



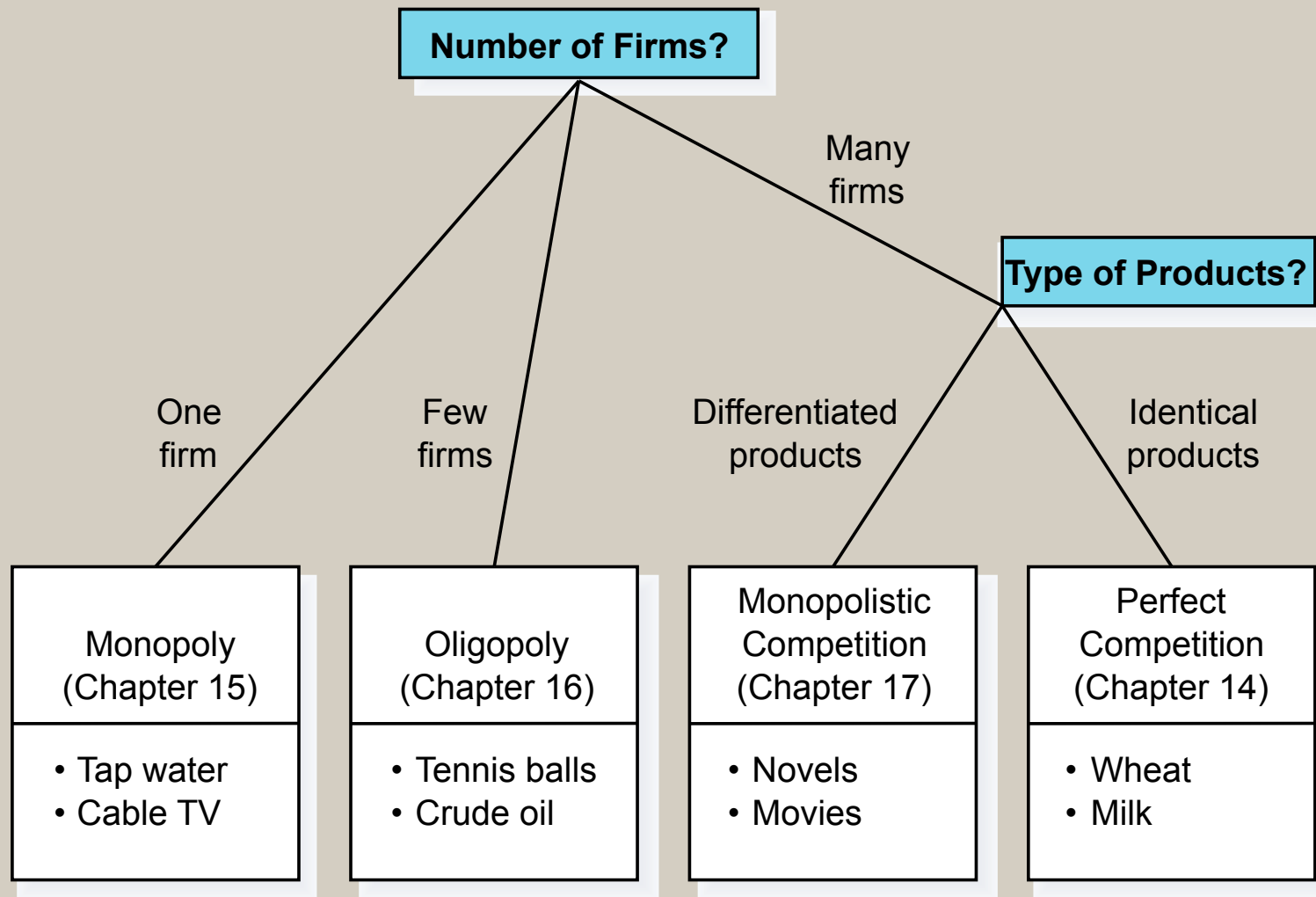
Oligopoly

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BETWEEN MONOPOLY AND PERFECT COMPETITION

- Types of Imperfectly Competitive Markets
 - *Oligopoly*
 - Only a *few sellers*, each offering a similar or identical product to the others.
 - *Monopolistic Competition*
 - *Many firms* selling products that are similar but not identical.

Figure 1 The Four Types of Market Structure



MARKETS WITH ONLY A FEW SELLERS

- Characteristics of an Oligopoly Market
 - Few sellers offering similar or identical products
 - Interdependent firms
 - Best off cooperating and acting like a monopolist by producing a small quantity of output and charging a price above marginal cost

Competition, Monopolies, and Cartels

- The duopolists may agree on a monopoly outcome.
 - *Collusion*
 - An agreement among firms in a market about quantities to produce or prices to charge.
 - *Cartel*
 - A group of firms acting in unison.

Competition, Monopolies, and Cartels

- Although oligopolists would like to form cartels and earn monopoly profits, often that is not possible. Antitrust laws prohibit explicit agreements among oligopolists as a matter of public policy.

The Equilibrium for an Oligopoly

- A *Nash equilibrium* is a situation in which economic actors interacting with one another each choose their best strategy given the strategies that all the others have chosen.

What is Game Theory?

“No man is an island”

- Study of rational behavior
in *interactive* or *interdependent* situations
- Bad news:
Knowing game theory does not guarantee winning
- Good news:
Framework for thinking about strategic interaction

GAME THEORY AND THE ECONOMICS OF COOPERATION

- *Game theory* is the study of how people behave in strategic situations.
- Strategic decisions are those in which each person, in deciding what actions to take, must consider how others might respond to that action.

Interactive Decision Theory

- Decision Theory
 - You are self-interested and selfish
- Game Theory
 - So is everyone else

*“If it’s true that we are here to help others,
then what exactly are the others here for? ”*

- George Carlin

The Golden Rule

COMMANDMENT

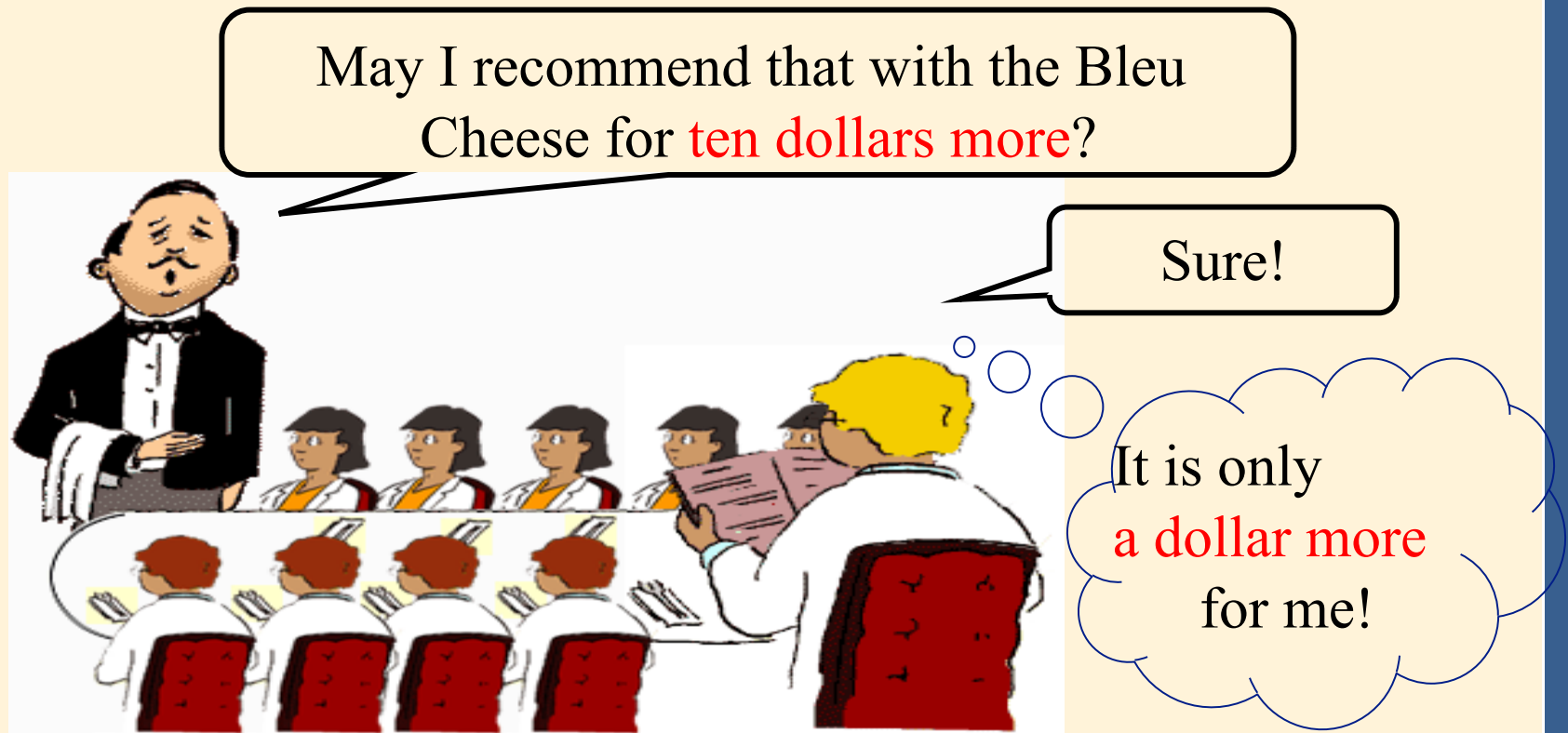
Never assume that your opponents' behavior is fixed.

Predict their reaction to your behavior.

Decision Theory vs. Game Theory

- Ten of you go to a restaurant
- If each of you pays for your own meal...
 - This is a decision problem
- If you all agree to split the bill...
 - Now, this is a game

Restaurant Decision-Making



- Check splitting policy changes incentives.

Understanding Incentives

- Do bicycle helmets cause less injuries?
- Should airplanes require children to be in their own seats?

The Prisoners' Dilemma

- The *prisoners' dilemma* provides insight into the difficulty in maintaining cooperation.
- **Often people (firms) fail to cooperate with one another even when cooperation would make them better off.**

Figure 2 The Prisoners' Dilemma

		Bonnie's Decision	
		Confess	Remain Silent
Clyde's Decision	Confess	Bonnie gets 8 years Clyde gets 8 years	Bonnie gets 20 years Clyde goes free
	Remain Silent	Bonnie goes free Clyde gets 20 years	Bonnie gets 1 year Clyde gets 1 year

The Prisoners' Dilemma

- The *dominant strategy* is the best strategy for a player to follow regardless of the strategies chosen by the other players.

The Prisoners' Dilemma

- Cooperation is difficult to maintain, because cooperation is not in the best interest of the individual player.

Why People Sometimes Cooperate

- Firms that care about future profits will cooperate in repeated games rather than cheating in a single game to achieve a one-time gain.

PUBLIC POLICY TOWARD OLIGOPOLIES

- Cooperation among oligopolists is undesirable from the standpoint of society as a whole because it leads to *production that is too low* and *prices that are too high*.

Restraint of Trade and the Antitrust Laws

- Antitrust laws make it illegal to restrain trade or attempt to monopolize a market.
 - Sherman Antitrust Act of 1890
 - Clayton Act of 1914

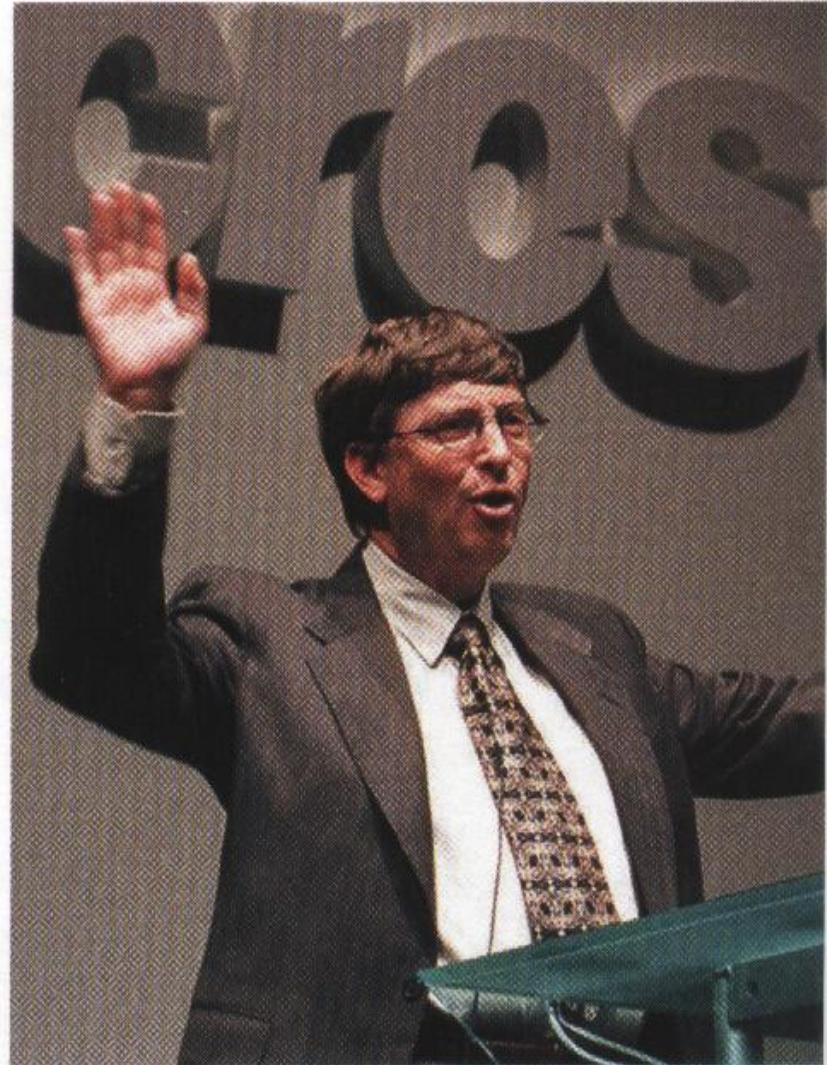


Controversies over Antitrust Policy

- Resale Price Maintenance (or fair trade)
 - occurs when suppliers (like wholesalers) require retailers to charge a specific amount
- Predatory Pricing
 - occurs when a large firm begins to cut the price of its product(s) with the intent of driving its competitor(s) out of the market
- Tying
 - when a firm offers two (or more) of its products together at a single price, rather than separately

Case Study:
The Microsoft Case

AP/WIDE WORLD PHOTOS



*"Me? A monopolist? Now
just wait a minute . . ."*

Survivor Immunity Challenge



- There are 21 flags
- Players alternate removing 1, 2, or 3 flags
- The player to take the last flag wins



Sequential Rationality

COMMANDMENT

Look forward and reason back.

**Anticipate what your rivals will do
tomorrow
in response to your actions
*today***

Pricing without Dominant Strategies

- Two bars (bar 1, bar 2) compete
 - Can charge price of \$2, \$4, or \$5
- Customer base consists of tourists and natives
 - 6,000 tourists pick a bar randomly
 - 4,000 natives select the lowest price bar
- Marginal costs are close to zero

Tourists & Natives

- Example scenario:
 - Bar 1 charges \$4, Bar 2 charges \$5
 - Bar 1 gets:
3,000 tourists + 4,000 natives
= 7,000 customers x \$4 = \$28K
 - Bar 2 gets:
3,000 tourists + 0 natives
= 3,000 customers x \$5 = \$15K

Tourists & Natives

		Bar 2					
		\$2		\$4		\$5	
Bar 1	\$2	10	, 10	14	, 12	14	, 15
	\$4	12	, 14	20	, 20	28	, 15
	\$5	15	, 14	15	, 28	25	, 25

in thousands of dollars

Successive Elimination of Dominated Strategies

- Does any player have a dominant strategy?
- Does any player have a dominated strategy?
 - A strategy is *dominated* if there is some other strategy which always does better
 - Eliminate the dominated strategies
 - Reduce the size of the game
 - Iterate the above procedure
- What is the equilibrium?

Successive Elimination of Dominated Strategies

		Bar 2					
		\$2		\$4		\$5	
Bar 1	\$2	10	, 10	14	, 12	14	, 15
	\$4	12	, 14	20	, 20	28	, 15
	\$5	15	, 14	15	, 28	25	, 25

Dominance

CAVEAT

Expect your opponent to use her dominant strategy if she has one.

BUT

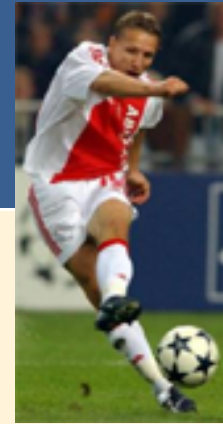
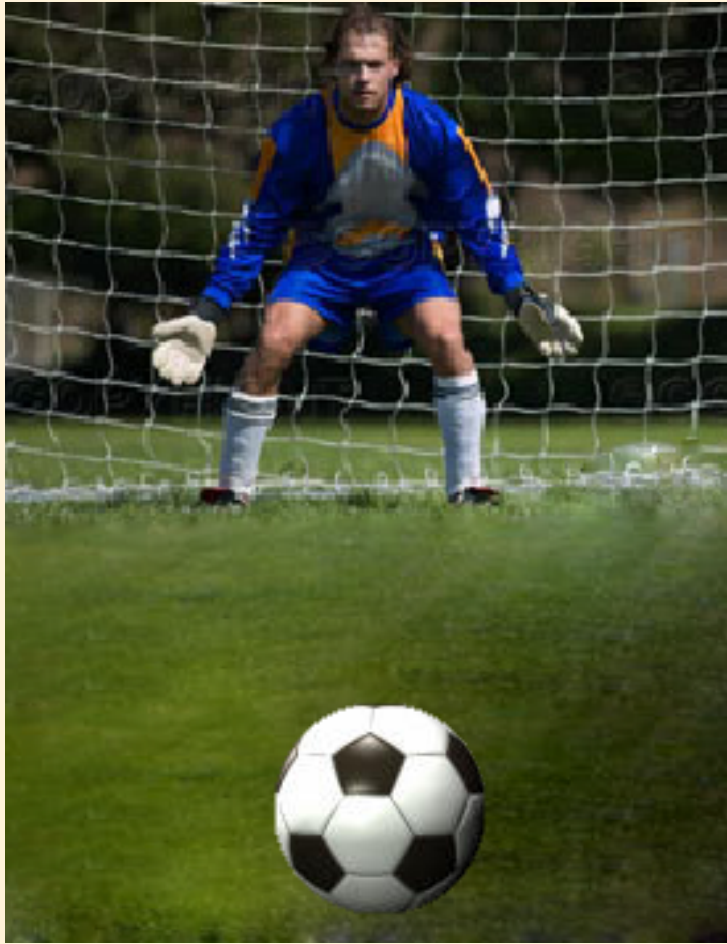
Be sure you understand your opponents' true payoffs.

(Do you know what really motivates them?)

Soccer Penalty Kicks

- There are no mutual best responses
 - Seemingly, no equilibria
- How would you play this game?
- What would you do if you know that the goalie jumps left 75% of the time?

Game Winning Goal



Soccer Penalty Kicks (Pee Wee League Version)

		G O A L I E	
			
		L	R
K I C K E R	 L	-1 , 1	1 , -1
	 R	1 , -1	-1 , 1

Mixed Strategies

COMMANDMENT

Use the mixed strategy that keeps your opponents guessing.