



The Strength of Weak Ties

-Why weak ties is more important than strong ties?

LOGO

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The Strength of ties

❖ Definition of the strength of a tie:

A combination of

the amount of time

the emotional intensity

the intimacy (mutual confiding)

the reciprocal services

person: A and B

set $S = \{C, D, E, \dots\}$



The stronger the tie between A and B, the larger the proportion of individuals in S will be tied to each other.



❖ A-B

❖ A-C

➡ B-C (Depends on the amount of time A spends with B and C)

If events "A is with B" and "A is with C" were independent

$P(\text{A is with B}) = 60\%$

$P(\text{A is with C}) = 40\%$

➡ $P(\text{A, B and C would be together}) = 24\%$



❖ Hypothesis made by empirical evidence:

-The stronger the tie connecting two individuals , the more similar they are.

Conclusion: If strong ties connect A to B and A to C, B and C will have ties whether weak or strong.

Weak ties in diffusion processes

- ❖ **Bridge:** This is a line in a network which provides the only path between two points.
- ❖ **Local bridge:** differ from regular bridge in that the end points of the local bridge cannot have a tie directly between them and should not share any common neighbors.

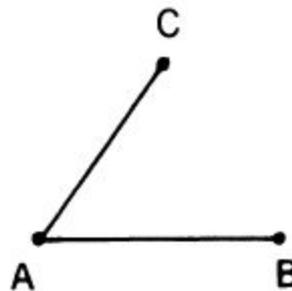
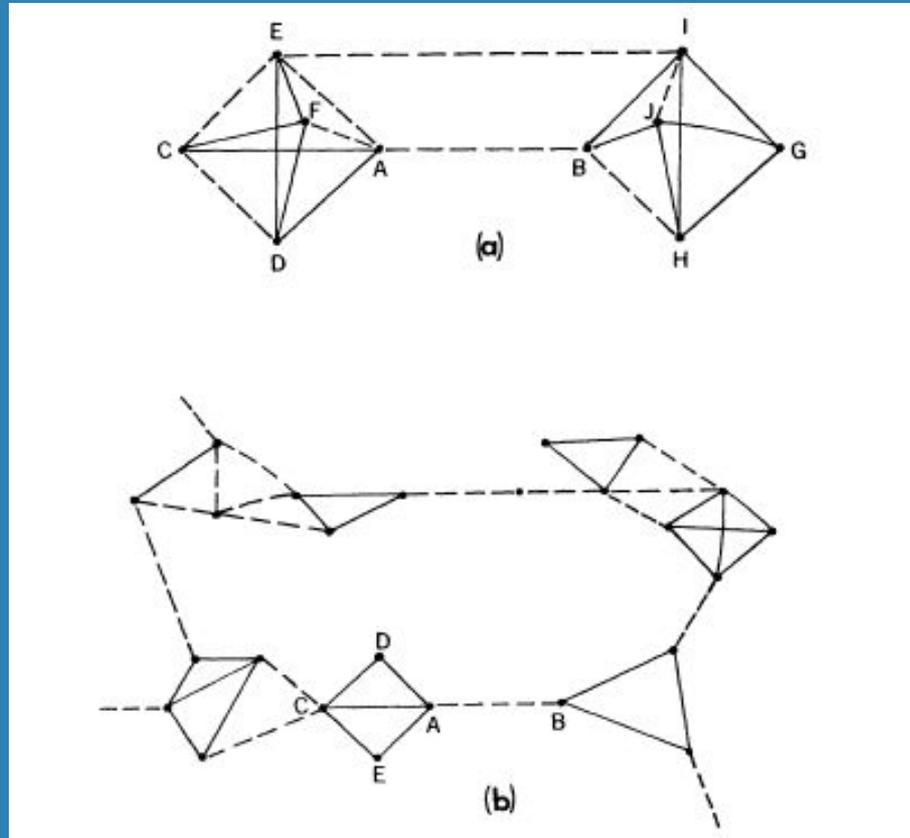


FIG. 1.—Forbidden triad

❖ No strong tie is a bridge.



❖ **Local bridge of n :** The shortest path between two points. ($n > 2$)

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- ❖ Something which is diffused can reach a larger number of people through weak ties rather than strong.
 - ❖ For example:
 - The rumor moving through strong ties is much more likely to be limited to a few cliques than that going through weak ones.

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- A computer mouse is visible in the top-left corner of the slide, with binary code (0s and 1s) floating around it.
- ❖ **Central:** Person receive many sociometric choices from others in the study.
 - ❖ **Marginal:** Person receive few sociometric choices from others in the study.
 - ❖ These variables are related with time of adoption and inferences.
 - ❖ When a new program is thought relatively safe, central figures lead in its adoption; otherwise, marginal ones do.

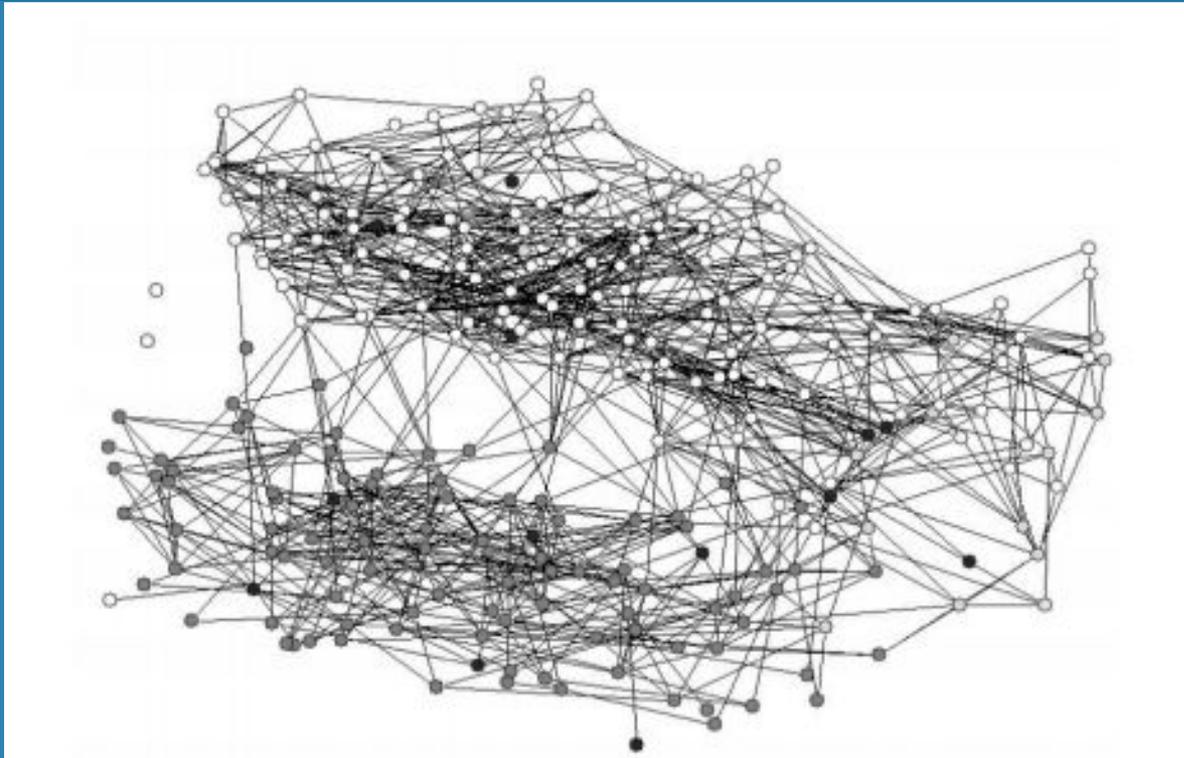


❖ Individuals with many weak ties are best placed to diffuse a difficult innovation, since some of those ties will be local bridges.

❖ The "small-world" test
-direct support

1. choose pairs of individuals
2. measure the length of path

- ❖ White → Negro
- ❖ 50% - Acquaintance
- ❖ 26% - Friend



52% of the students are white
86% of whites-friendships are with other whites

38% of the students are blacks
85% of blacks-friendships are with other blacks



Weak ties in egocentric network

- ❖ Bott argued that the crucial variable is that of whether one's friends tend to know one another.

- Network Density: the number of ties observed in the network formed by ego and his friends / the ratio of possible ones.

- ❖ Epstein points out, that different parts of ego's network may have different density.

- "effective network": regular person

- "extended network": person who are likely to come to know one another



❖ Job Changer

- ❖ People has strong ties are more motivated to help with job information.
- ❖ Those to whom we are weakly tied are more likely to move in circles different from our own and will thus have access to information different from that which we receive.

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- ❖ Measure of tie strength: frequency of the contact around the time that passing on job information
 - ❖ often = at least twice a week (16.7%)
 - ❖ occasionally = more than once a year but less than twice a week (55.6%)
 - ❖ rarely = once a year or less (27.8%)

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- ❖ Information came from the future employer - (39.1%)
 - ❖ One person between himself and the employer - (45.3%)
 - ❖ two person - (12.5%)
 - ❖ more than two person - (3.1%)
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- ❖ Weak ties are an important resource in making possible mobility opportunity.

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Weak ties and community organization

- ❖ Trust in leaders is related to the capacity to predict and affect their behavior.
- ❖ Leaders have little motivation to be responsive or even trustworthy toward those to whom they have no direct or indirect connection.
- ❖ Thus, network fragmentation, by reducing the number of paths from any leader to his potential followers, would inhibit trust in such leaders.



Micro and macro network models

- ❖ Interpersonal choices tend to be transitive.
- ❖ if P chooses O and O chooses X
→ then P is likely to choose X

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Summary

- ❖ 1. The stronger the tie connecting two individuals, the more similar they are. Thus, it is easier for individuals with strong ties to join the same clique.
- ❖ 2. Weak ties plays an role when different groups need to share information.
- ❖ 3. In the process of spreading and dissemination of information, weak ties are more important than strong ones.



Thank You!

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