Econ 1052: Game Theory — January 28, 2020

Expectations

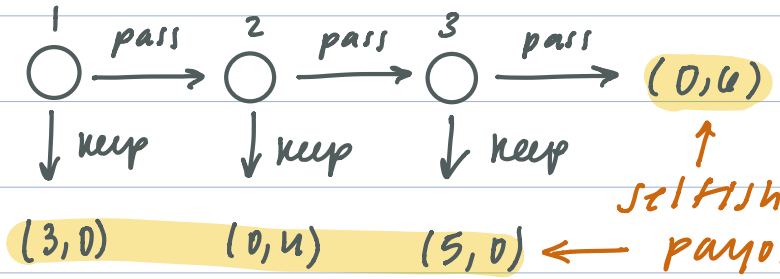
- read textbook before class
- might call people to fill in high-level details of textbook

Way it Works

- 1 component: medium difficulty
- component 2: very hard

Game 2

Extensive Form Game



perfect information
↔ only one way to get where you are

- players N
- histories H ⎫ tree
  $\geq$ ⎭
- terminal histories
  $Z \subseteq H$ (no outgoing edge)
- $\iota : H \setminus Z \to N$
  whose turn it is to move at each non-terminal node
- for each $i \in N$: $u_i : Z \to \mathbb{R}$ utilities don't need to be selfish payoff

- actions $A(h)$

perfect info vs. imperfect information

- Strategy: $s_i : H_i \to$ actions $s_i : I_i \to$ actions

$\forall h \in H_i : s_i(h) \in A(h)$

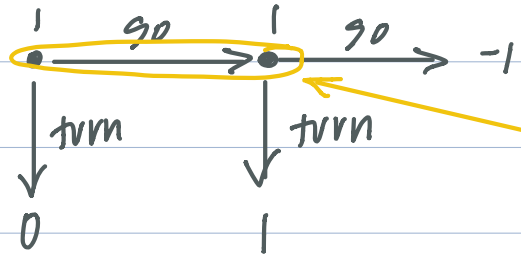
- Information set $I_i \subseteq H_i$

I_i

$\forall I_i : \forall h, h' \in I_i : A(h) = A(h')$

Tipsy Driver: Imperfect Recall

Intuition: when you're at an intersect, you can extract all past play



violates imperfect recall

useful for thinking about strategy as a team

Normal-Form Game

Choose strategies at beginning

- N
- $S_i \equiv$ valid strategies for extensive form

	P		K	
KK	3	0	3	0
KP	3	0	3	0
PK	5	0	0	4
PP	0	6	0	4

$U_i(s) = U_i(z)$ where z results from s (from extensive form)

reduced normal form (if strat results in same outcome)

GPT2: crisis prediction

Chapter 2,3 textbook