

## **About my agent**

My agent colludes with 5 other agents (assuming they don't cheat me). The first 8 plays of the game are used as the code to identify colluders. The code is:

**[0,0,0,1,0,1,0,0]**

Since there is 2% noise, we only require at least 7 of these 8 plays matches with our code. For instance: **[0,1,0,1,0,1,0,0]** is acceptable as 7 of them (except 2<sup>nd</sup> play) is matching with the collusion code, whereas **[0,1,0,1,0,1,0,1]** is not acceptable as only 6 of the plays matches with the collusion code.

Also, to make sure the colluders are continuing to play nice i.e. they are playing 0s, for every window of 10 games (after the initial 8 plays representing the code), we check at least 9 out of 10 are 0s. If yes, I continue colluding. Otherwise collusion ends and I play my own strategy.

In short, only if both the other players of the 3-player game are colluding (obeying both rules of Rule 1. Collusion code in first 8 plays and Rule 2. Playing nice in window of 10 plays) I chose to collude. Even if one of the players stops colluding, I also stop colluding

### **Dealing with noise**

We don't do strict checking for both the above stated rules for colluders. We only require at least 7 of the 8 to match (Rule 1) and at least 9 of the 10 to be 0 (Rule 2).

### **Exploiting a loophole in collusion**

The collusion Rule 2 only requires at least 9 of the 10 plays to be 0. So, on the 10<sup>th</sup> play of every 10-play window, if the previous 9 are 0s then my agent will play a 1. This won't be detected by the other colluders. Note: My other colluders are not aware that I am using this loophole.

### **My strategy**

If there is no collusion or the collusion breaks, then I play my strategy. First play is 0. And until 10<sup>th</sup> play, I play a modified version of Tit-For-Tat. I defect either if both players defected in the previous play OR if both players defected once in the last 2 plays. Else I cooperate.

After 10<sup>th</sup> play until end, I play strict. I cooperate only if in the last 10 plays, both players defected not more than twice. Else I defect. This strategy will maximize my utility if I am playing with 2 opponents who choose to play nice most of the times. For other possible opponents, like a player who defects most of the times (Mean Player), TFT variants who play defecting (or is forced to play defecting due to noise) most of the times, this strategy will help to avoid the sucker's payoff.

The reason for not choosing TFT strategies is due to noise. The players will be defecting more often than the case of a clear channel, because defection by one of the players can happen either due to intention or by accident.

### **Agent Name**

“The Untrusting Skeptic” – Trusts no one and is even skeptical about friends.