

# Non-Cooperative Game Theory: Perfect Bayesian Equilibrium

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Spring 2008

# Put everything together

- Perfect Bayesian equilibrium
  - ✓ signaling game: pooling and separating
  - ✓ presentation: authority and knowledge
- belief-based refinement
  - ✓ dominance, equil. dominance, and  $D1$
- common knowledge
  - ✓ e-mail game

# Choose your stra. carefully, and belief too

- wPBE:  $(\sigma, \mu)$ , MWG DEF. 9.C.3 & PROP. 9.C.1
  - ✓ best response everywhere, according to the belief:  $\sigma$  sequentially rational given  $\mu$
  - ✓ on-path belief updating: Bayes' rule *on the equil. path*
- what about off-path?

# Why care about things won't happen

- wPBE too weak
  - ✓ MWG EX. 9.C.4 & 5
  - ✓ behavior stra.: MWG DEF. 7.E.2
- wPBE + subgame perfection
- consistency and structural consistency: FT Chp. 8
  - ✓ structural consistency
  - ✓ consistency:  $\exists(\sigma^k, \mu^k) \rightarrow (\sigma, \mu)$ ,  $\sigma^k$  completely mixed
  - ✓ sequential equil.: sequential rational. + consistency
  - ✓ consistency  $\Leftrightarrow$  structural consistency
- more to come: belief-based refinement

# Spence's idea about education

- signaling game: MWG 13.C
- PBE
  - ✓ pooling equil.
  - ✓ separating equil.
  - ✓ hybrid equil.

# Presentation

Authority and communication in an organization

# What if...

## MWG 13.A.A

- multiple equil. in signaling game
- unreasonable off-path beliefs
- dominance
- equilibrium dominance and intuitive criterion
- $D1$

Are you sure you have a date? Send  $\infty$   
e-mails!

- the game: FT EX. 14.4 (or Osborne-Rubinstein 5.5)