PROGRESS REPORT MAY 27

**Additions since Last Submission:**

1. Further visualization of solution: I separated the screen into 4 quadrants. The turtles now start with indifference between their strategies (chance of strategy 1 = chance of strategy 2 = 50%). This means that they are initially positioned in the very middle of the screen. At every tick, this probability may change and the turtle’s position reflects this change. If a turtle favors strategy 1, it moves upwards an amount directly proportional to how much it favors it. The same is true for strategy 2, but instead of moving up, the turtle would move down. This movement allows the user to see how quickly a turtle moves towards a strategy and also allows the user to see the strength of that preference. The final position of the turtle illustrates the resulting solution of the game.
2. Monitor of expected utility: I wanted to monitor the change in expected utility (the payoff a turtle can expect to receive given the probability profiles of it and its partner) over time. The main motivation for adding this is to see how different strategy methods affect the turtle’s ultimate expected utility and to see which produces the highest expected utilities.
3. Strategy Utility-Indiff: For this strategy, the turtles set their probabilities to make their partner indifferent towards the expected utilities from choosing strategy 1 and choosing strategy 2. This is purely the theory behind mixed strategy nash equilibrium. The way it has been coded (and I believe the only way to produce the result) merely calculates the correct solution based on the theory. As a result, this strategy does not allow for emergent behavior. The reason I am including it is to compare it with the results from the other strategies.
4. Strategy seek-fair: I thought it may be interesting to see what sort of equilibrium is reached when the turtles are more worries about competition than their own personal payoff. At each tick, the turtles look at their payoff and their partner’s payoff to see which is greater. If their partner received a higher payoff, then they assign more probability to their other strategy. If a turtle’s payoff is greater than that of their partner, then nothing happens.

Note: All other behavior has remained the same

**Next Steps:**

* Brainstorm and implement a couple more strategy options
* Dig deeper into analysis and look for patterns
* Begin developing poster and presentation
* Begin outlining final paper