“group, persons, relations” networks of people

- We are social animals, as such people are connected one with the other, and strong interconnections between people signals groups.

- Nodes: individuals
- Links: social connection (e.g., friends, team-mates, colleaugues)
- Network: the group of people (e.g., a family, a sport team, a university)

- Network analytics can be used to detect socially relevant information:
- E.g., bullism, discrimination, popularity, persuasion, conformism, ideological polarization,

Definition of the network

Theoretical definition>operationalization

(more in a dedicated lecture)

When we want to study a social network the first step is to define it.

NODES=???

LINKS=????

Definition of the network: e.g. networks of people

- Maybe participanst are not aware of ties between their social supporters
- Solution: objective measures (e.g., co-publications of supporters)
- Class mates
- Colleagues: belonging to same organization
- Political affiliation: enroled in a party???
- Collaborators: working to the same project? Co-authors?
- Friends: how do you define friendship?
  - *CRITERIA: number of interactions? Quality of the relationship? Self determination? Top 5? Top 3?*

Identification of Network Boundaries

Formal vs. informal group

Risk: ARTIFICIAL boundaries

From theoretical definition to empirical criteria

-> transparent inclusion/exclusion criteria allow:

- replicability of the results

- generealizability of the findings

Selecting within the boundaries

Three main stategies:

- Random selection

- Reputational approach

- Identification of roles

Representative random sample

- reproduces the relevant characteristics of the reference population (age, gender, level of education, socio-economic, political orientation …)

- Is this a good procedure?

Representative random sample

- a representative sample of individual respondents does not correspond to a sample representation of their relationships !!!!
- At most I can get basic and self-centered info:

E.g. We could get info on the density of the Italians' network of friends by asking a representative sample how many "friends" they have, but you cannot know for example anything about reciprocity or the level of cohesion of the group of friends

People network analysis

Mention your main sources of information

- Who have you spoken with about politics?
- List the last 6 people you have spoken to.

Mention your main sources of information

- Do these people know each other? Make a matrix

	Giulia	Marc	Oliver	Thomas	Sarah	Anna
Giulia	X					
Marc	0	X				
Oliver	1	0	X			
Thomas	1	1	0	X		
Sarah	1	1	1	0	X	
Anna	0	0	0	1	1	x

Count the 1_s (min=0,

Mention your main sources of information

- Mark in RED those who share your political ideology (rough categorization!)

	Giulia	Marc	Oliver	Thomas	Sarah	Anna
Giulia	X					
Marc	0	X				
Oliver	1	0	X			
Thomas	1	1	0	X		
Sarah	1	1	1	0	X	
Anna	0	0	0	1	1	x

Count the 1_s separately for reds and blacks

- How many red (same political standing) names do you have in your network?
- How many people in your network know each other? (number of ones?)
- Is this number equal for red (same) and black (different political standing)?

Political Psychology

ISPP

Political Psychology, Vol. 33, No. 6, 2012
doi: 10.1111/j.1467-9221.2012.00906.x

The Effect of Social Networks on the Quality of Political Thinking

Elif Erisen
California Polytechnic State University and Bilkent University

Cengiz Erisen
TOBB University of Economics and Technology

In this article we investigate the effect of social networks on the quality of political thinking. First, the article introduces new social network concepts into the literature and develops the corresponding measures. Second, the article explores the quality of political thinking as a concept and develops its measures based on the volume and the causality of thoughts, and their integrative complexity. We make use of a survey to collect information on social networks and the experimental manipulation controls for the effect of policy frames. Our findings consistently show the significant negative impact of cohesive social networks on the quality of policy-relevant thinking. We conclude that close-knit social networks could create "social bubbles" that would limit how one communicates with others and reasons about politics.

KEY WORDS: social networks, political thinking, political discussion

political discussion networks: self report measures of interactions

Table 5. The Expected Values of the Number of Thoughts, the Number of Causal Thoughts, and the Integrative Complexity of Thoughts Decrease as Network Cohesiveness Increases from Its Minimum Value to Its Mean, and to Its Maximum Value, Holding Other Variables at Their Means

Dependent Variable	Changes in the Expected Value of the Dependent Variable		
	Cohesiveness at its minimum (A non-cohesive network)	Cohesiveness at its mean	Cohesiveness at its maximum (Extremely close-knit network)
The number of thoughts	11.3	8.2	4.4
The number of causal thoughts	5.4	3.5	1.1
The integrative complexity of thoughts	2.9	2.4	1.8

Selecting: reputational approach

- Premise: you do not have a list of the entire population
- The list is created starting by a group of judges (nominees), that are asked nominate the member of the target population (i.e., the nodes of the network)
  - *knowledgeable informants*
  - *a sample of «users»*

- OPTION 1: The nominees are independent from social relations under investigation (this eliminates a methodological circularity)

e.g. A group of students nominates all the professors that comes into their mind. Those professor are the target network

e.g. A group of athletes nominates all the sport brands that sponsor them.

e.g. A group of real estates agents nominates the most promising spots in the city. The houses for sell in that spots could be in the network, and you can build a network based on co-visits to implement marketing strategies

- OPTION 2: Snow ball: Every Judge nominates 3 further judges

In this case the shape of the outcome network will be highly contaminated by the initial selection. But this can work in specific cases (for example, the initial selection involves a very influential / important person as the starting point)

Sampling: positional or structural approach

- Premise: you have a list of the entire population
- Make an ordered list of possible participants (possible nodes), namely list the entire target population
  - *E.g.: I make the list of the companies producing a specific product*
  - *E.g.: I make the list of the political leaders*
- Rank the list according to a meaningful criterion
  - *E.g.: Rank the list of the companies by turnover*
  - *E.g.: Rank the leaders according to number of votes*
- Select cut off

E.g.: top 10, top 100

- Problem: justify your cut off: a cut off implies that you have subgroups

E.g. top 10 are one group, from the 11th they belong to a different group

- The better you initially define your network, the less problems you will encounter in arguing and identifying the inclusion/exclusion criteria

Sampling: positional or structural approach

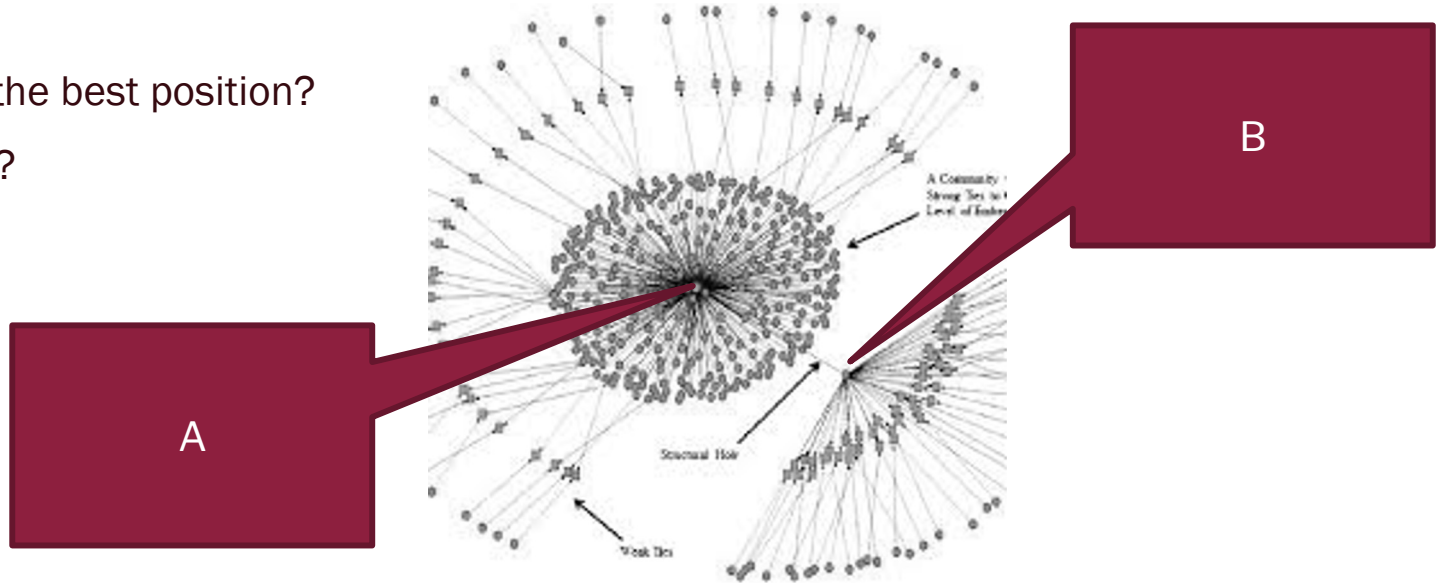
- Assumption: agents in a similar structural location within the NTW share social attributes
- Eg: I expect the hubs/brokers in the network (e.g., most cited scientists) to be white male.
- E.g. identify the hubs/brokers in the networks and then I code their socio-demographic characteristics.

How network analytics matters for social psychology?

Social capital

- Coleman (1990) defined social capital as any aspect of social structure that creates value and facilitates the actions of the individuals within that social structure.

- Which is the best position?
- And Why?



Social capital

Bonding Social Capital

strongly tied individuals, such as family and close friends

little diversity
stronger personal connections

-> provides strong emotional and substantive **support** and enables **mobilization**.

Bridging social capital

individuals from different backgrounds make connections between social networks

tentative relationships
broader social horizons or world views

-> open up opportunities for information or new resources.

Social Group: entitativity

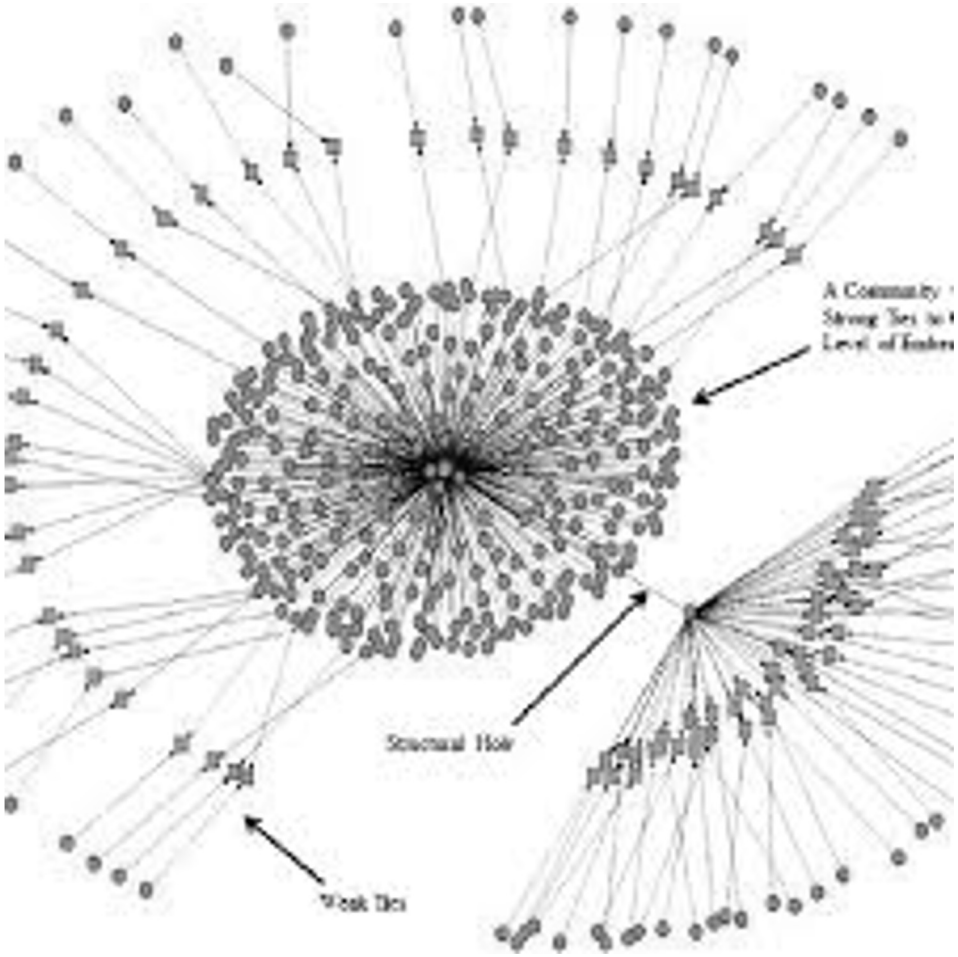
- **Entitativity:** Perceived unit (which distinguishes a GROUP from an aggregate of people)
- Property that makes a group appear as a coherent, distinct and unitary entity.
- A highly entitative group is relatively **homogeneous** (nodes resemble each other) and has an **evident internal structure** (ties) and has clear boundaries that distinguish it from other groups.

High (manipulated) group entitativity....

- people **identify** more strongly with highly entitative groups because these groups contribute more easily to the individuals' self-esteem and self-efficacy and provide them with a clear understanding of who they are and of their relationships with others, satisfying their needs for inclusion and differentiation (Yzerbyt, et al., 2000)
- High group entitativity increases intergroup bias□ tendency to favor the own group over the other group (Mlisky, 1993; Castano et al. 2002)
- High (vs. low) group entivatity increased behavioral and attitudinal bias (Gaertner and Schopler, 1998) i.e. behaviors of group members are explained not taking into account situational features, but rather using the group as the main cause

Ostracism

to be excluded and ignored



Ostracism

Ostracism often pervades our interactions with loved ones, coworkers, and friends. Research suggests that ostracism can have negative physiological, psychological, and behavioral effects ranging from elevated blood pressure to alienation to aggression.

-> psychological functioning (e.g., decreases in positive mood)
-> interpersonal behaviors (e.g., increases in social susceptibility or aggressive behaviors

Cyber ball

Cyberball is a virtual ball-tossing game that is used to manipulate the degree of social inclusion or ostracism in social psychological experiments.

The program varies the degree to which the participant is passed the ball

Ostracized players are not passed the ball after two initial tosses and thus obtain fewer ball tosses than the other players.

Included players are repeatedly passed the ball and obtain an equal number of ball tosses as the other players.

Hartgerink CHJ, van Beest I, Wicherts JM, Williams KD (2015) The Ordinal Effects of Ostracism: A Meta-Analysis of 120 Cyberball Studies. PLOS ONE 10(5): e0127002. https://doi.org/10.1371/journal.pone.0127002
https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0127002

Cyber ball

https://www1.psych.purdue.edu/~willia55/Announce/cyberball.htm

DISLL DIPARTIMENTO DI STUDI LINGUISTICI E LETTERARI

PLOS ONE

Meta-analysis: Hartgerink et al. 2015

200 published papers involving the Cyberball paradigm to study ostracism
over 19,500 participants

the average ostracism effect is large ($d > |1.4|$) and generalizes across structural aspects (number of players, ostracism duration, number of tosses, type of needs scale), sampling aspects (gender, age, country), and types of dependent measure (interpersonal, intrapersonal, fundamental needs).

Social capital

Cohesion

Coleman 1988, 1990

Strong, close relationships characterized by trust, cooperation, mutual **support**, or solidarity

A measure: **degree (n° of connections of a node with the other nodes of the NTW)**

Brokerage

Burt 1992, 2005; Gabbay and Zuckerman 1998

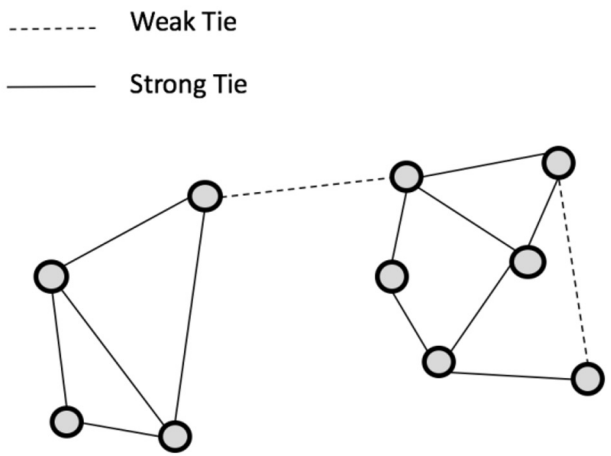
Brokers connect unconnected parties with each other, and by means of that gain social leverage, access to resources transmitted between the parties, and hence access to non-redundant information.

A measure: **Betweeness**

Weak tie theory (Granovetter, 1973)

In his 1973 paper entitled “The strength of weak ties”, Mark Granovetter developed his theory of weak ties.

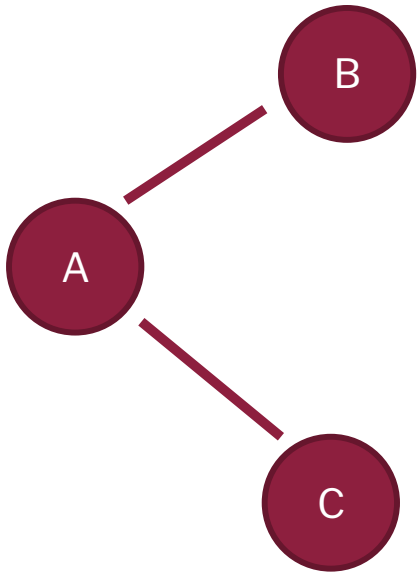
DEFINITION

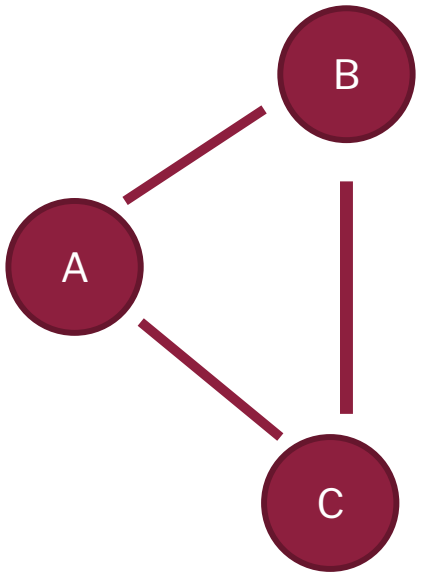


*The **strenght** of a tie is a (probably linear) combination of the amount of time , the emotional intensity, the intimacy (mutual confiding), and the reciprocal services which characterize the tie.*

Heider's Balance Theory

-> Need or cognitive consistency





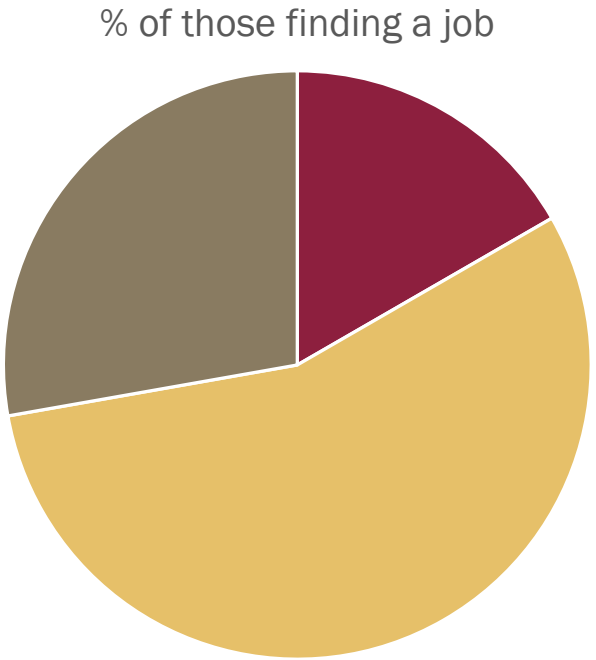
The unlikely triad!!

Weak tie theory (Granovetter, 1973)

Strong Ties	Weak Ties
emotionally intense, frequent, and involving multiple types of relationships, such as ties **WITHIN** the network of friends, advisors, and coworkers ->The information possessed by any one member of the clique is likely to be either shared quickly or already redundant with the in- formation possessed by the other members.	ties that reach **OUTSIDE** of one's social clique are likely to be weak (that is, not emotionally in-tense, infrequent, and restricted to one narrow type of relationship) ->weak ties are often a bridge between densely interconnected social cliques and thus provide a source of unique information and resources

Granowetter's Study

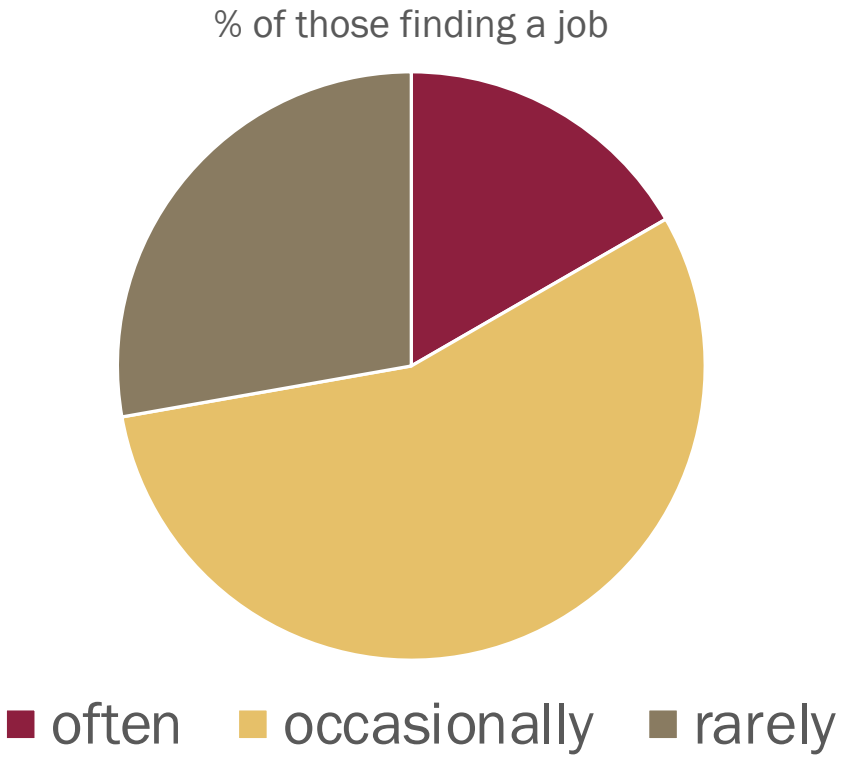
- Random sample of job changers
- Question: How often did you saw the contact through which you got the new job?
  - *Often*
  - *Occasionally*
  - *Rarely*
- Guess: which colour represe the «often»



Granowetter's Study

- Random sample of job changers
- Question: How often did you saw the contact through which you got the new job?
  - *Often*
  - *Occasionally*
  - *Rarely*

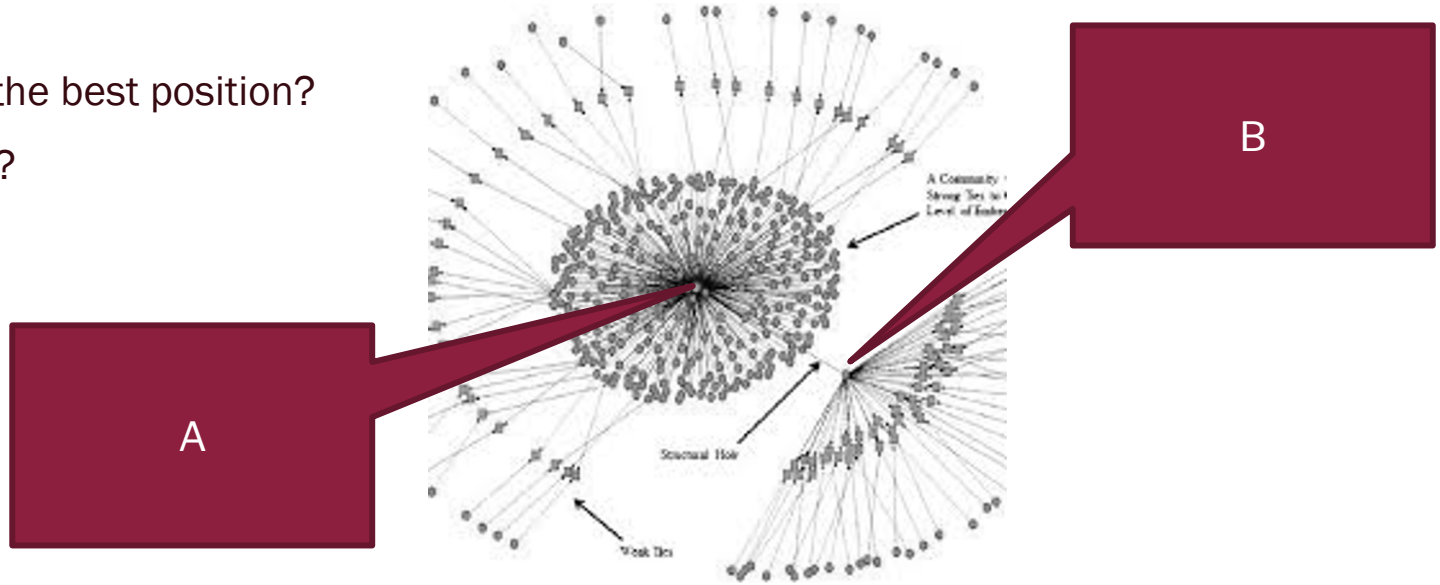
- Guess: which colour represents the «often»



Social capital

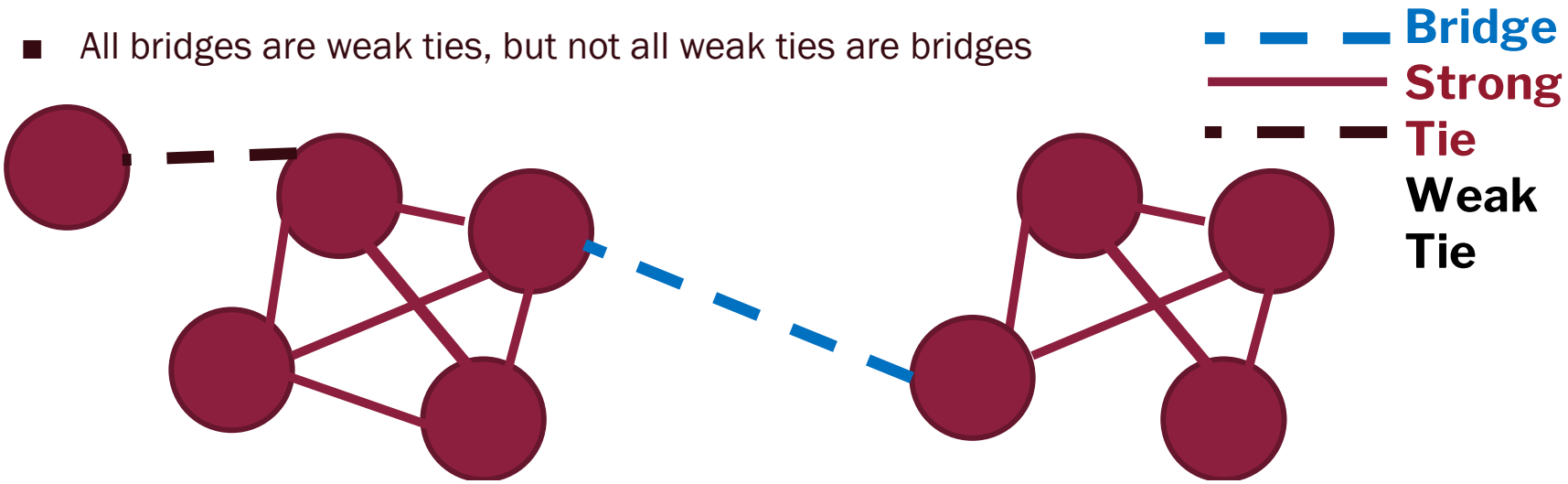
- Coleman (1990) defined social capital as any aspect of social structure that creates value and facilitates the actions of the individuals within that social structure.

- Which is the best position?
- And Why?



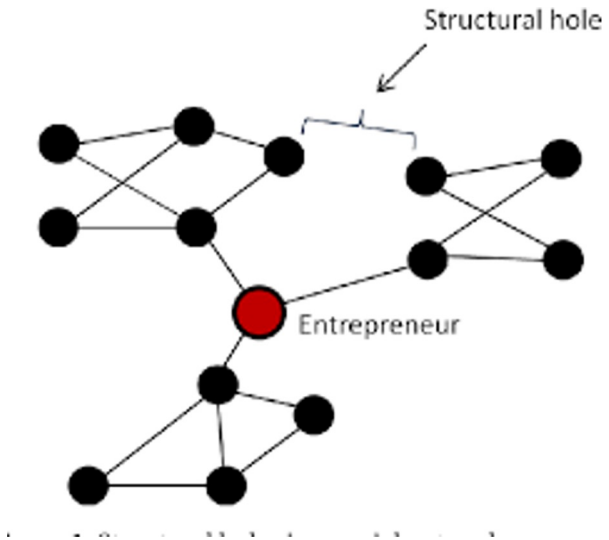
Weak ties & Bridges

- Bridges are essential to the flow of information that integrates otherwise disconnected social clusters into a broader society" (Burt, 1992).
- This basically means that to get more out of Twitter, you need to figure out where your network is weak, and then follow those people who give you access to additional clusters.
- Building and maintaining weak ties over large structural holes enhances information benefits and creates even more efficient and effective networks.
- All bridges are weak ties, but not all weak ties are bridges

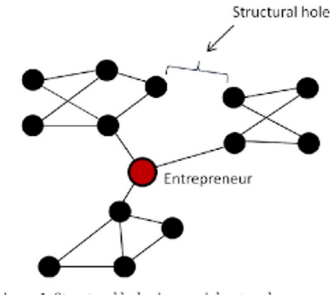


Burt's (1992) structural holes

- A **structural hole** is said to exist between two alters who are not connected to each other.
- advantageous for ego to be connected to many alters who are themselves unconnected to the other alters in ego's network.



Burt's (1992) structural holes



three primary benefits:

- *more unique and timely access to information* ***(information benefit)***
- *greater bargaining power and thus control over resources and outcomes* ***(power benefit)***
- *greater visibility and career opportunities throughout the social system.*

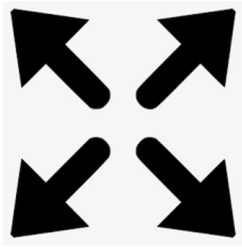
Brokerage is theoretically and empirically associated with a competitive advantage, more likely resulting in promotions

Gabbay and Zuckerman 1998

There are several ways to optimize structural holes in a network to ensure **maximum information benefits:**

- The size of the network
- Efficient networks.
- Effective networks.
- Weak ties.

The size of the network.



- The size of a network determines the **amount of information** that is shared within the network.
- A person has a much better chance to receive **timely** information in a big network than in a small one.
- The size of the network is, however, not dependant merely on the number of actors in the network, but the number of *non-redundant* actors.
- It's not just about how many people you follow on Twitter, it's also **who** you follow.

Effective networks

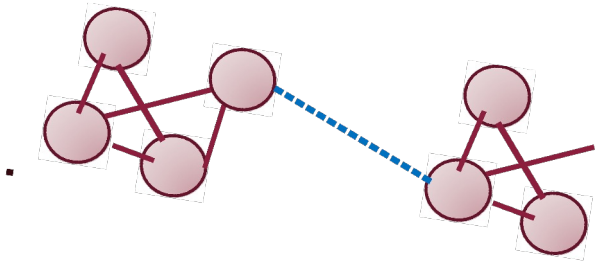
- **distinguishing primary from secondary contacts** in order to focus resources on preserving primary contacts" (Burt, 1992:21).
- **building relationships with actors that lead to the maximum number of other secondary actors, while still being non-redundant.**
- This means that if 10 people give you access to the same network of information, only follow the most important one — their voice will be clearer and not drowned out by the others.
- Effectiveness describes the redundancy or degree of overlap between contacts and the exchanged resources in a network. Supporters who are not connected to each other might tend to share diverse opinions and information with the ego, which is therefore not redundant.
- In networks with high effectiveness, most of the contacts do not know each other. (Burt 1992) and the ego has more the possibility to connect unconnected contacts, hence to broker, and to enjoy more social capital in terms of strategic use of information and/ or contacts.

- The number of alters minus the average number of ties that each alter has to other alters.

Efficient networks

- Efficiency in a network is concerned with **maximizing the number of *non-redundant* contacts** in a network in order to maximize the number of structural holes per actor in the network.
- It is possible to **eliminate redundant contacts** by linking only with a primary actor in each redundant cluster.
- This saves time and effort that would normally have been spent on maintaining redundant contacts.
- What this basically means is that if you follow people who all follow each other, your network isn't very efficient and you need to get rid of some people.

-> to achieve networks rich in information benefits it is necessary to build large networks with non-redundant contacts and many weak ties over structural holes.



information benefits:

- ***More contacts are included in the network,*** *which implies that you have access to a larger volume of information.*
- ***Non-redundant contacts ensure that this vast amount of information is diverse and independent.***
- ***Linking with the primary actor in a cluster implies a connection with the central player in that cluster.*** *This ensures that you will be one of the first people to be informed when new information becomes available.*