

PROJECT 5: part 2

Standard version (on computer; 6 points for part 1+2)

Simulate other (at least 2) tournaments of IPD for different sets of contestants.

Each of these tournaments should consist of 30 players and each player should be programmed to play one of the pool of strategies 1)-7) (recalled below), but the exact choice of the strategy (from that pool) for the player is left to you .

- 1) Always 'C' (**Cooperator**)
- 2) Always 'D' (**Defector**)
- 3) **Tit for Tat** (starts with 'C' and then repeats the previous move of the opponent)
- 4) **Spiteful** (starts with 'C' and plays 'C' until the opponent plays 'D' – then plays 'D' in each round up to the end of the contest)
- 5) **Naive Prober** (here: defecting with probability **0.1**) (plays like TFT, but if TFT would play 'C' then NP plays 'C' with the probability **(1 - defection_probability)**)
- 6) **Tit for 2 Tats** (plays 'C' in first two moves and plays 'D' only when the opponent has played 'D' in his last two moves)
- 7) **Random Player** (plays 'C' and 'D' with the same probability (0.5))

On the basis of these extra simulations justify the answers to the following questions regarding each of the strategies 1)-7) :

- for what population structure* a given strategy is most effective?
- for what population structure a given strategy is least effective?

Moreover explain:

- what is the best strategic choice while playing a contest with a Random Player?

Minimal version (on the paper; 6 points for part 1+2)

Define **4 other strategies** (for playing IPD) that seem reasonable to you.

Simulate the tournament between the players representing these strategies (4 contestants).

Tournament rules and the report should be analogical as before.

*distribution of percentages of each type of player (strategy) in the population=set of contestants