

What strategies do computers use in
game playing?

Why are we interested in games?
To ~~see~~ mark to solve
Chess

#

Avg branching factor 35
35 - 1000

Two player etc. games
Game tree - each node represents
a board position.

ply of a search tree = # of levels in the
tree including the root.

1-ply is a move, each move is
2-ply

Search algorithm
generally ~~is~~ Depth first
search

Evaluation function

I \rightarrow Maximize

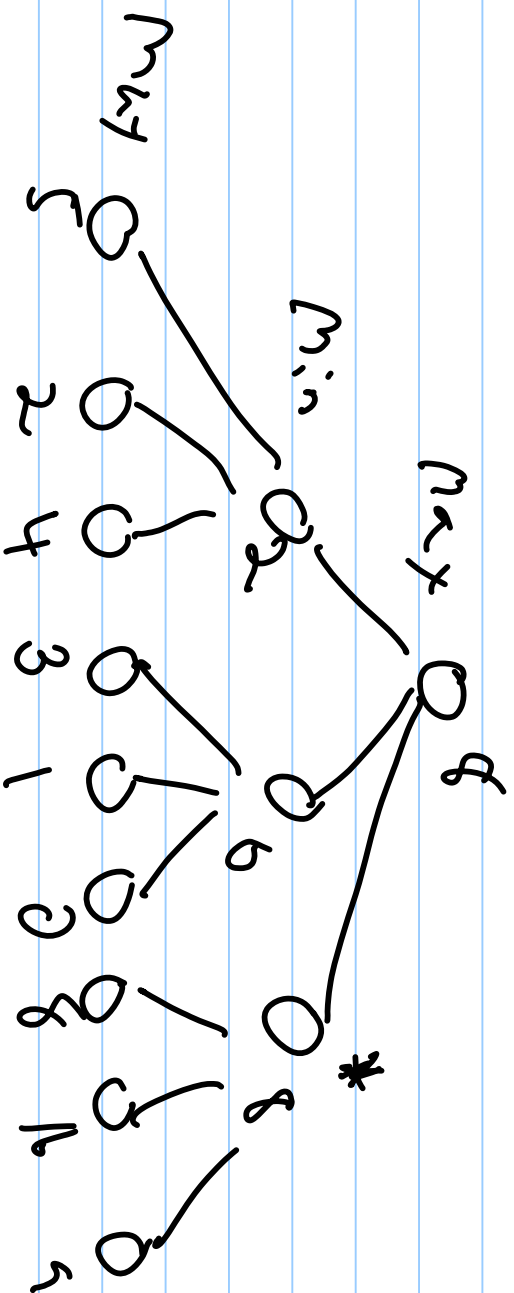
O \rightarrow Minimize

Mini Max

1. Generate game tree to a certain depth
2. Apply ^{nodes} evaluation function to terminal
3. Use the value at the terminal nodes to determine the value of the parent node

4. If the parent node is a maximizer
 it sets the maximum value of its
 children

5. If the parent node is a minimizer
 it takes the minimum of its
 children



Chess - Piece value

Piece capture

for the for

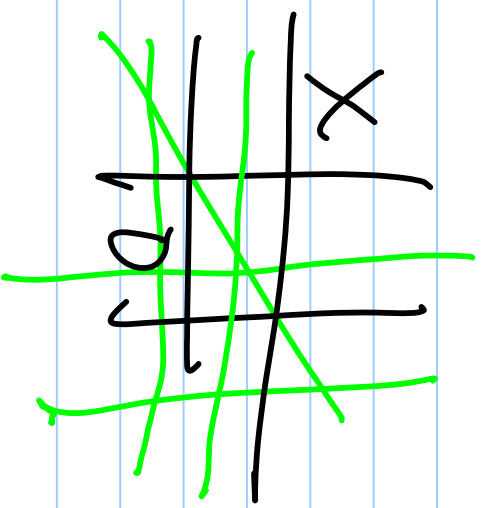
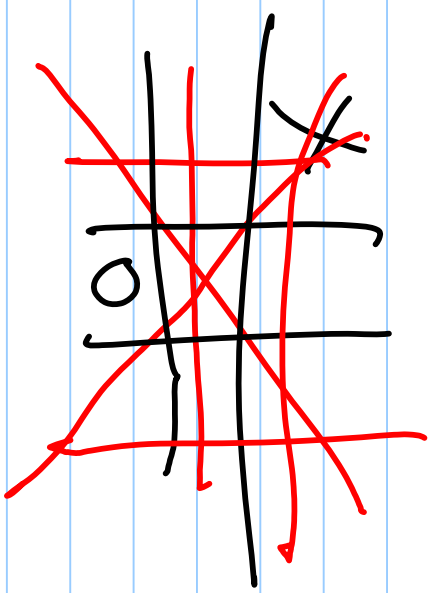
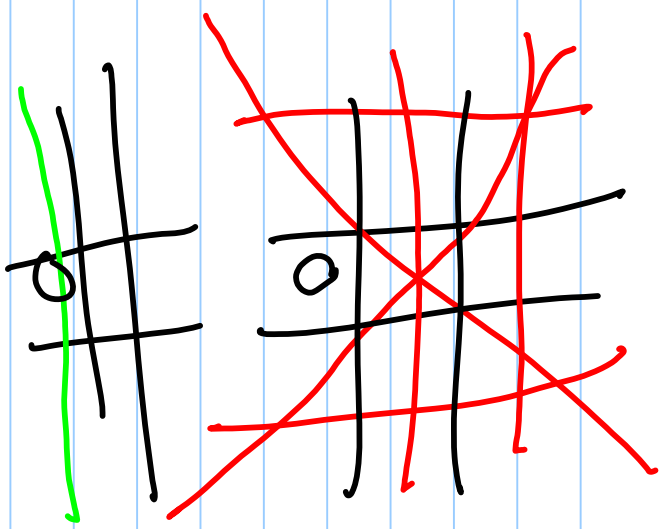
$$E_n = n(n) - O(n)$$

possible
within links

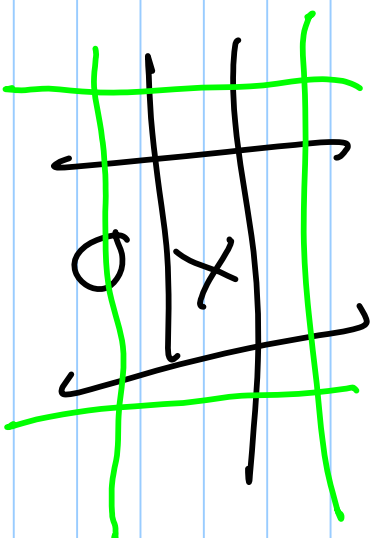
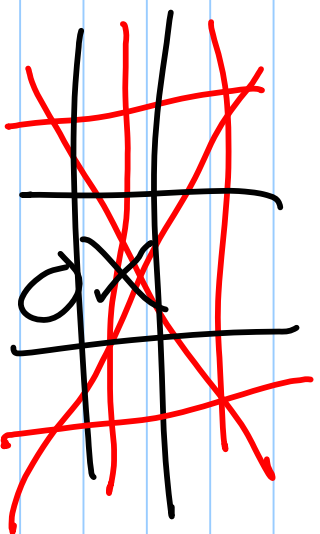
of possible
links

$$M_e = X = e$$

9 Gwert 0



$$E(n) = 6 - 5 = 1$$



$$E(n) = 6 - 4 = 2$$

