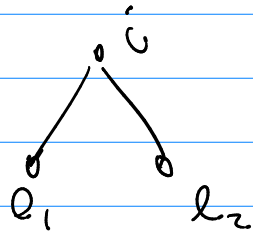


Math 322

Decision Tree



e : outcomes

i : decision process

Ex 4 coins. One may be fake. If it is fake it can be light or heavy.

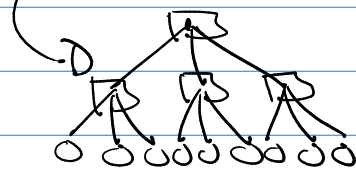
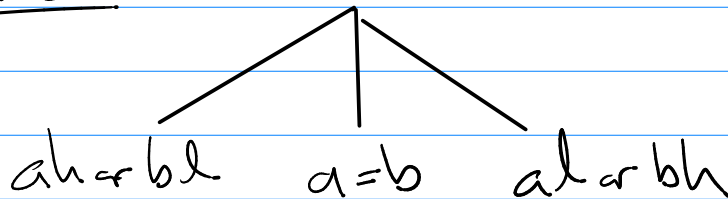
e : (1h), (1l), (2h), (2l), (3h), (3l), (4h), (4l), (OK)

$$\lceil \log_2 12 \rceil \leq h$$

$$\lceil \log_3 12 \rceil = 2 \leq h$$

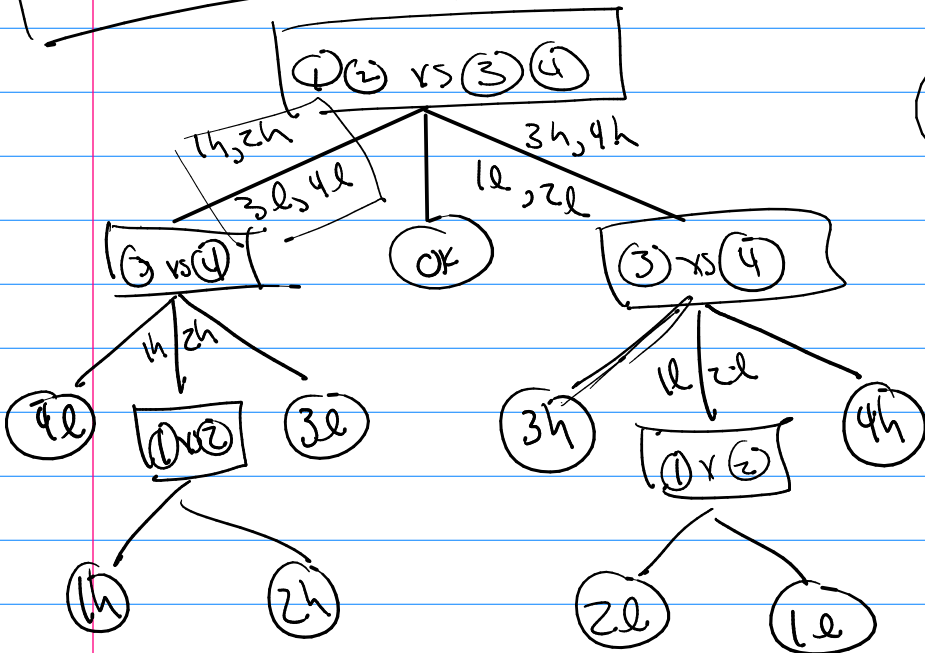
i : balance:

a vs b



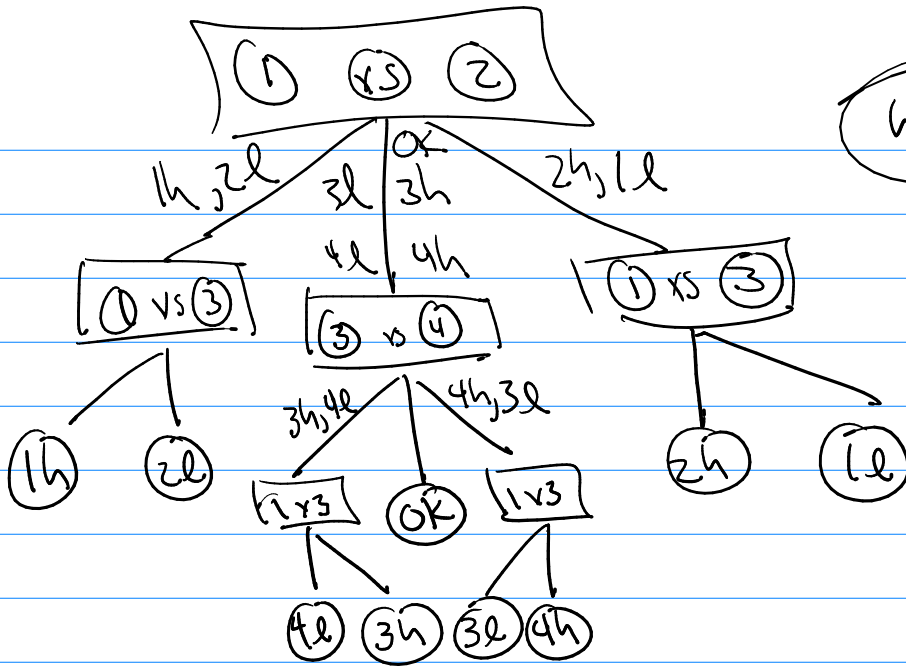
Decision Tree

4 coins, balance



$$h = 3$$

ex



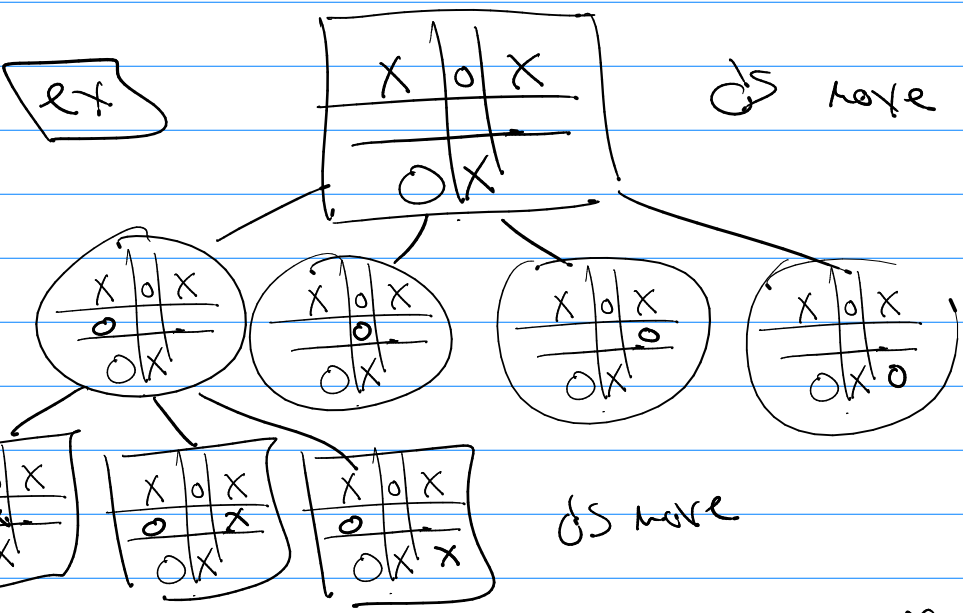
h=3

Game Tree

leaf: outcome (end of game)

internal vertex: game position (decision)

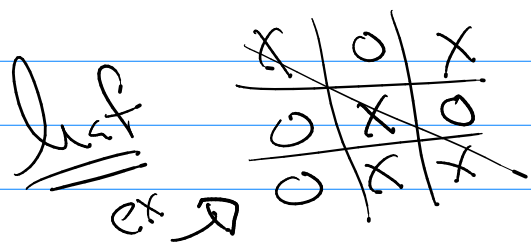
children: all possible next positions



X's move

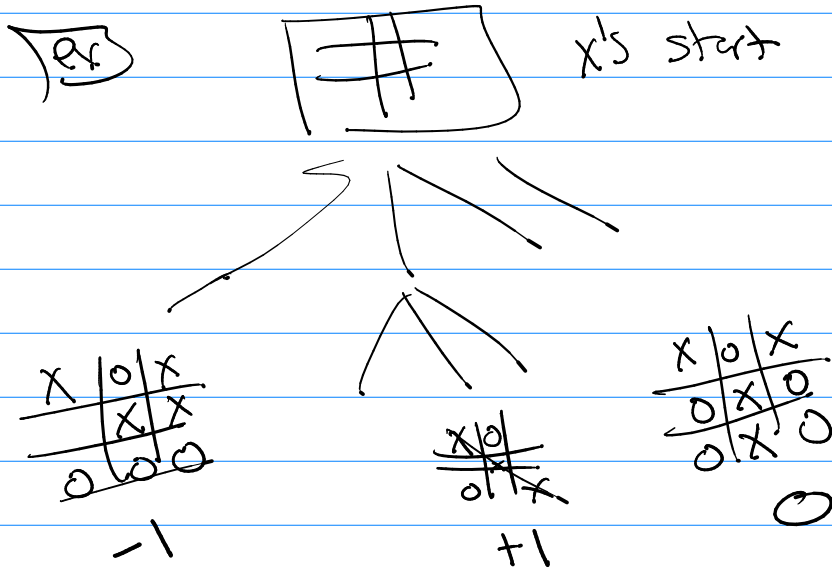
O's move

O's move

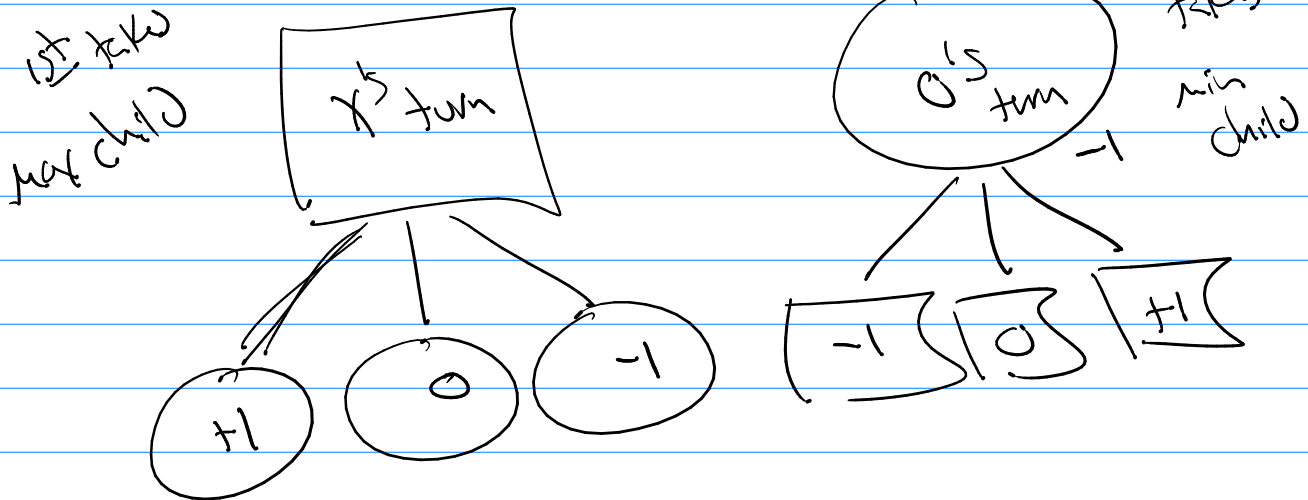


Label of a vertex

① leaf = payout to 1st player



② internal vertex: min/max principle



③ find all labels to the root,
 root's value = value of game

