

# Lecture 7 Game Plan

---

- More on strategic substitutes and complements
- Application to Entry: Ryan Air
- Strategic exercise of real options

# Systems and Product Compatibility

---

- Tape deck + speaker = sound *system*
- Two firms produce both tape decks and speakers.
- First, firms decide whether or not to allow for compatibility
  - products are compatible if both allow for it
- Second, firms compete on price

# Sound System Consumers

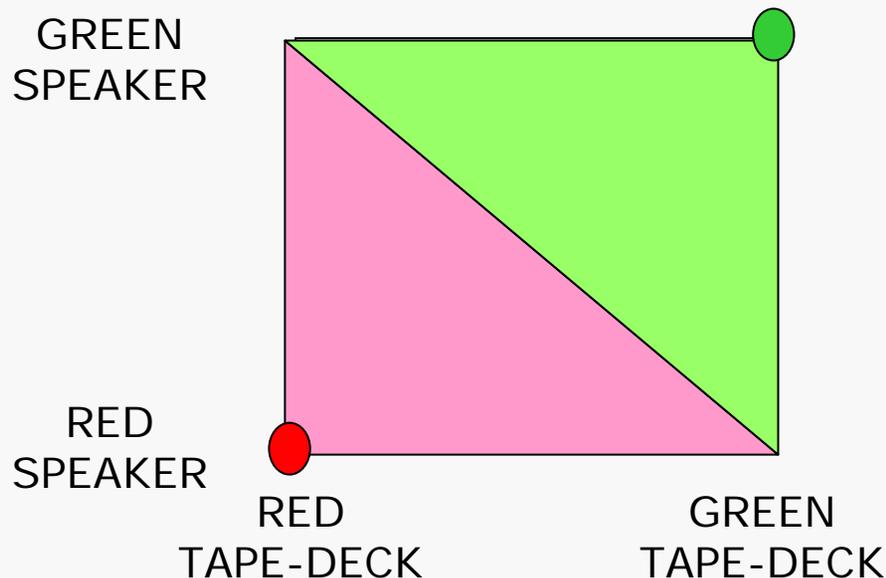
---

- Each firm's products are described as corners of a square.
- Consumers are represented as points in the square
- Each consumer buys from whatever firm has lowest *price + distance*
  - "*distance*" captures comparative preference for the products



# Incompatible Competition

- Consumers in upper-left and lower-right prefer to mix and match

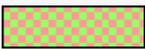


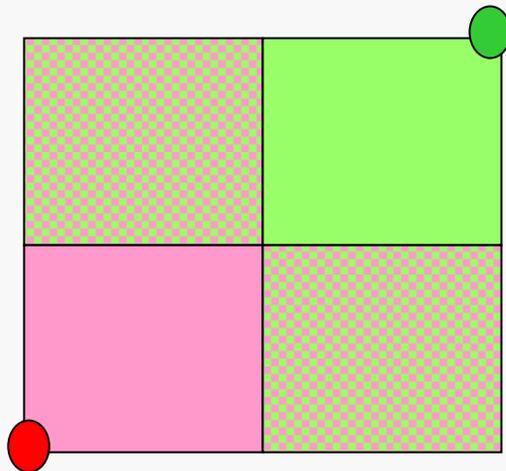
 represents consumers who buy from firm1

 represents firm 1's products

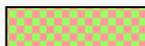
# Compatible Competition

---

- Consumers are better matched in  regions
- AND price competition is less intense



 represents consumers who buy *both* from firm1

 represents consumers who buy from firm1 & firm 2

# Compatible Competition

## Less Intense

---

- When firm 1 lowers price of RED SPEAKER, it *raises* demand for GREEN TAPE-DECK
  - tends to lead GREEN to *raise* its price
- Under incompatibility, lowering price of RED SPEAKER *lowers* GREEN TAPE-DECK demand
- The firms appear to have a **common interest in compatibility**



# Incompatibility & Exit

---

- Previous discussion implicitly assumed entrenched firms
- If firm 1 wants to drive firm 2 out of the market (or deter entry), compatibility is a bad approach since it increases both firms' payoffs

# Strategies to Induce Exit in Competitive Games

More Makes  
You Tougher

More Makes  
You Softer

Strategic  
Complements

*Top Dog*

more investment makes  
you more aggressive,  
hurting other player

*Lean & Hungry*

less investment makes  
you more aggressive,  
hurting other player

Strategic  
Substitutes

*Top Dog*

more investment makes  
you more aggressive,  
hurting other player

*Lean & Hungry*

less investment makes  
you more aggressive,  
hurting other player

# Reliance Games

---

- Conclusions for competitive games apply to reliance games, except “flipped”
  - to induce *entry*, do whatever makes you more aggressive



# Entry

---

*“The wise win before they fight,  
while the ignorant fight to win.”*

-Zhuge Liang, chief military strategist,  
Shu Kingdom, 200 AD

# Real Options

---

- Entering a new market
  - Option to enter later
- Investments in large, risky projects
  - Option to delay and to stop
- New technologies: multi-stage option
  - R&D → patent → testing → pilot →

# Parking Lots

---

- You own an unprofitable undeveloped parking lot downtown
- Additional parking revenues would be more than sufficient to cover costs of building a multi-level parking garage
- Building a garage is a no-brainer, right?

# A Tale of Two Parking Lots

---

- Another undeveloped lot sits right next to yours
- Does the presence of this other lot make you more or less eager to build an office building on your land?

# Strategic Incentives to Exercise Real Options

---

- First-mover effect that we've seen before  
→ Want to move first exactly when:
  - investments are strategic substitutes OR
  - investments are strategic complements and reaction curves have slope  $> 1$
- Informational benefit of observing others' investment → Want to move last
  - *others' decision* to invest is "good news" about their information
    - first-mover suffers *Winner's Curse*, see Lecture 9
  - *outcome* of investment also informative

# Exercising Cascades

---

- When others exercise an option this reveals *positive* information
- Furthermore:
  - more *information* → less option value → others more likely to exercise
- This can lead to cascades in which many firms follow an early exerciser
  - Example: “Miracle on Sixth Avenue”

# Summary

---

- When considering entering a market
  - anticipate and control incumbents' incentive to retaliate
  - consider how your entry may change followers' decision whether/how to enter themselves

# In-Class Game Next Time

---

- Please prepare for “Angry Negotiation” to be played next class
  - See handout