Beyond Extensive-Form Games

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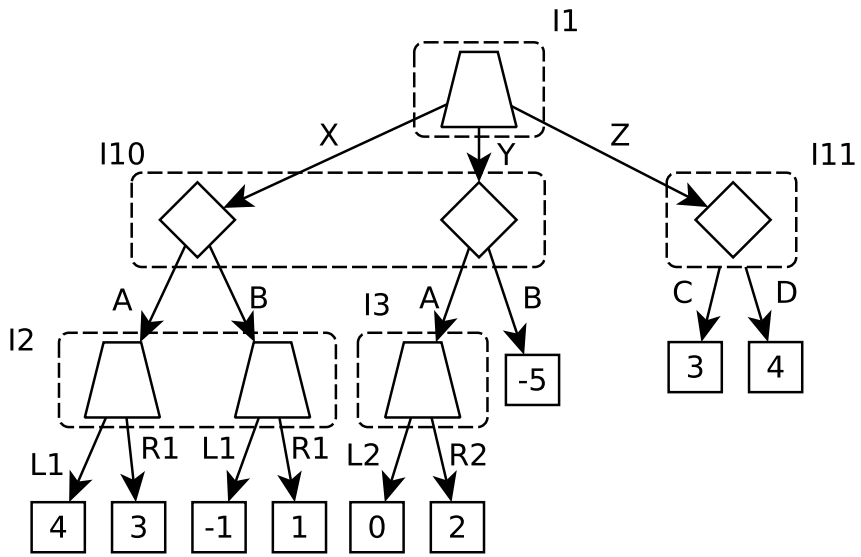
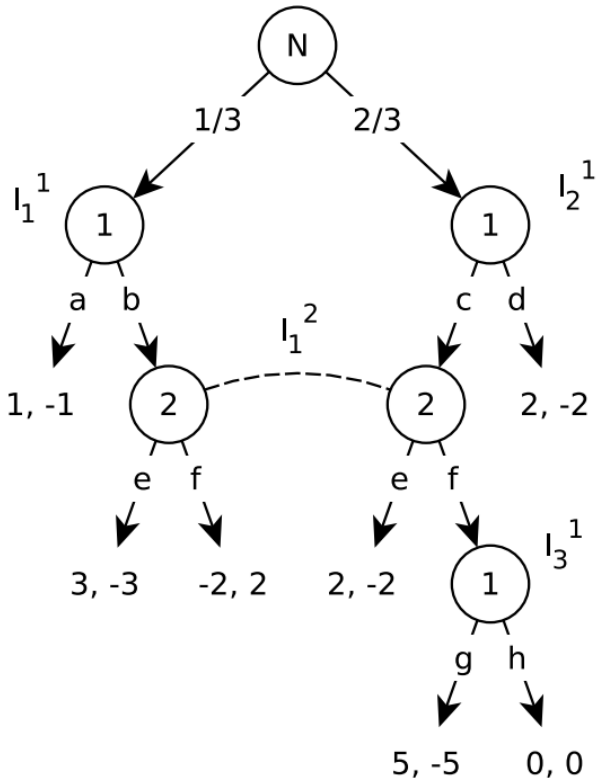
Previously ... on multi-agent systems (tutorials and lectures).

1. Extensive-Form Games (game trees)

Task 1: Consider the following games. Write down a sequence-form linear program for both players:



Task 2: Consider the following games. Write down a sequence-form linear program for both players:



Task 3: Write down a sequence-form linear program for both players for the following game of a small "poker":

- there is an ante of 1$
- there is a limited deck of cards $\{J, J, Q, Q\}$
- each player receives a card
- player 1 either folds or bets 2$
- player 2 either calls or folds
- player with the higher card wins

Task 4: Consider a repeated game:

	L	R
U	$(6, 6)$	$(0, -100)$
D	$(7, 1)$	$(0, -100)$

- What is a NE strategy in this game? How does the equilibrium using machines look like?
- What if we want to remove irrational threats?
- Can you design machines for a sequentially rational behavior?

Task 5: How about Subgame Perfect Equilibrium in finitely repeated games?

	C	D	E
C	$(3,3)$	$(0,4)$	$(0,0)$
D	$(4,0)$	$(1,1)$	$(0,0)$
E	$(0,0)$	$(0,0)$	$(\frac{1}{2},\frac{1}{2})$