

Providing a Way to Analyze Daily Managers Discussion on the Basis of Game Theory

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ABSTRACT

In this study by discussions modeling, introduces a criterion to how adapt in discussions and how face negotiator, how select strategy, leading him to select mentioned strategy by games theory model.

KEYWORDS: Games Theory, Discussion, Strategy, Player.

INTRODUCTION

A discussion is a competitive situation that two or more than two negotiators follow their benefit and no discussion considers game result lonely and players make strategic decisions. In this research explains how obtain adoption by relating discussions and games theory and provides a criterion to determine adoptions evaluations by introducing how select players strategies determine and select. Permanent discussion using is in different forms of human life. Because discussion is necessary for social life and delivering different needs and a tool for structured relation among humans and different social organizations to obtain adoption. Totally, a discussion aim is obtaining a friendly adoption among two or several ones virtual or rightly about their benefits and desired issues. It's clear that a good discussion needs skill and should train a good discussion. Discussion principles and skills at first express public skills, skills that is necessary for all to arise human life quality, whether negotiator is in family or workplace.

Totalities

First theoretical study of game theory refers to time Antony Curnat used this theory to study competition between two companies, following that in 1927 Emily Bourl modernized this theory and then in 1944 published completely this theory in Oskar Mourgenestren book game theory and economical behaviors academically. In 1950, John Nash indicated that limited games have a balance point that in this point perform players that determines regarding to their competitors performance, as in 1994 resulted in noble prize games consider by players or decision makers number that affect each other or threat each other. In these games, players perform under uncertain conditions and finally some have benefit and some loss. In this study, at first after games theory main concepts introducing, surveys different its models and strategies and explains relationship between discussion strategies and skills. (Colman, A. M, 2006).

Subject select necessity

Discussion in the today world are necessary for human life and personal and family issues to international issues need a skill in discussion and select options to obtain adoption in discussions. Certainly today persons are not expert in all fields and training and new ways help to obtain adoption in discussions and prevent discussions failure and impose its material and immaterial costs by opposite one.

Research way type

This paper is combining of basically and theoretical ways that using games theory relations and bases, mathematic relations, player's strategies Selecta growth and making scenario is an efficient strategy to select and some information collecting has co ducted from libraries, publishing, magazines and internet.

Subject introduction

Discussion is life reality every day every one discusses about one thing. Discussion is relation interaction to obtain adoption when a person and he/she opposite person have some benefits that are common between both of them and also are in conflict. Every one wants to make effective decisions and is decreasing individuals number that are ready to accept others decisions. Games theory is a way that relates to make decision when two or more competitors have competition rationally. For example, suppose two companies managers compete to obtain more share, therefore in this situation competitors compete each other and their aim is to obtain more benefit for themselves and loss for their competitors. In other word, games theory is another way to indicate mutual dependence among negotiators in discussions structure. When a negotiator make decision is dependant on other negotiators decision uses games theory. Obtained results such as benefit, market share, price, sell rate and are affected by other negotiator behavior and each

negotiator movement is under other negotiators reflection. This theory introduces on the basis of games number and strategies in different forms but this game base is in two sets: game in zero sums and game in not zero sums. (Fudenberg, D, and J.Tirole, 1992)

Game in zero sums is a game that sum of results is zero for each negotiator in a certain strategy. If strategy is to obtain highest benefit should be zero the sum of benefit and loss due to strategy selecting by players. In this situation if a negotiator is loser another one is owner. So there is not a cause to collaborate colleges and in this game should be at least two players. But in not zero sum games, a player benefit is different of another player, also two persons game in zero sums on the basis of strategies conducts in $m \times n, 2 \times m, n \times 2, 2 \times 2$ or $n \times m$ form.

Main game theory concepts

Player: competitors in games theory are players that each player is a decision maker. He/she shouldn't be one but a group in an organization, company or act could be one game side. (Torabi, Ali, 2003)

Person's number: game person number is not equal to player number that is if two or more players collaborate to win or lose, they are as a person. Games classify regarding to their play identity, that is according to game end if in a game, sum of all players pay is zero according to positive rates for owners and negative for losers, game calls zero sum and otherwise is not zero game.

Game matrix: a game matrix is rectangular that rows indicate a player strategy and columns show other player strategy and columns show other player strategy and other player pays in a game are zero sum or negative.

Game value: each game value is equal to expected pays during game that suppose both players use their best strategies. If a game is zero is fairly and if a player is not fairly will win. If game value is positive, row player is high and in negative one column player is high.

Strategy: in games theory, strategy for a certain player is a plan for his/her act against other player. If strategies number of each player is limited, the game calls limited otherwise are unlimited. There are three main models to study games: developed model, leading model and accrete. These three models on the basis of game details are different. Most details are in developed model. This model could introduce a position and even movements from a point to another point. Meanwhile leading model is a main and common model that by using structural blocks could describe failed competition model. So in this section introduce these model main concepts that models are same. (Hall Variyan, 2001)

Game in wide sense

Example: coin adoption.

First player: selects lion or line.

Second player: selects lion or line.

If coins are same second player win one unit. If coin is different first player win one unit. This game wide sense is as follow:

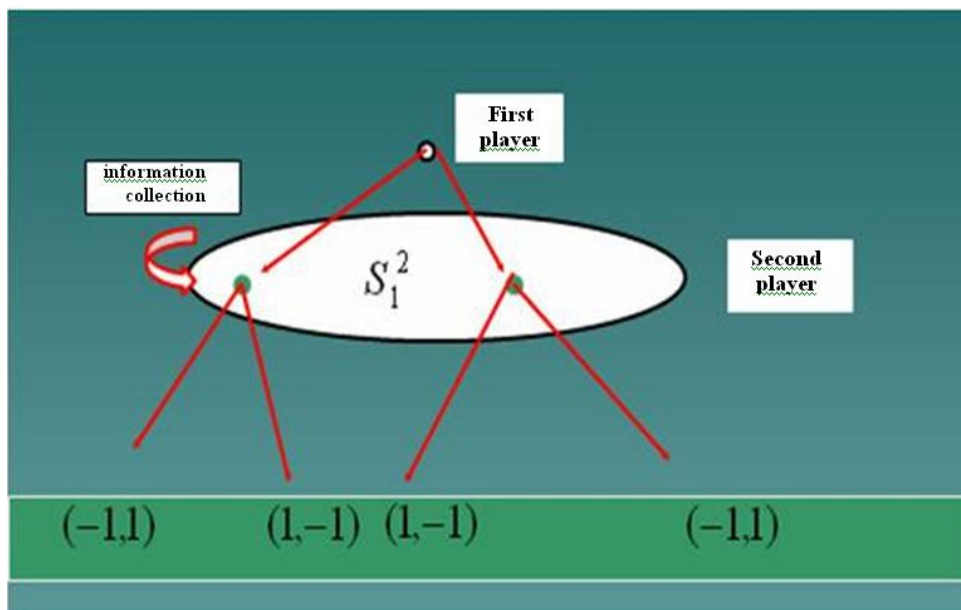


Figure 1: Game Wide Sense.

One player has perfect information if her/his information collection is same.

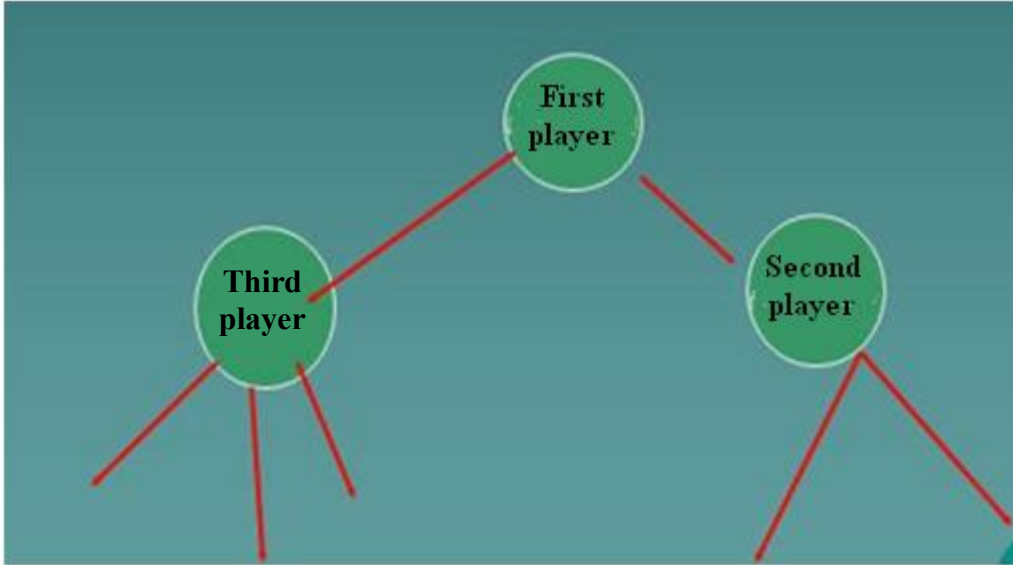


Figure 2: Player.

Definition that serves an information collection for each player.

Example: in past example suppose that ψ is second player leader, i.e. $\psi(S_1^2) = H$ this player selects lion in information collection.

Coin example: we use matrix in leading form:

Table 1: Player Matrix.

	Second player	
First player	H	T
H	(-1,1)	(1,-1)
T	(1,-1)	(-1,1)

Collaborative game

In this game allows players to form a collection to make decision and information and result. For example if have following players:

$$N = \{1,2,3,4,5,6\}$$

Could serve following collection:

$$\{\{ 1,2,3 \}, \{ 4,5 \}, \{ 6 \} \}$$

This game introduces with certain adjectives and in mathematic is:

$$v : 2^N \rightarrow R$$

Leading model

A game leading or normal model includes following execution: players collection that their number is limited, $i \in \{1, \dots, I\}$ strategy media S_i includes unique strategies of player i , $\{s_i \in S_i\}$ that in this collection s_i is player i strategy. Receiving adjective $u_i(s)$ according each strategy, s_i player i and selected strategies define by other players. In this game each player aim is not to win another player but is maximize his receiving adjective. Selected strategies by players define absolute and/or combined. Receiving adjective for a player could be revenue rate and for a company is obtained benefit. Above issues explain by an example. This example includes game with leading model and two players: ($i = 1,2$)

$$S_1 = \{Up, Down\} \quad S_2 = \{Left, Right\} \quad (1)$$

In this game if player "1" do "up" game and player "2" do "left" game, so receiving adjective of player "1" is "1" and for player "2" is "0". All selections are \bar{s} collection.

$$S = \{(Up, Left); (Up, Right); (Down, Left); (Down, Right)\} \tag{2}$$

S collection receiving adjectives is as table 2.

Table 2: Player 1 and 2 Strategic Receiving.

		Player 2	
		Left	Right
Player 1	Up	1,0	1,2
	Down	0,3	0,1

In this game, players (negotiators) select their strategy and so they aren't aware of com [editors selected strategy. Main idea for wisdom players is not select loosed strategy. In this game, player "1" never select "down" strategy because player "2" selects "left" or "right" strategy player "1" receiving adjective in down is "0" and in up is "1". So "down" strategy is loser. In this situation player "2" is aware of up strategy selection so when player"2" receiving adjective with right strategy is "2" does not select left strategy. There fore, when player "2" receiving adjective with left strategy is "0" and (2>0) this game response "up, right" obtains of delivering repeated strategies.

1. Discussion strategy on the base of positions

This strategy is on the basis of positions. Each discussion sides select some positions before and introduce their positions and defend them. This discussion natural result is failure if two sides don't want leaves their positions. To consider a discussion success or not we have three criteria such as:

1. Discussion should end in a rational adoption. It means that supply two sides benefits.
2. Discussion should have efficiency.
3. Discussion should improve side's relations.

2. Mild and difficult discussion strategy

People face a puzzle. They see two discussion ways: mild and difficult. Mild negotiator wants to avoid personal conflicts so gives score to reach adoption. He wants to find a friendly resolution. Difficult negotiator sees each position as sides desires conflict. Work result causes a difficult response that makes him hopeless. Other homogenous leadings for discussion all are between two ways mild and difficult.

3. principal discussion strategy

Third way to discuss is difficult and mild. This way is principal discussion way. This way is that should make decision about issues on the basis of their value and validity not by bargaining. In this way follow mutual benefits. This way indicates that how obtain what is your right and you be fairly for others. This discussion way is on the basis of four bases:

A- Distinct persons from discussion subject:

We face humans in discussion that are different in personality, thinking way, feelings and interesting. Discussed issues are not personal.

B- Depending on benefits not positions:

Motivation is benefits so when discussion if speak about just positions does not obtain a result. After each position introducing by opposite side should ask its cause to provide benefits. This way is to dominate concern forms on mentioned positions when discussion subject is to meet principal and basic benefits.

C- Different solutions select or provide:

This point considering is important that each issue has not just one solution. A good negotiator could think well and find different solutions. Sometimes one side alone couldn't provide all suitable solutions so two sides should consult each other to find and process suitable solutions. You could in a certain time have a chance to think about possible solutions to deliver these problems. Before try to reach adaption, think about selections for opposite side benefit. In two person's game in zero sums, suppose that player's number is two and secondly sum of two sides benefit and loss is zero. Each negotiator (player) could use different strategies that are predictable for his competitor. Strategy is alternative or certain way to use in future by player. A game is zero if result vectors (p1, p2,...,pn) have

$$\sum_{i=1}^n p_i = 0$$

A two persons game in zero sum for A, B negotiators is strategy 2, 3 for a as follow.

Table 3: Two Matrix Negotiator.

	negotiator B		
negotiator A	B1	B2	B3
A1	6	9	2
A2	8	5	4

This matrix writes according to negotiator a benefit and numbers are dependant on different units such as benefit, money, market share percent, and because two persons game is zero there is not need to write two matrixes separately. For example 6 shows that if negotiator A selects strategy A1 and negotiator B selects B1 this discussion result for negotiator A is 6 and this game loss is 6 for b. player A follows maximum benefit in discussions and player B follows B1,B2 from game and selects B3 to decrease loss. Player A in strategies selection supposes that second negotiator follows the best strategy. Among negotiator B strategies, negotiator A selects strategy B3 that 4 is discussions result it means negotiator B. has 4 unit loss and negotiator A has 4 units benefit.

D- *Emphasizing on objective criteria:*

In each negotiation should follow objective standards and criteria and provide documentary causes. A negotiator obtains a good result but this way is not adaptive.

Conclusion and Suggestions

Life is full of opposites and competences. Many samples have benefit opposition. Discussions, wars and political conflicts and marketing are these examples. One basic character is that final result of game theory depends on politics collection with strategies. Mathematic game theory surveys total competitions characters. In this theory emphasis on the discussion sides decision making. A discussion is a position for competition that two persons follow their benefit. Also in discussion players make strategic decisions. In this frame each negotiator benefit depends on his acts and other persons. His best decisions depend on other acts.

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