

# Econ 327: Game Theory

## Homework #2

University of Oregon

Due: Feb. 6<sup>th</sup>

Question:	<b>Question 1</b>	<b>Question 2</b>	Total
Points:	20	20	40
Score:			

### For homework assignments:

- Complete *all* questions and parts. I will select one question at random to be graded according to the rubric on Canvas.
- You may choose to work with others, but everyone must submit to Canvas individually. Please include the names of everyone who you worked with below your own name.

Name \_\_\_\_\_

**Question 1.** [20 points] **Multiple Choice**

(a) Consider the strategic form game below: What type of game is this?

		<i>Oregon Driver</i>	
		<i>Swerve</i>	
<i>California Driver</i>	<i>Straight</i>		
	<i>Swerve</i>	-1,-1	
	<i>Straight</i>	1,1	
	-1,-1		

- A. A zero-sum game  
 B. A coordination game  
 C. An anti-coordination game  
 D. A prisoners' dilemma
- (b) Consider the strategic form game below: Which method would you use to solve for Nash equilibria?

		<i>Navratilova</i>	
		<i>DL</i>	
<i>Evert</i>	<i>CC</i>		
	<i>DL</i> * 50, 50	80, 20	
	<i>CC</i>	90,10	
	20, 80		

- A. Graphing mixed strategies  
 B. Iterative deletion of strictly dominated strategies  
 C. Backwards induction  
 D. There are no Nash equilibria of this game.

**Question 2.** [20 points] A game theorist is walking down the street in his neighborhood and finds \$20. Just as he picks it up, two neighborhood kids, Jane and Tim, run up to him, asking if they can have it. Because game theorists are generous by nature, he says he's willing to let them have the \$20, but only according to the following procedure: Jane and Tim are each to submit a written request as to their share of the \$20. Let  $t$  denote the amount that Tim requests for himself and  $j$  be the amount that Jane requests for herself. Tim and Jane must choose  $j$  and  $t$  from the interval  $[0, 20]$ . If  $j + t \leq 20$ , then the two receive what they requested, and the remainder,  $20 - j - t$ , is split equally between them. If, however,  $j + t > 20$ , then they get nothing, and the game theorist keeps the \$20. Tim and Jane are the players in this game. Assume that each of them has a payoff equal to the amount of money that he or she receives. Find all Nash equilibria.<sup>1</sup>

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<sup>1</sup>Harrington *Games, Strategies, and Decision Making*