

- First in-class exam on Monday, Oct 17
- Exam covers Chapters 7 and 9
- No notes, paper, or calculators allowed
- Cannot leave room during exam
- Please do not turn in before 2:30

## Chapter 9: Monopoly, Oligopoly, and Monopolistic Competition

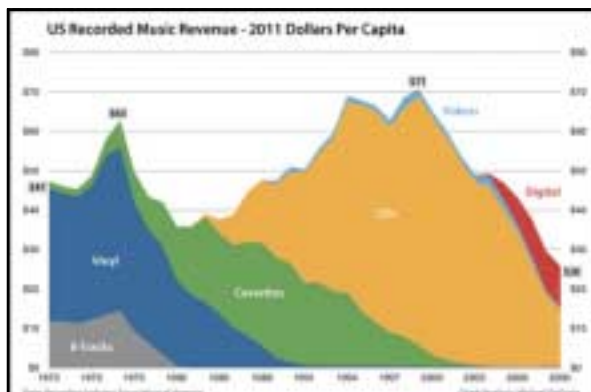
- I. Where does monopoly or oligopoly come from?
  4. Explicit government restrictions
    - a. Government licenses or franchises
    - b. Patents and copyrights

Downloading music from the web  
Marginal cost is nearly zero

"If I had to pay \$1, I wouldn't buy it, so what's the harm?"



- Suppose you'd pay 50 cents for a recording
- If you were charged \$1.00, wouldn't buy it
  - This would be example of deadweight loss from monopoly



- Problem: if nobody pays, what would be incentive to have produced music in the first place?
- Issue: from the point of view of policy, are "fixed costs" really fixed?
- Practical solution: patents and copyrights don't last forever

## Chapter 9: Monopoly, Oligopoly, and Monopolistic Competition

- I. Where does monopoly or oligopoly come from?
  4. Explicit government restrictions
  5. Exclusive control over important inputs

- 63% of the world's known oil reserves are in the Middle East
- 23% of the world total are in Saudi Arabia alone



Much of the gasoline delivered to San Diego comes through a single pipeline owned by Kemper Morgan



Ability to exercise monopoly control limited by close substitutes

E.g., gasoline can be shipped from L.A. to San Diego by truck at extra cost over pipeline

## Chapter 9: Monopoly, Oligopoly, and Monopolistic Competition

- I. Where does monopoly or oligopoly come from?
  4. Explicit government restrictions
  5. Exclusive control over important inputs
  6. Network economies

Network economies: users receive benefits when they all are using the same product

Example: computer operating system

Here again, potential substitutes limit ability to exercise monopoly power



## Chapter 10: Games and Strategic Behavior

A. Introduction to game theory

Prisoner's dilemma



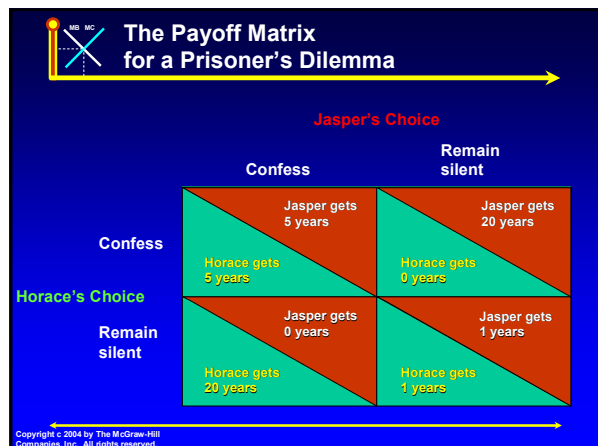
Prisoner's dilemma:

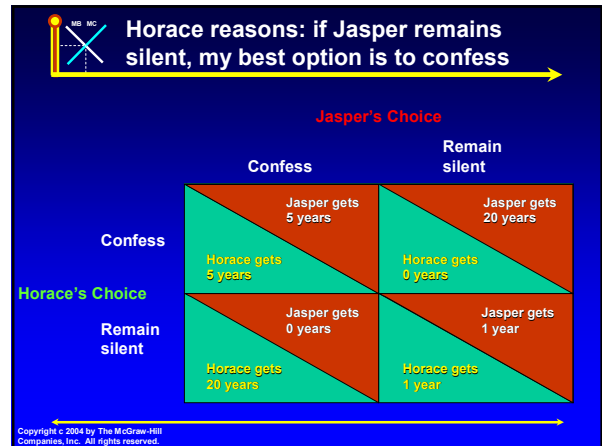
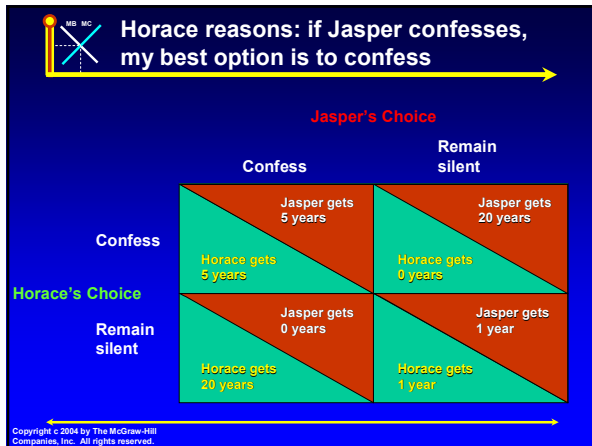
- Two prisoners (Horace and Jasper) have committed a big crime
- Police have evidence to convict for a small crime, need confession to convict for a big crime

Police put Horace and Jasper in separate rooms, offer Horace the following deal:

- If you confess and Jasper doesn't, we'll let you go free and put him in jail for 20 years
- If Jasper confesses and you don't, he goes free, you get 20 years

- If neither of you confess, you both get 1 year
- If you both confess, you both get 5 years
- Jasper gets offered exactly the same deal





Horace concludes:  
No matter what Jasper does, my best option would be to confess

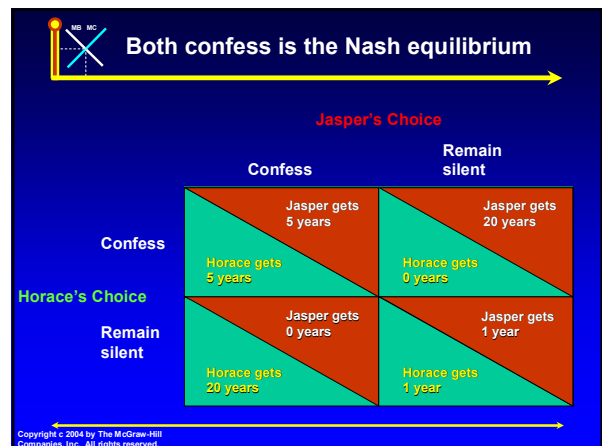
Definition:  
If a given strategy yields a higher payoff than any other strategy, no matter what the other players in the game choose, then it is called a *dominant strategy*

Confession is a dominant strategy for Horace  
Confession is also a dominant strategy for Jasper

Definition: If each player's strategy is the best he or she can choose given the other player's chosen strategy, the strategies are characterized as the *Nash equilibrium* of the game



John Nash did not look like Russell Crowe



Any game has 3 basic elements:

- the players
- list of possible actions (strategies)
- payoffs

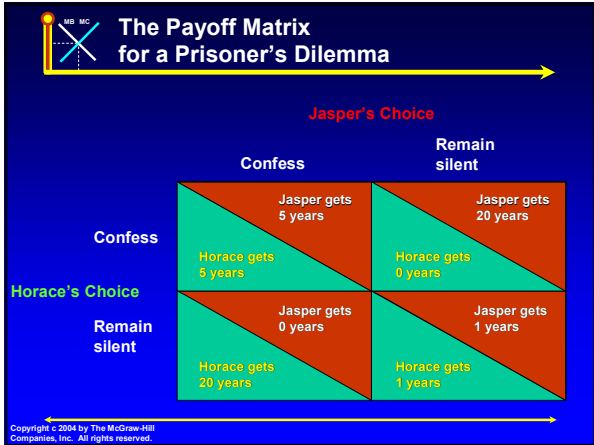
For prisoner's dilemma:

- Horace and Jasper
- confess or remain silent
- 0, 1, 5 or 20 years

### The Prisoner's Dilemma

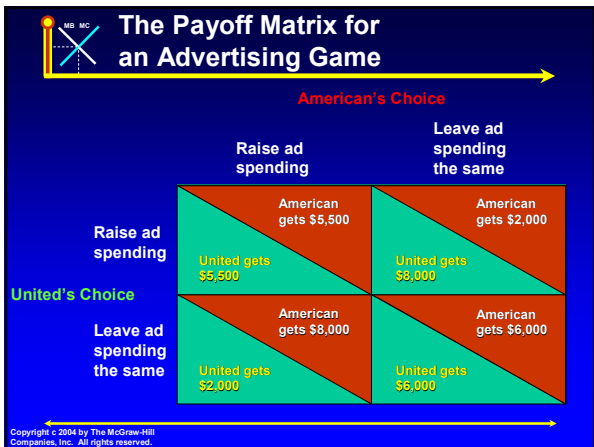
- Prisoner's Dilemma
  - A game in which each player has a dominant strategy, and when each plays it, the resulting payoffs are smaller than if each had played a dominated strategy

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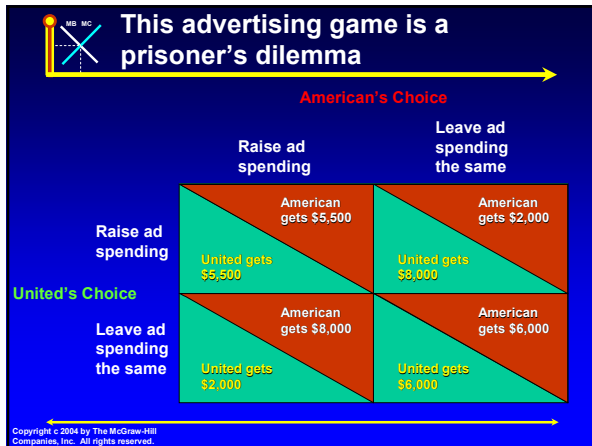
## Chapter 10

A. Prisoner's dilemma  
B. Application: strategic interaction in advertising



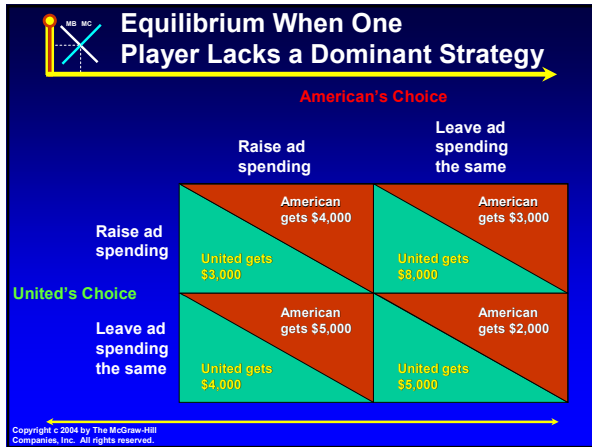
**United's dominant strategy is to raise spending**  
**American's dominant strategy is to raise spending**  
**Raising spending is the Nash equilibrium**

		American's Choice	
		Raise ad spending	Leave ad spending the same
United's Choice	Raise ad spending	American gets \$5,500 United gets \$5,500	American gets \$2,000 United gets \$8,000
	Leave ad spending the same	American gets \$8,000 United gets \$2,000	American gets \$6,000 United gets \$6,000



What if the payoffs were different?

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**United has no dominant strategy**  
**American's dominant strategy is to raise spending**  
**United therefore assumes American spends more**

**American's Choice**

	Raise ad spending	Leave ad spending the same
<b>United's Choice</b>	<p>Raise ad spending</p> <p>American gets \$4,000 United gets \$3,000</p>	<p>Leave ad spending the same</p> <p>American gets \$3,000 United gets \$8,000</p>
	<p>Raise ad spending</p> <p>American gets \$5,000 United gets \$4,000</p>	<p>Leave ad spending the same</p> <p>American gets \$2,000 United gets \$5,000</p>

