Game theory for dummies

Zero-Sum Game

A zero sum game is a mathematical representation of a system where the gains are completely evened out by the losses; this means that the sum of the utilities of all players will always be zero.

Quantum strategies

D.A. Meyer [5] demonstrated that in a classical two-person zero-sum strategic game, if one person adopts a quantum strategy, then he has a better chance of winning the game.

Since the result of a quantum game is determined by the measurement outcome of the final state instead of the actions taken by players, each stage of a quantum game also ought to be set via a quantum measurement of a current state.

The reason for its notoriety rests mainly in its counter-intuitive nature. Although the Monty Hall problem can be modeled as a Bayesian probability problem, human beings have difficulty in grasping the probabilities involved.

There are two standard representations of games:

Normal Form – lists what payoffs the players get as a function of their actions as if they all make their moves simultaneously.

Extensive Form – extensive form games can be represented by a tree and represent timed actions.

**Game theory** is a study of strategic [decision making](http://en.wikipedia.org/wiki/Decision_making). More formally, it is "the study of [mathematical models](http://en.wikipedia.org/wiki/Mathematical_model) of conflict and cooperation between intelligent rational decision-makers".[[1]](http://en.wikipedia.org/wiki/Game_theory#cite_note-1) An alternative term suggested "as a more descriptive name for the discipline" is *interactive*[*decision theory*](http://en.wikipedia.org/wiki/Decision_theory).[[2]](http://en.wikipedia.org/wiki/Game_theory#cite_note-2) Game theory is mainly used in economics, political science, and psychology, as well as logic and biology. The subject first addressed [zero-sum games](http://en.wikipedia.org/wiki/Zero-sum_game), such that one person's gains exactly equal net losses of the other participant(s). Today, however, game theory applies to a wide range of behavioral relations, and has developed into an [umbrella term](http://en.wikipedia.org/wiki/Umbrella_term) for the logical side of decision science, to include both human and non-humans, like computers. - Wiki