Lecture 11 Game Plan

- Reputation and "strategic irrationality"
- Course feedback
Credibility and Reputation

“This is our very soul ... our whole life. For them, it’s just another field.”

- Edwin Land, Polaroid founder, reacting to Kodak’s entry into instant photography

Kodak’s assessment

- Kodak took care to enter gently
  - Kodak film and cameras were incompatible with Polaroid’s
  - So Polaroid could still milk profits from its established customer base
- With Kodak’s deep pockets, there was no way they would leave
- Thus, Polaroid was going to give in
Polaroid’s Growl

- Polaroid responded by not giving in immediately, and saying that it *would never* give.
- How should Kodak react to such statements? Why?
Growling Resolve

- Maybe growling changes Polaroid’s payoffs enough that it wants to fight

See Figure 23.3 in:

Growling Semi-Resolve

What if growling doesn’t change Polaroid’s payoffs enough that it wants to fight?

See Figure 23.4 in:

Suppose incumbent monopolist always faces 80% chance that another entrant will come along

Does this change things?
Reputation in Repeated Games

- Fighting **costs 3 today**
- If Fighting deters next entrant and the one after that, etc., it has **benefit 2 in every future period**
  - benefit \(2(0.8 + 0.8^2 + \ldots) = 2(1/0.2 - 1) = +8\)
- Fighting rational if it preserves “reputation”
“Craziness” to Deter Entry

Pr(Crazy) = 1/4

"Crazy" = having incentive to fight

Enter whenever Pr(Crazy) < 1/3
Not Crazy Enough ...

Pr(Crazy) = 1/4

Enter whenever Pr(Crazy) < 1/3
Responding to “Craziness”

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<th>Accom</th>
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<td>Fight</td>
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-3, -3
-3, 10

What is the sequential equilibrium of this game?
In-Class Game

Crazy(?) Incumbent Game
Crazy(?) Incumbent: Rules

- Incumbent learns whether it is “Crazy” or “Sane”
- “Crazy” incumbents love to fight
- Sequence of decisions
  1. Entrant – Enter?
  2. If so, Incumbent – Fight?
  3. If so, Entrant – Stay?
  4. If so, Incumbent – Fight?
- In last stage, only Crazy want to Fight.
Crazy(?) Incumbent: Payoffs

- See handout for details
Get Crazy!

We will play in sets of \textit{five} people
- one Entrant
- four Incumbents

The Entrant may Enter any/all of the four markets

One of the four Incumbents is Crazy!
Get Crazy!

- First, each Incumbent will learn whether it is Crazy or Sane
  - not allowed to credibly reveal this
- Next, Entrant decides which (if any) of the four markets to enter
- In markets with entry, Incumbents decide whether to fight
- In markets with fighting, Entrant decides whether to stay
- In markets with Entrant staying, Incumbent decides whether to Fight
Sane Act Crazy

- Some (but not all!) Sane must Fight
  - if all Fight, entrant will Stay for sure
  - if none Fight, entrant will Leave for sure
- So, Sane must be indifferent to Fighting
- This requires that the entrant must Leave with probability 1/2 after Fight
The Million Dollar Question: Will Entrant Enter?
Entrants Blink

- Some (but not all!) entrants must Leave
  - if all Leave, Sane will Fight for sure
  - if none Leave, Sane will Accom for sure
-Entrant must be indifferent to Leaving
- This requires that incumbent be Crazy with probability 1/3 conditional on Fight
  - so 50% of 75% Sane will Fight
The Million Dollar Question: Will Entrant Enter?

- Scenario 1: Entering Crazy
  - Don't: (0, 3)
  - Accom: (1, 1)
  - Leave: (-1, 2)
  - Stay: (0, 0)

- Scenario 2: Entering Sane
  - Don't: (0, 3)
  - Accom: (1, 1)
  - Leave: (-1, 2)
  - Stay: (0, 0)

- Outcome: (−3, 10) for entering Crazy and (−3, −3) for entering Sane.
Entrant Stays Out

- What happens if entrant enters?
  - all Crazy Fight (25%) plus 2/3 of the Sane Fight (50%)
  - *only get Accomodation 25%*
- Entrant should stay out
- What tips the balance is that Entrant must worry about both:
  1. Crazy opponents
  2. Sane opponents *acting* crazy (!)
Summary

- Reputation can help establish credibility in repeated games if losing reputation is costly:
  - lost “mystique”
  - others know you aren’t Crazy