

Game Theory

(b) Game with mix strategy

DOMINANCE PROPERTY

1. There are two players in a game, player A and player B. each of them randomly shows selected fingers of his right hand. If the sum of the number of fingers shown by both the players is an even number then the player B has to give money in dollar equivalent to the number of fingers shown by him to the player A. If the sum of the number of fingers shown by both the players is an odd number then the player A has to give money in dollar equivalent to the number of fingers shown by him to the player B. construct the pay-off matrix with respect to player A and find the value of the game.

(GRAPHICAL REPRESENTATION)

- **(2xn game)**

1. Consider the payoff matrix of Player A and find the value of the game.

| | | Player B | | | | |
|----------|----------------|----------------|----------------|----------------|----------------|----------------|
| | | B ₁ | B ₂ | B ₃ | B ₄ | B ₅ |
| Player A | A ₁ | 3 | 0 | 6 | -1 | 7 |
| | A ₂ | -1 | 5 | -2 | 2 | 1 |

- **(mx2 game)**

1. Consider the payoff matrix of Player A and find the value of the game.

| | | Player B | |
|----------|----------------|----------------|----------------|
| | | B ₁ | B ₂ |
| Player A | A ₁ | 4 | 6 |
| | A ₂ | 3 | 7 |
| | A ₃ | 5 | -4 |
| | A ₄ | 8 | -5 |