

Irrational Behaviors in Games

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Outline

Rational and Irrational

Irrationality I: Lower Gains

Irrationality II: Higher Gains

Rational and Irrational

In Game Theory these words have not the usual meanings

Rational

A choice that seeks for the maximal utility of the player

Irrational

Other choices allow a higher utility if the other players behave rationally

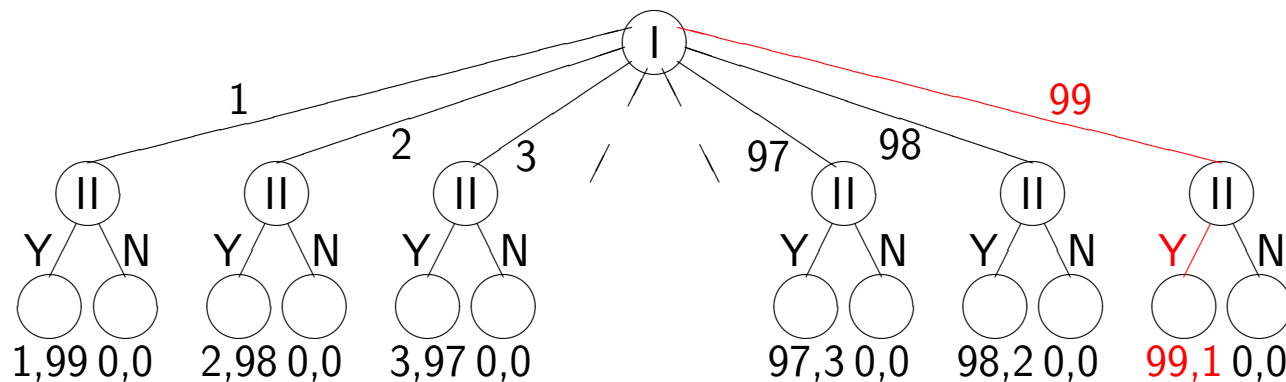
Irrationality I: Lower Gains

Ultimatum game

Two agents have 100 euros to divide among themselves

- I proposes a division
- if II accepts the proposal, then this is the final payoff
- if II rejects the proposal, then the final payoff is zero for both agents

A "rational" choice for agent II is to accept whatever proposal, consequently the unique "rational" choice for agent I is 99 for himself and 1 for agent II



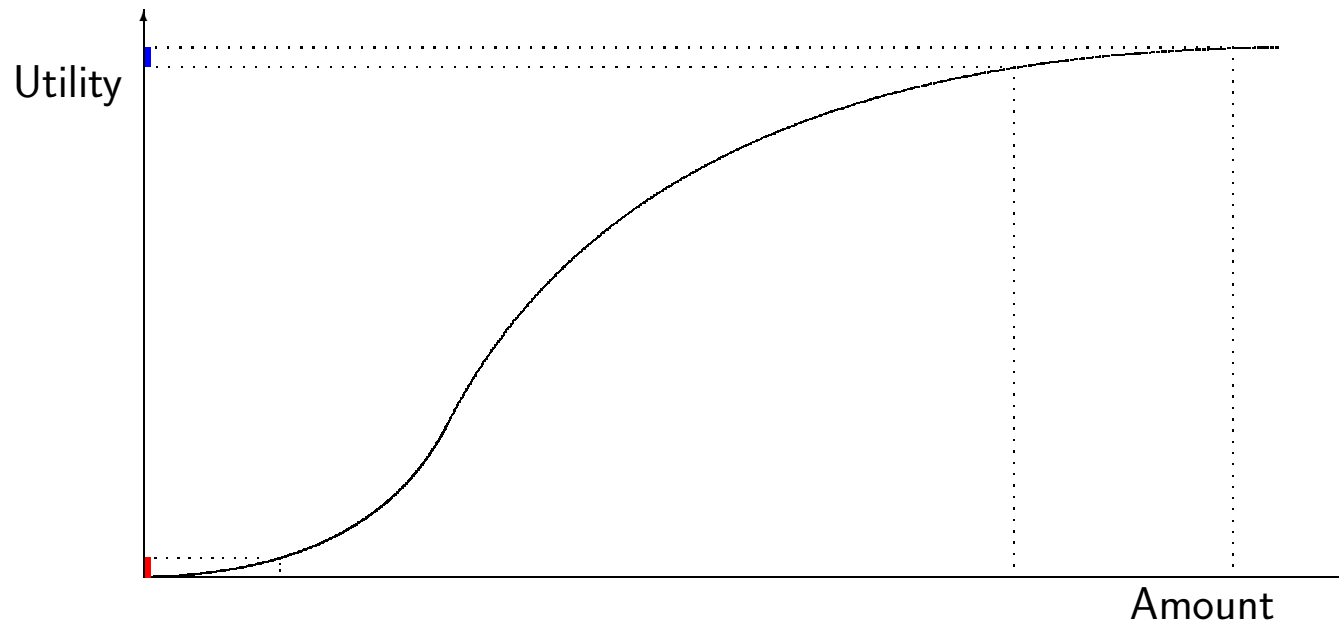
Experiments do not support "rationality"

The "real" utility of agent II is "approximate" equity

Irrationality I: Lower Gains

Utility and perception of the amount

The graph shows the utility associated to a given amount



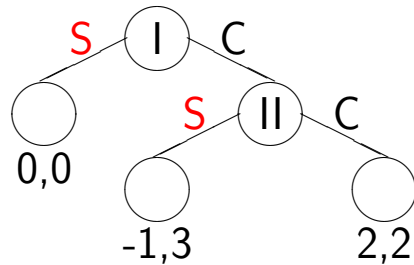
The utility for small amounts is close to zero

The increase of utility for huge amounts is small

Irrationality II: Higher Gains

Centipede Game

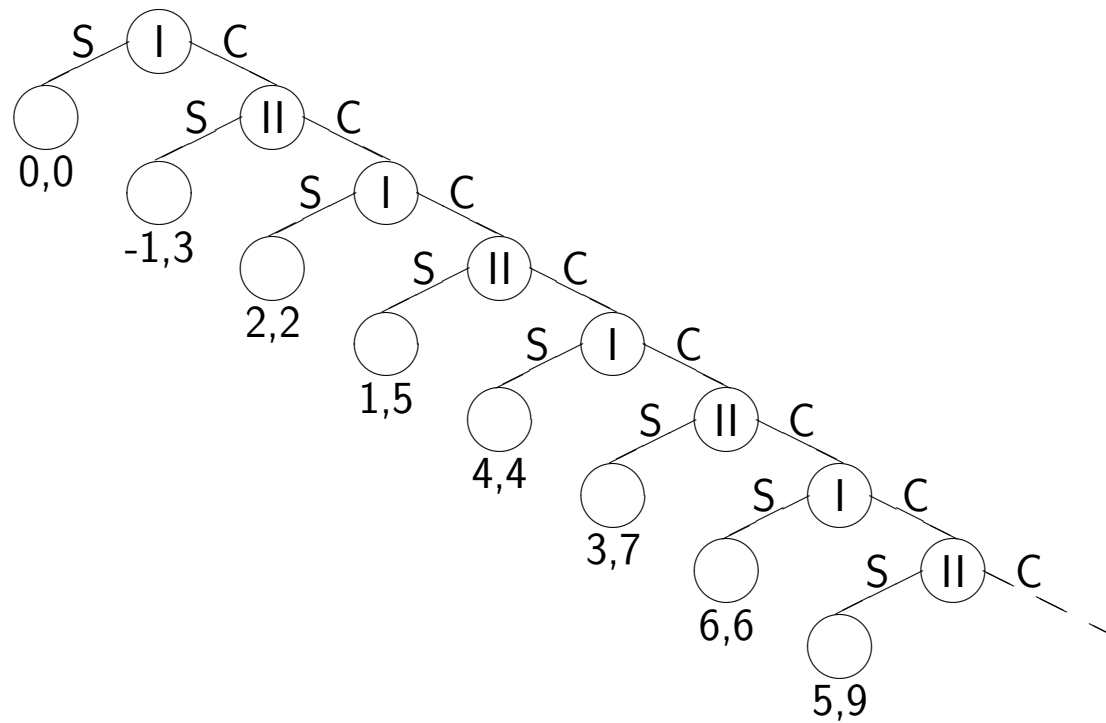
Consider the following game:



The unique "rational" choice for the player that has to choose is *STOP THE GAME*, but ...

Irrationality II: Higher Gains

... when there are many stages ...



... the players seek for better payoffs