

CS 486 Assignment 3

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Description of my agent:

The agent I designed can be described as a modified version of grim strategy with forgiveness. C stands for cooperation and D stands for defect. The agent always starts with C, and continues playing C until it sees the first defect of the game. Being a passive player, it does not initiate any defects on its own. Rather, it waits for other plays to offence itself. Once a defect is identified, the agent calculates the probability of such player playing D using their past move history. If in the history list, more than 70% of both opponents played defect, the agent will respond as D since it is a very bad impression. On the other hand, if both player are being very nice and played C for more than 85%, then the agent will trust the players and play C. Nevertheless, if both player do not fall into the above categories, the agent will count the minimal number of defects between 2 opponents in their move history. Then, the agent uses the min_count and punish the same number of times as the min_count with defect. Once the punishment is over, it will play a C again in order to lure for cooperation, which acts as a forgiveness.

One key point of this game is that playing defect always makes sure that you will not receive the worst result, and playing cooperation will gain you the more optimistic results. By not actively playing defeat creates a possibility that all players can cooperate, and thus generate the optimal results. It punishes the opponent using defect with a sense of forgiveness. This allows the opponent agents to play C in order for my agent to gain some additional points(the agent will not play C again until the opponents are “friendly” enough). Also, with some testing against other testing strategies, the agent maintained the top 10 score in 50 randomized player games over 5 iterations of 5 games where each game has about 100 rounds.