

④ ① ~~we must define~~

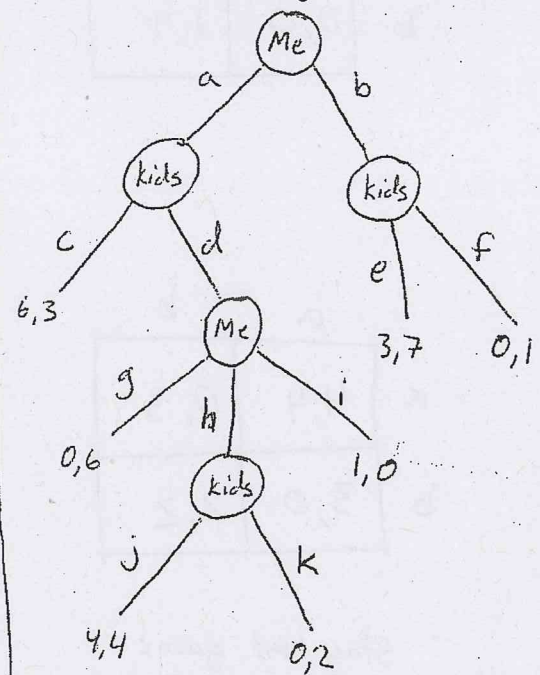
Each strategy must define an action for each information set, regardless of whether that information set can be possibly reached

Pure strategies for "Me"

$(a, g), (b, g), (a, h), (b, h), (a, i), (b, i)$

Pure strategies for "Kids"

$(c, e, j), (c, f, j), (d, e, j),$   
 $(d, f, j), (c, e, k), (c, f, k),$   
 $(d, f, k), (d, e, k)$



	Me					
	$(a, g)$	$(b, g)$	<del><math>(a, h)</math></del>	$(b, h)$	$(a, i)$	$(b, i)$
$(c, e, j)$	<del>3, 6</del>	7, 3	3, 6	7, 3	<u>3, 6</u> <sup>*</sup>	7, 3
$(d, f, j)$	6, 0	1, 0	<u>4, 4</u> <sup>*</sup>	1, 0	0, 1	1, 0
$(d, f, k)$	6, 0	1, 0	2, 0	1, 0	0, 1	1, 0
$(c, f, j)$	3, 6	1, 0	3, 6	1, 0	<u>3, 6</u> <sup>*</sup>	1, 0
$(c, e, k)$	3, 6	7, 3	3, 6	7, 3	<u>3, 6</u> <sup>*</sup>	7, 3
$(d, e, k)$	6, 0	<u>7, 3</u> <sup>*</sup>	2, 0	<u>7, 3</u> <sup>*</sup>	0, 1	<u>7, 3</u> <sup>*</sup>
$(d, e, j)$	6, 0	7, 3	<u>4, 4</u> <sup>*</sup>	7, 3	0, 1	7, 3
$(c, f, k)$	3, 6	1, 0	3, 6	1, 0	<u>3, 6</u> <sup>*</sup>	1, 0

Note that I've flipped the payoffs from the tree since I made "Kids" the row player

HW # 4 cont.

(4/1)

continued

(Note, you didn't need to do this, but it is included anyway)

Pareto optimal solutions: all joint strategies in which the payoffs are  $(6,3), (4,4), (3,7)$

Pure strategy NE: circled in the matrix → Extra credit if you

Mixed strategy NE: who cares 😊

correctly declared subgame perfect NE. ~~in the matrix~~ ~~to do it here~~

Maximin (of extensive form game) -

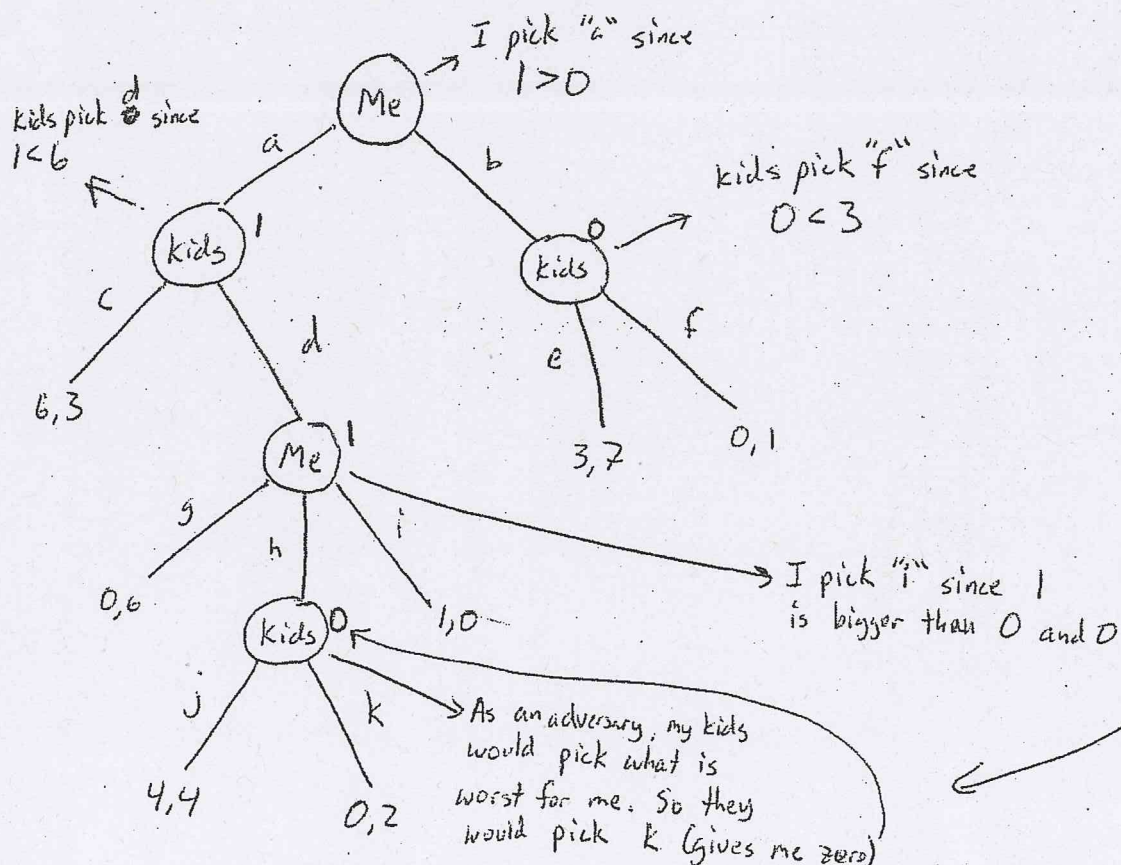
Note: We didn't talk about this in class. I apologize. And I'd never expect you to compute maximin for the large matrix. But it can easily be done for the extensive form game by pretending the other player is an adversary and observing what they would do.

For "Me": MM strategy:  $(a, i)$  - MM value = 1

(Can you see why?)

For "kids": MM strategy:  $(c, e, j)$  - MM value = 3

Notice that the maximin strategy pairs again form an NE (but they don't have to in general)



Start at the bottom and bubble worst case payoffs up



④ continued

How would I play this

My kids and I have settled on  $(a, h), (d, e, j)$   
most days

↓  
the subgame perfect NE!

Update for this year: Now ~~the~~ kids require  
a treat and a story. The game is evolving