

Unit 11 - Week 5 - Homophily Continued and +Ve / -Ve Relationships

Course outline

How to access the portal?

Course Trailer

Prerequisite Assignment

FAQ

Things to Note

Week 1 - Introduction

Week 2 - Handling Real-world Network Datasets

Week 3- Strength of Weak Ties

Week 4 - Homophily

Week 5 - Homophily Continued and +Ve / -Ve Relationships

- ☐ Lecture-54: Spatial Segregation: An Introduction
- ☐ Lecture55- Spatial Segregation: Simulation of the Schelling Model
- ☐ Lecture56- Spatial Segregation: Conclusion
- ☐ Lecture 57- Schelling Model Implementation- 1(Introduction)
- ☐ Lecture 58- Schelling Model Implementation-2 (Base Code)
- ☐ Lecture 59- Schelling Model Implementation- Visualization and Getting a list of boundary and internal nodes
- ☐ Lecture 60- Schelling Model Implementation - Getting a list of unsatisfied nodes
- ☐ Lecture 61- Schelling Model Implementation - Shifting the unsatisfied nodes and visualizing the final graph
- ☐ Lecture 62- Positive and Negative Relationships - Introduction
- ☐ Lecture 63- Structural Balance
- ☐ Lecture 64- Enemy's Enemy is a Friend
- ☐ Lecture 65- Characterizing the structure of balanced networks
- ☐ Lecture 66- Balance Theorem
- ☐ Lecture 67- Proof of Balance Theorem
- ☐ Lecture 68- Introduction to positive and negative edges
- ☐ Lecture 69- Outline of Implementation
- ☐ Lecture 70- Creating graph, displaying it and counting unstable triangles
- ☐ Lecture 71- Moving a network from an unstable to stable state
- ☐ Lecture 72- Forming two coalitions
- ☐ Lecture 73- Forming two coalitions (Continued)
- ☐ Lecture 74- Visualizing coalitions and the evolution
- ☐ Week - 5 Feedback Form

Quiz : Assignment 5

Week 6- Link Analysis

Week 7 - Cascading Behaviour in Networks

Week 8 : Link Analysis (Continued)

Week -9 : Power Laws and Rich-Get-Richer Phenomena

Week 10 - Power law (contd..) and Epidemics

Week 11- Small World Phenomenon

Week 12- Pseudocore (How to go viral on web?)

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Assignment 5

The due date for submitting this assignment has passed.
 As per our records you have not submitted this assignment.

Due on 2019-09-04, 23:59 IST.

1) Let $-$ denote friendship and $+$ denotes enmity relationship in a social network. Which of the following are not stable triangular relationship structures? **1 point**

- I. $+, +, +$
- II. $+, +, -$
- III. $+, -, -$
- IV. $-, -, -$

- ☐ I, II and III
- ☐ II, III and IV
- ☐ I and III
- ☐ II and IV

No, the answer is incorrect.
 Score: 0

Accepted Answers:
 I and III

2) Two of my close friends hate each other. In how many ways can the structure evolve to a stable configuration? **1 point**

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ It is already stable

No, the answer is incorrect.
 Score: 0

Accepted Answers:
 3

3) A triangular network is stable if it has _____+ve relationships **1 point**

- ☐ only 2
- ☐ no
- ☐ odd number of
- ☐ even number of

No, the answer is incorrect.
 Score: 0

Accepted Answers:
 odd number of

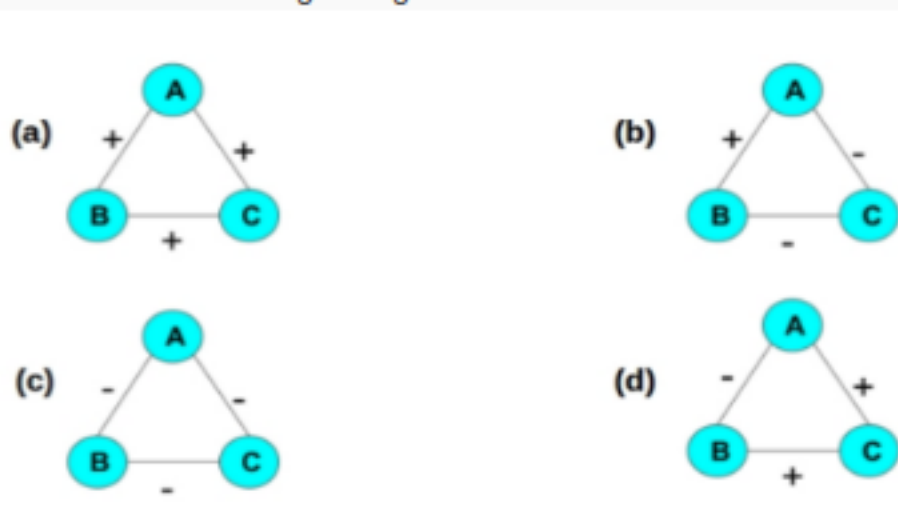
4) Choose the False statement out of the following: **1 point**

- ☐ Structural balance involves studying the interplay of positive and negative relationships among the nodes over time
- ☐ Structural balance is a theory that offers ways of equating the number of positive and negative edges in a network so that it becomes 'balanced'
- ☐ Structural balance illustrates a nice connection between local and global network properties
- ☐ Structural balance is to understand the tension between the two forces, i.e. friendship and antagonism

No, the answer is incorrect.
 Score: 0

Accepted Answers:
 Structural balance is a theory that offers ways of equating the number of positive and negative edges in a network so that it becomes 'balanced'

5) Which of the following triangles follows the social belief that 'Enemy of my enemy is my friend' ? **1 point**



- ☐ (a)
- ☐ (b)
- ☐ (c)
- ☐ (d)

No, the answer is incorrect.
 Score: 0

Accepted Answers:
 (b)

6) A friend's friend tends to become a friend, and so does an enemy's enemy. The reasons for the same are **1 point**

- ☐ Social influence and clustering respectively
- ☐ Social influence and structural balance respectively
- ☐ Triadic closure and structural balance respectively
- ☐ Triadic closure and clustering respectively

No, the answer is incorrect.
 Score: 0

Accepted Answers:
 Triadic closure and structural balance respectively

7) Count the number of unstable triangles in the graphs shown in figure 1, where solid edges indicate positive ties and dotted edges indicate negative ties **1 point**

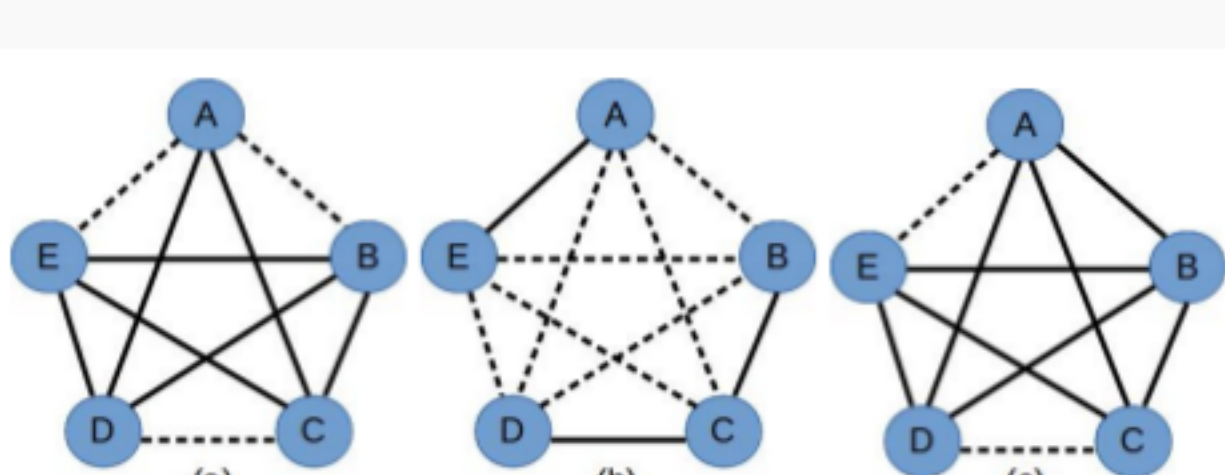


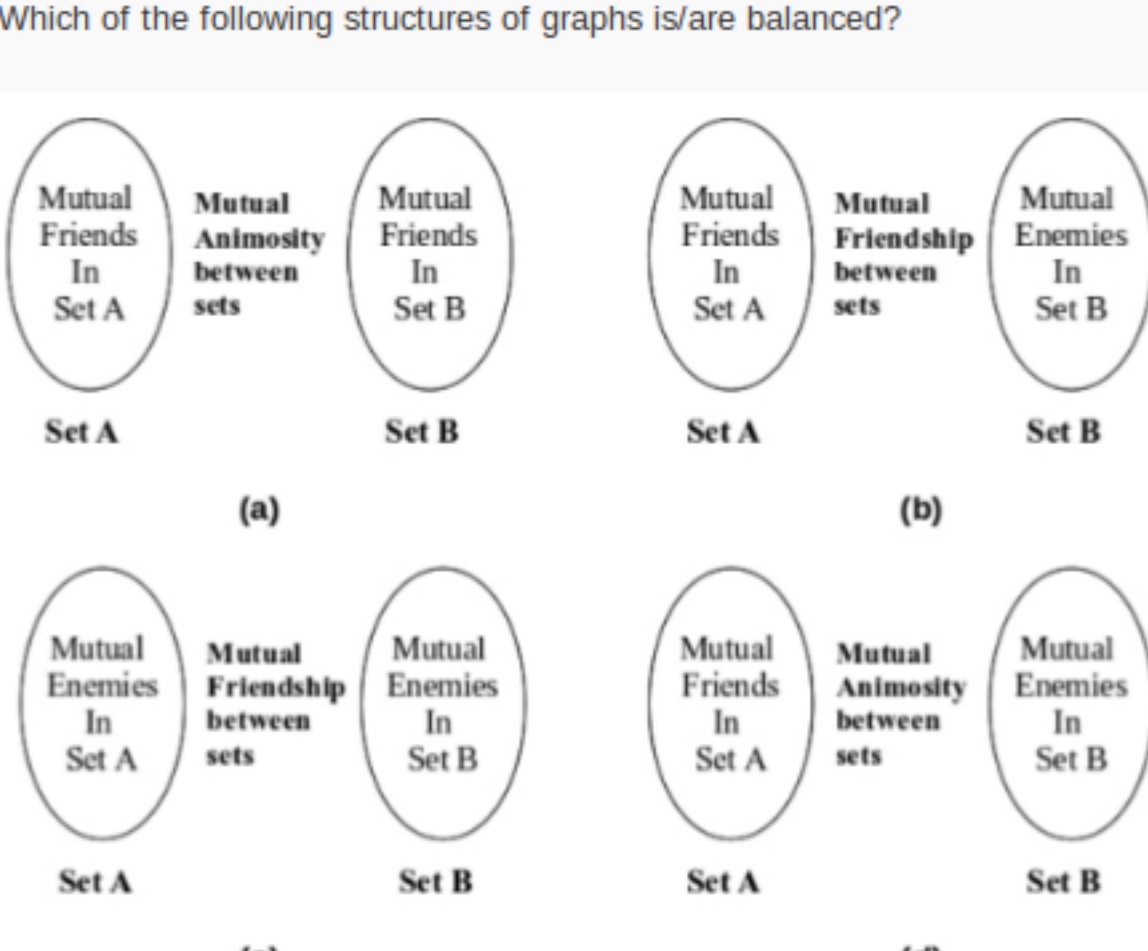
Figure 1: The graphs. Solid edges indicate positive ties and dotted edges indicate negative ties

- ☐ 8,5,6
- ☐ 8,4,6
- ☐ 7,3,7
- ☐ 7,3,6

No, the answer is incorrect.
 Score: 0

Accepted Answers:
 7,3,6

8) Which of the following structures of graphs is/are balanced? **1 point**



- ☐ Both (a) and (c)
- ☐ Only (a)
- ☐ Only (b)
- ☐ Both (b) and (d)

No, the answer is incorrect.
 Score: 0

Accepted Answers:
 Only (a)

9) Can we have a complete signed graph on 4 nodes (K_4) and 5 nodes(K_5) respectively, each having exactly one unstable triangle? **1 point**

- ☐ K_4 - Yes K_5 - Yes
- ☐ K_4 - Yes K_5 - No
- ☐ K_4 - No K_5 - Yes
- ☐ K_4 - No K_5 - No

No, the answer is incorrect.
 Score: 0

Accepted Answers:
 K_4 - No K_5 - No

10)In a graph having n nodes, how many possible triangles can be present? **1 point**

- ☐ n^3
- ☐ $3n$
- ☐ $\frac{n(n-1)(n-2)}{6}$
- ☐ None of the above

No, the answer is incorrect.
 Score: 0

Accepted Answers:
 $\frac{n(n-1)(n-2)}{6}$