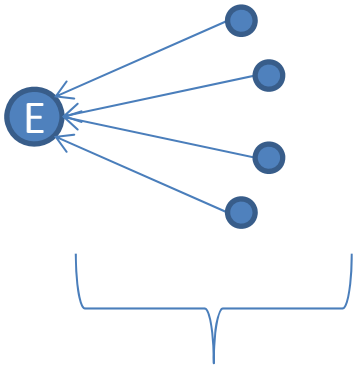
- If situated focus theory of cognition is true, we would expect that managers would be more accurate about their subordinates' ties than the ties of others in the network
- Analytic approach: DSP – MRQAP analysis (Dekker, et al., 2007)

Results

- Managers were significantly more accurate about their subordinates' incoming:
  - Friendship ties (*b = .55, p < .01)*
  - Dislike ties (*b= 3.34, p<.01*)
  - Task trust ties (b = 0.42, p< .05)
  - Task distrust ties (b = 2.24, p< .01)
- Suggests that managers are paying close attention to what people think about their subordinates
- Incidentally, the same was true of subordinates' accuracy of managers' incoming friendship and task dis/trust ties.

Managers' Incoming Ties

INCOMING
(EGO)



Ego's perception of his/her own incoming ties

Managers' Own Incoming Ties

- Managers were more accurate about their own incoming ties than were non-managers for these types of relations:
  - Dislike ties
  - Task trust ties
  - Task distrust ties
- No difference in accuracy for incoming friendship ties

Results summary

- When looking out into social world, managers are more accurate about dislike ties
- They are watching out for disliking directed at their employees
- Managers are much more accurate about how people view them along many types of ties than are non-managers, but not in the friendship network that is typically studied in this literature

Discussion

- Suggests that managers are more politically attuned than are non-managers
- The situated focus theory of cognition is a cold, cognitive theory of attentional motivation
- Results suggest that managers are focusing, instead, on hot spots. Theorizing that blends affective primacy with negative primacy appears to be the best approach to understanding managers' network accuracy
- Managers are not cognitive misers, as has been suggested
- Rather, they appear to be politically astute students of the network

Implications for group research

Perceptions are important for understanding group functioning:

- Where is knowledge held?
- How much do you trust that person's knowledge?
- How willing is the person to share that knowledge with you or others, both for instrumental and affective reasons?
- How does power affect knowledge perceptions and flow?

Thank you!

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