

Game Theory

by Sophia Tutorial



WHAT'S COVERED

This lesson explains the concept of game theory and the relationship to conflict resolution:

1. Game Theory
2. Game Types
3. Game Components
4. Application to Conflict

1. Game Theory

Game theory is a theory which interprets human interactions as a set of strategies and actions intended to move individuals closer to attaining goals, in either a collaborative or competitive framework. Game theory can be used to model conflict.

Three areas of focus include:

- Game types
- Game components
- Application to conflict



TERM TO KNOW

Game Theory

A theory which interprets human interactions as a set of strategies and actions intended to move individuals closer to attaining goals, in either a collaborative or competitive framework.

2. Game Types

According to game theory, there are two types of games:

- Cooperative
- Non-cooperative

A cooperative or collaborative game is one where players work together by creating binding commitments to

jointly win.

↪ **EXAMPLE** A football team can have a great quarterback, but if it doesn't have great offense and defense, it probably won't win the game. All team sports are based on this idea of collaboration.

Conversely, in non-cooperative games, each win for one player represents a loss for another. There are no binding commitments in this sort of game.

↪ **EXAMPLE** In the game of chess, one person is pitted against another person. There are no binding commitments to work with anyone else, so this is non-cooperative game.

3. Game Components

In the context of game theory, games also consist of certain components:

- Players
- Moves
- Gains
- Losses

A **player** is a person participating in an interaction or process that is interpreted as a game. For our purposes in discussing conflict resolution, we're looking at conflict as a game.

All of a game's players make **moves**. In game theory, a move is an action taken with the intent of moving closer to a goal.

These actions then lead to payoffs, which can be either gains or losses. As **again**, the payoff is a movement closer to a desired goal in a game. As a **loss**, it is a movement away from that goal.



TERMS TO KNOW

Player

A person participating in an interaction or process interpreted as a game.

Move

In game theory, an action taken with the intent of moving closer to a goal.

Gain

Movement closer to a desired goal in a game.

Loss

Movement away from a desired goal in a game.

4. Application to Conflict

As we mentioned earlier, game theory can be used to model conflict as a series of strategic moves.

↪ **EXAMPLE** Quite often, a country might form an alliance with a nation that might ordinarily be considered an enemy; this alliance is formed as a strategic move because it might result in a gain. The gain

could be anything from land, a trade agreement, or a mutual desire to prevent another country from acquiring weapons.

Game theory can also model conflict as a series of strategic moves in a cooperative game.

➡ **EXAMPLE** Let's say someone wants to build a high rise in a residential community near a lake. You don't want this high rise built because you want to keep a limit on the height of the buildings in your community. Either you or the party that is opposing you might then reach out to a number of players in order to bring them to a particular side of the conflict.

These players could be residents in the neighborhood, people who own businesses, people who come to the neighborhood to use the recreational facilities around the lake, or maybe city council members. You decide to bring these players together to see if you can make some moves towards the strategic gains that will allow you to accomplish your goal.



BIG IDEA

Using game theory to model conflict as a series of strategic moves is a useful tool in conflict resolution. However, as you can probably see from the above examples, the model doesn't account for the relational aspects of conflict.

In other words, one party might make a move that's not simply for a gain, but for a reason that has to do with the relationship between the parties.



SUMMARY

In this lesson, you learned how to use **game theory** to model conflict by looking at the **types and components of games**, and how these **apply to conflict**. Good luck!

Source: Adapted from Sophia tutorial by Marlene Johnson.



TERMS TO KNOW

Gain

Movement closer to a desired goal in a game.

Game Theory

A theory which interprets human interactions as a set of strategies and actions intended to move individuals closer to attaining goals, in either a collaborative or competitive framework.

Loss

Movement away from a desired goal in a game.

Move

In game theory, an action taken with the intent of moving closer to a goal.

Player

A person participating in an interaction or process interpreted as a game.

