

ULTIMATUM GAME



Player 1 is given some money.

He makes an offer to Player 2.

If Player 2 says Yes, then the offer is implemented.

If Player 2 says No, then both players end up with nothing.

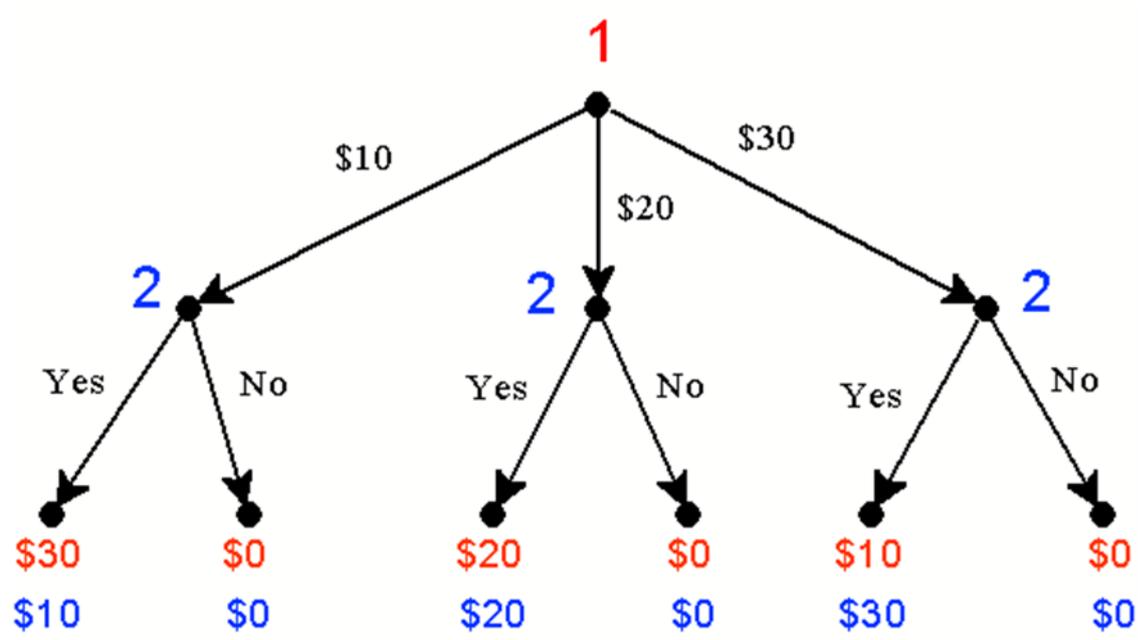
How much should Player 1 offer to Player 2?

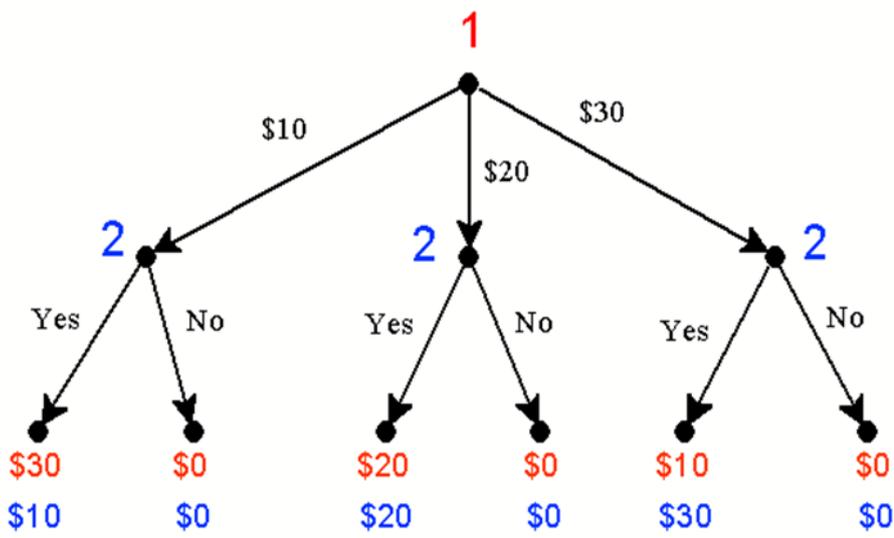
Player 1 is given \$40.

He makes an offer to Player 2 (\$10 or \$20 or \$30).

If Player 2 says Yes, then the offer is implemented.

If Player 2 says No, then both players end up with nothing.





Suppose that Player 1 is selfish and greedy:

Utility

best

worst

Suppose that Player 2 is fairness-minded and averse to greed:

Utility

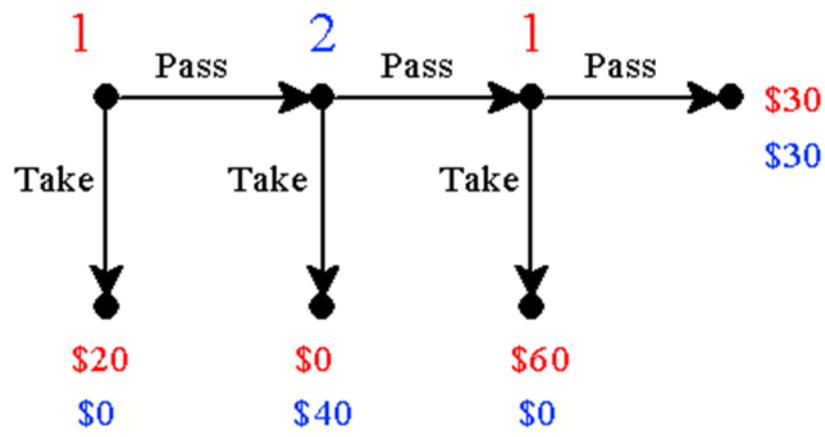
best

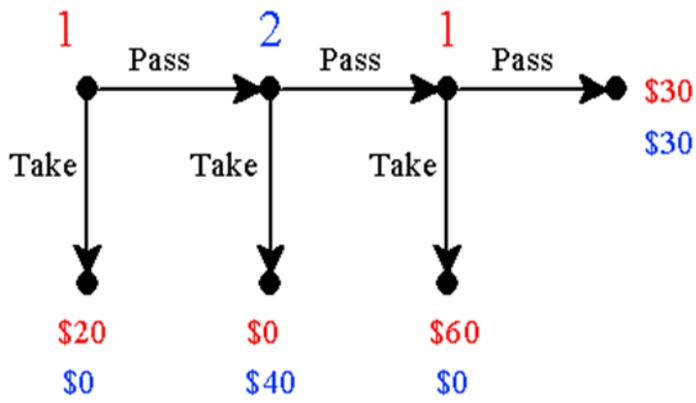
worst

Centipede Game

- A referee put \$20 on the table.
- Player 1 can take it and end the game or Pass.
- If Player 1 passes, the referee adds \$20 to the pot and Player 2 can take it and end the game or Pass.
- If Player 2 passes then the referee adds another \$20 to the pot and Player 1 can take it and end the game or Pass.
- ... and so on.
- At the last move the active player can take the pot for herself or can Pass, in which case the pot is divided equally between the two players.

The case of 3 moves:





Suppose that Player 1 is fairness-minded:

Utility

best

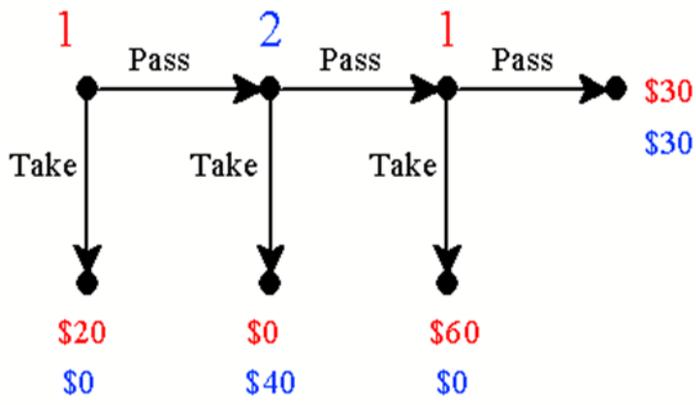
worst

Suppose that Player 2 is also fairness-minded:

Utility

best

worst



Suppose that Player 1 is selfish and greedy:

Utility

best

worst

Suppose that Player 2 is also selfish and greedy:

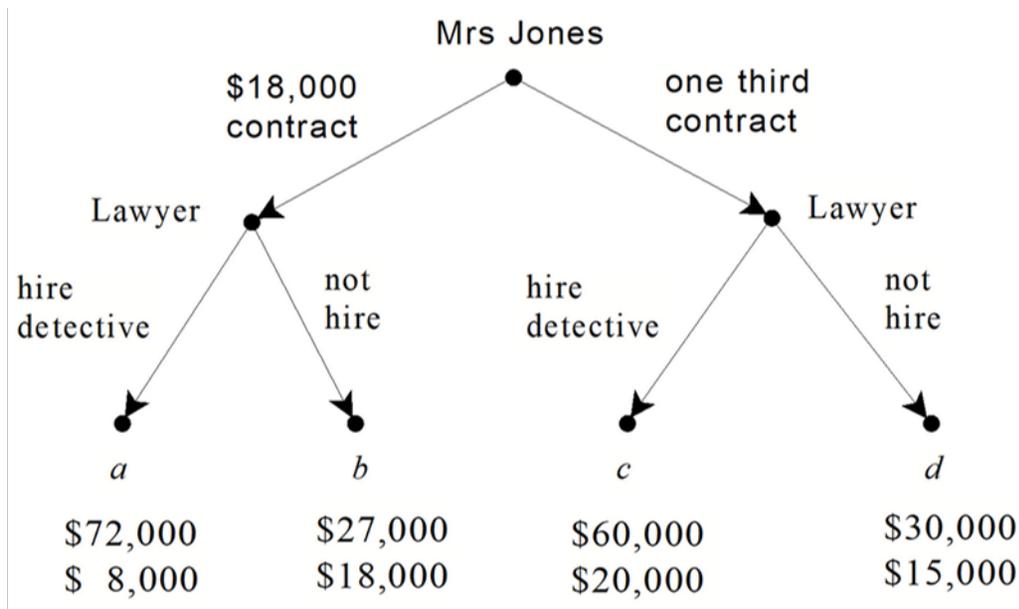
Utility

best

worst

A divorce

Mrs. Jones is seeking a divorce from Mr. Jones. Under the terms of her prenuptial agreement, her settlement will be **\$90,000** if she can prove that Mr. Jones had an affair, but **\$45,000** otherwise. Her lawyer, acting as her agent, can indeed prove the affair but only if he hires a private detective for **\$10,000, which he will have to pay out of his own pocket**. The lawyer has offered Mrs. Jones a choice of two contracts. One contract involves a **flat payment to the lawyer of \$18,000**, regardless of the outcome. The other contract involves a fee equal to **one third of the settlement**. What contract should Mrs. Jones choose?



Backward-induction solution

The race to 38. Players 1 and 2 take turns choosing a number from the set {1,2,3,4,5}. The first player to bring the total sum of the chosen numbers to 38 wins.

A monopolist and a potential entrant

		Monopolist	
		fight	accommodate
Potential entrant	In	0 , 0	2 , 2
	Out	1 , 5	1 , 5

A chain-store (monopolist) and many potential entrants

The chain store is a monopoly in n towns. There are n potential entrants, one in each town. They make decisions sequentially with perfect knowledge of what happened in the past.

