

**SOCIOLOGY 133 -- PROJECT 1**  
**Due 27 April 2006 (at the beginning of class)**

**A)** Opening Exercise (8 points). Just to get into the swing of things, for the following 4 pairs of strategies, chart out the number of points each would earn for the first 10 rounds (with totals) using Axelrod's payoff matrix:

	coop.	defect
cooperate	3	5
	3	0
defect	0	1
	5	1

TIT FOR TAT (TFT): Cooperates on the 1st round and thereafter does whatever its partner did on the previous round

BORAH (BOR): Defects on all even numbered rounds (round 2, 4, 6, 8, ... etc.), otherwise it cooperates

VERY SUSPICIOUS TIT FOR TAT (VS-TFT): Defects on the first two rounds and thereafter does whatever its partner did on the previous round

TIT FOR 3 TATS (TF3T): Cooperates on the first three rounds and thereafter continues to cooperate unless its partner defected on the previous three rounds (all three)

	TFT	BOR	TFT	VS-TFT	TF3T	BOR	TF3T	VS-TFT
1	___	___	___	___	___	___	___	___
2	___	___	___	___	___	___	___	___
3	___	___	___	___	___	___	___	___
4	___	___	___	___	___	___	___	___
5	___	___	___	___	___	___	___	___
6	___	___	___	___	___	___	___	___
7	___	___	___	___	___	___	___	___
8	___	___	___	___	___	___	___	___
9	___	___	___	___	___	___	___	___
10	___	___	___	___	___	___	___	___
total	___	___	___	___	___	___	___	___

**B)** Imagine you have been asked to submit a strategy to a Prisoner's Dilemma computer tournament. Assume it will use the same payoffs as Axelrod's original tournament (reproduced above), last for APPROXIMATELY 100 rounds, and that each strategy will interact with every other strategy and a clone of itself.

1. (4 points) Give the name of your strategy and explain how it behaves. You may not nominate TIT FOR TAT, ALL-DEFECT, or ALL-COOPERATE. BE VERY CLEAR AND VERY PRECISE. At a minimum, you need to state what the strategy will do on the first move (before there is any history of interaction), and how it will behave on subsequent moves. A bad example:

SLOPPY COOPERATOR: Cooperates most of the time and then defects if its partner defects a lot.

Phrases such as "most of the time" and "a lot" are vague and imprecise. An example of a clearly stated strategy:

RIGOROUS COOPERATOR: Cooperates on the first move and thereafter cooperates unless its partner has defected more than 50% of the time in the past.

2. (8 points) For the following 4 pairs of strategies, chart out the number of points each would earn for the first TWENTY rounds of interaction (with totals):

- a) Your Strategy vs. Your Strategy
- b) Your Strategy vs. ALL-DEFECT (always defects)
- c) Your Strategy vs. TIT FOR TAT
- d) Your Strategy vs. SUSPICIOUS TIT FOR TAT (defects on the 1st round and thereafter does whatever its partner did on the previous round)

3. (10 points) Write a 2 page discussion of why you chose your strategy and why you think it will do well. Vague, general statements such as "It cooperates and Axelrod has shown that it is good to cooperate," won't be as convincing as more detailed comments, e.g., "My strategy has the feature that it is 'nice' in that it is never the first to defect, and Axelrod's tournaments have shown that the vast majority of the top-ranking strategies he studied were 'nice' ". Points to consider are: How well will the strategy do when interacting with itself? How exploitable is the strategy? How will it do when interacting with TIT FOR TAT (the reigning champ) or ALL-DEFECT? What strategies do you think others will nominate? Does your strategy have some of the characteristics that Axelrod identified as features of successful strategies (from chapters 2 and 6)?