COMP SCI 5401 FS2017 Assignment 2a

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1 Overview

Assignment 2a provides an introduction to the Iterative Prisoner's Dilemma problem by implementing a random search.

2 Algorithm Strategy

The algorithm works by generating a random tree than playing it tit-for-tat for a set number of iterations. This means that its opponent will choose whatever option the agent chose last round for itself.

3 Analysis

The agents tend to converge pretty quickly on one particular strategy. As you can see in Figure 1, the agent's fitness doesn't change at all after the first few iterations. Zooming in as shown in Figure 2 illustrates this convergence. Some runs immediately reach a value, others approach it steadily. Most agents end up close to the 3 fitness mark. This makes sense because the most valuable choice for both agents is to mutually confess. Only once did it manage to find a solution where it could converge on a payoff of 5 by exploiting the opponent.

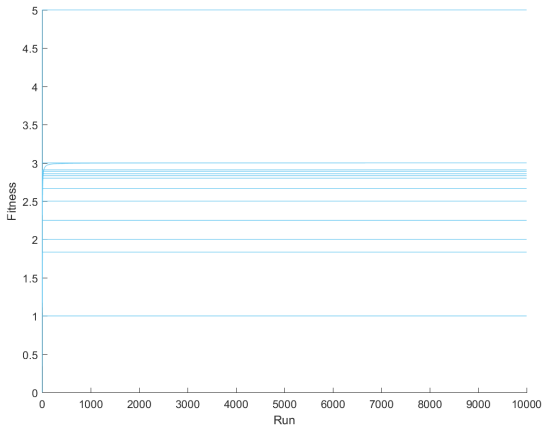

Figure 1:
Fitness vs. Evals plot

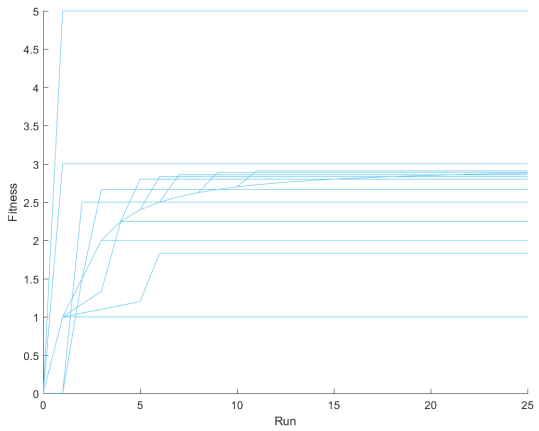

Figure 2:
Fitness vs. Evals plot
Limited to 0,25