Lecture – 64

Homophily (Continued) & Positive and Negative Relationships

Enemy's Enemy is a Friend

In an organization with 30 people, there are roughly 450 friendships that can be positive or negative.

A complete graph with 30 nodes and some random plus minus symbols on these edges can have unstable triangles that can move towards a stable state.

The big question is, how will the graph look like when there are no unstable triangles?

If all 450 friendships are positive, introducing one negative friendship will result in a triode around it and cascade into negative friendships, but not necessarily all of them.

However, if there is a triangle with three negative friendships, it will result in a positive friendship.

In an organization with all stable triangles, the graph will look like a complete graph with all positive friendships.

Lecture – 65

Homophily (Continued) & Positive and Negative Relationships

Characterizing the structure of balanced networks

In an organization with 30 people, where each person knows every other person, there are roughly 450 possible friendships that can be positive or negative.

If there is a triangle with positive-positive-negative relationships, it is unstable and will move towards either positive-positive-positive or positive-negative-negative relationships.

The big question is, how will the graph of relationships look like when there are no unstable triangles in the organization?

Introducing one negative friendship can result in a cascade of negative friendships, but it may not necessarily result in all negative friendships as a triangle with three negative friendships can result in positive friendship.

The goal is to understand how the organization will reach stability when there are no unstable triangles.

The introduction of one negative friendship can result in the formation of a triode and cascading effects on other relationships.

The stable state of the graph of relationships in the organization is the big question that needs to be answered.

Lecture – 68

Homophily (Continued) & Positive and Negative Relationships

Introduction to Positive and Negative Edges

Structural balance theory is concerned with understanding the relationships between individuals in a network.

In a structurally balanced network, the relationships are such that there are no cycles of three or more individuals with an odd number of negative edges.

Such a network can be thought of as consisting of two teams or factions, where relationships within each team are positive, and relationships across teams are negative.

A structurally balanced network can have either one team (all positive friendships within) or two teams (positive friendships within each team, negative friendships across teams).

The theory has applications in social and economic networks, where understanding the relationships between individuals can provide insights into group behavior and decision-making.