

The Prisoners Dilemma

Prisoners Dillema

- Two people are arrested and imprisoned.
- Each prisoner is in solitary confinement and does not know what the other prisoner will say or do.
- Each Prisoner can decide to either cooperate or defect.
- An Example of a payoff matrix for this game:

		Prisoner A	
		Silent	Betray
Prisoner B	Silent	-1 -1	0 -3
	Betray	-3 0	-2 -2

Axelrod's Tournament

- 1980 - Robert Axelrod, a poli-sci professor at University of Michigan held a tournament of various strategies for the prisoner's dilemma.
- In the tournament, programs played games against each other and themselves repeatedly.
- Each Strategy specified whether to cooperate or defect based on the previous moves of both the strategy and its opponent.

Tit-For-Tat (Winning Strategy)

- Strategy: Cooperate on the first move, then copies its opponents previous move
- Has the benefit of both cooperating with a friendly opponent, and defecting when matched against a greedy opponent.

Simulating Axel's Tournament

- Player Classes with "Strategies"
- A game is played between 2 players
- Each Game has 50 Moves, the player with the highest score in the end wins the game
- Each player plays another player 1000 times in round robin style.

Conclusions so far...

- There really is no "best" strategy for the prisoner's dilemma. Each individual strategy works best when matched against a "worse" strategy. Thus, in order, to win, a player has to figure out what strategy their opponent has and pick the best suited strategy for it.

Things to do

- Use a bracket system instead of round robin and see if theres any differences in data
- generate more visuals with the data
- Final Report

Credits/Sources

- Prisoners Dilemma (Wikipedia)
- The Evolution of strategies in the iterated prisoner's dilemma
- Stanford's Axelrod's Tournament