Computational Game Theory –18/19

FACULDADE DE CIÊNCIAS E TECNOLOGIA
UNIVERSIDADE NOVA DE LISBOA

2nd Tournaments

The 2nd tournaments will take place on June 12th, from 2:30pm.

The event will be composed of the following tournaments:

Tournament	Game	Probability to continue	Max iterations	Max time before start	Max time between Iterations	Opponent
1	G_1	$p_1 \leq 1.0$*	I > 1*	30s	10s	*Round Robin*
2	G_2	$p_2=1.0$	I=10	30s	10s	MrRational
3	G_3	$p_3=1.0$	I=50	30s	10s	EasyNash
4	G_4	$p_4=1.0$	I=50	30s	10s	ParanoidAndroid
5	G_5	$p_5=1.0$	I=50	30s	10s	NoMessingAround
6	G_6	$p_6=1.0$	I=50	30s	10s	MissVariety
7	G_7	$p_7=1.0$	I=100	30s	10s	PokerFace
8	G_8	$p_8=1.0$	I=50	30s	10s	*Round Robin*

* given with challenge

Games (all games are equivalent to NxM normal form games):

- **G_1**: Prisoner's Dilemma
- **G_2**: solvable by iterative elimination of strongly dominated strategies.
- **G_3**: can be reduced to a 2x2 normal form game by iterative elimination of strongly dominated strategies.
- **G_4**: mystery
- **G_5**: mystery
- **G_6**: has a unique Nash Equilibrium with greatest number of actions in the support.
- **G_7**: can be reduced to a zero-sum game by iterative elimination of strongly dominated strategies.
- **G_8**: mystery

Players:

- **MrRational**: always plays rationally.
- **EasyNash**: always plays a mixed strategy Nash Equilibrium with 2 actions in the support.
- **ParanoidAndroid**: always plays a maxmin.
- **NoMessingAround**: begins by playing the pure strategy Nash Equilibrium that maximizes social welfare (sum of the payoffs of both players), and keeps playing it while the opponent responds with the same strategy. If the opponent responds with a different strategy, it plays minmax until the end of the game.
- **MissVariety**: plays the Nash Equilibrium with the greatest number of actions in the support.
- **PokerFace**: no clues about this player's strategy.

Rules:

- All matches will be played under average utilities.
- You must base your implementation on the Java API provided, and fully automate your strategy i.e., after you initiate a game and select the strategy, your player must play autonomously without your intervention until the end of the game.
- Participation is individual, although members of the same group can use code developed together.
- For round robin tournaments, you must use the same strategy in every match of a given tournament.
- No later than June 12th, each student must submit by email (jleite@fct.unl.pt) a short report describing and justifying, as rigorously as possible, the strategy used in each of the tournaments. The email should also contain a link to a copy of the implementation(s) used during the tournaments.