

## SECTION NOTES 24

Covering material from Lecture on April 20<sup>th</sup>

### CLASS OUTLINE

1. Practice Problems

**Problem:** (P&R Chapter 13, Exercise 6)

Two competing firms are each planning to introduce a new product. Each will decide whether to produce Product *A*, Product *B*, or Product *C*. They will make their choices at the same time. The resulting payoffs are shown below.

		<b>Firm 2</b>		
		<i>A</i>	<i>B</i>	<i>C</i>
<b>Firm 1</b>	<i>A</i>	-10, -10	0, 10	10, 20
	<i>B</i>	10, 0	-20, -20	-5, 15
	<i>C</i>	20, 10	15, -5	-30, -30

- a. Are there any Nash Equilibria in pure strategies? If so, what are they?
- b. If both firms use maximin strategies, what outcome will result?
- c. If Firm 1 uses a maximin strategy and Firm 2 knows this, what will Firm 2 do?

**Problem:** (P&R, Chapter 13, Exercise 9)

You play the following bargaining game. Player  $A$  moves first and makes Player  $B$  an offer for the division of \$100. Player  $B$  can accept or reject the offer. If he rejects it, the amount of money available drops to \$90, and he then makes an offer for the division of this amount. If player  $A$  rejects this offer, the amount of money drops to \$80 and Player  $A$  makes an offer for its division. If Player  $B$  rejects this offer, the amount of money drops to 0. Both players are rational, fully informed, and want to maximize their payoffs. Which player will do best in this game?

**Problem:** (P&R, Chapter 13, Exercise 4)

Two firms are in the chocolate market. Each can choose to go for the high end of the market (high quality) or the low end (low quality). Resulting profits are given by the following payoff matrix:

		<b>Firm 2</b>	
		Low	High
<b>Firm 1:</b>	Low	-20, -30	900, 600
	High	100, 800	50, 50

- What outcomes, if any, are Nash equilibria?
- If the managers of both firms are conservative and each follows a maximin strategy, what will be the outcome?
- What is the cooperative outcome?
- Which firm benefits most from the cooperative outcome? How much would that firm need to offer the other to persuade it to collude?