ECON 5103 Unit 10, Video 1

Game Theory - An Introduction

Game Theory is a branch of mathematics

In a game there are players. Each player must make choices. Each choice or set of choices has a payoff (a cost or a benefit) for the player. The size of the payoff usually depends not only upon the player's choices but also upon the choices that are made by other players.

By analyzing the payoffs of all possible choices of the player, in conjunction with the expected choices made by other players, game theory can be used (in conjunction with probability theory) to determine the choice or set of choices that are "best" for a player--the choice/choices that are most likely to result in the best payoff.

The prisoner's dilemma:

Jack and Jill have been caught by the police and are suspected of committing a crime together. There is not physical evidence against them, so the police are trying to get Jack and Jill to CONFESS, by interrogating each of them separately.

Here's the offer separately made to Jack and Jill:

1. If you confess and turn in the other person, we will go easy on you and give you 1 year in jail.
2. If you do not confess and the other person turns you in, you will get 15 years in jail.
3. (Police don't say this but Jack and Jill both know this): If neither person confesses then neither one will spend any time in jail.

Payoff Matrix
(Years in Jail)

Jill \ Jack	Confess	Not Confess
Confess	1 year / 1 year	15 years / 1 year
Not Confess	1 year / 15 years	0 years / 0 years


25
1/2
15 $1 MILLION
14 $500,000
13 $250,000
12 $125,000
11 $64,000
10 $32,000
9 $16,000
8 $8,000
7 $4,000
6 $2,000
5 $1,000
4 $500
3 • $300
2 • $200
1 • $100
Which actress is known for role as Buffy in TV show 'Buffy the Vampire Slayer'?
A: Alyssa Milano
B: Reese Witherspoon
C: Kristy Swanson
D: Sarah Michelle Gellar