Team Player Strategy

The team player strategy was designed to give teammates extra points, and give everyone else as little points as possible. First it identifies the opposing player as its teammate. Once the teammate is identified, the team player strategy continuously cooperates while the teammate continuously defects. If team player’s opponent is identified as not a teammate, it will continuously defect in order to lower the opponent’s overall score. The team player strategy sacrifices itself to elevate its teammates. This strategy is only significant when working as a team, and when there’s a small number of total opponents. So, basically it was designed specifically for this class experiment only and wouldn’t be viable in a tournament with different parameters.

To implement this strategy there needs to be a way for team player to differentiate its teammates from everyone else. This can be done by team player sending out a sequence of 0s and 1s while the teammates listen for that exact sequence. If the teammates get the exact sequence the teammates send a response of 0s and 1s which team player listens to. If the response sequence is what team player expects then team player will continuously cooperate while the teammates continuously defect. This allows the teammates to get the maximum possible points once it has been established that the opponent is a teammate. However, at any time if the response sequence is different from what team player is expecting, then team player will continuously defect until the end of the game. Continuously defecting guarantees that the opposing player gets a small total number of points. The differential from the additional points the teammates get and the minus points the opponents get should give the teammates a significant advantage. Since there number of turns is not known the table below shows the potential advantage a teammate would get at different number of turns, and how much a tit for tat strategy would get with the same parameters. As it shows, the teammates get over twice as many points as the tit for tat opponent.

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| **Number of Turns** | **Tit for Tat Points** | **Team Player Points** |
| 100 | 320 | 326 |
| 500 | 1520 | 1526 |
| 1000 | 3020 | 3026 |
| 5000 | 15020 | 15026 |

|  |  |  |
| --- | --- | --- |
| **Number of Turns** | **Teammate Points** | **Team Player Points** |
| 100 | 664 | 154 |
| 500 | 3464 | 554 |
| 1000 | 6964 | 1054 |
| 5000 | 34964 | 5054 |