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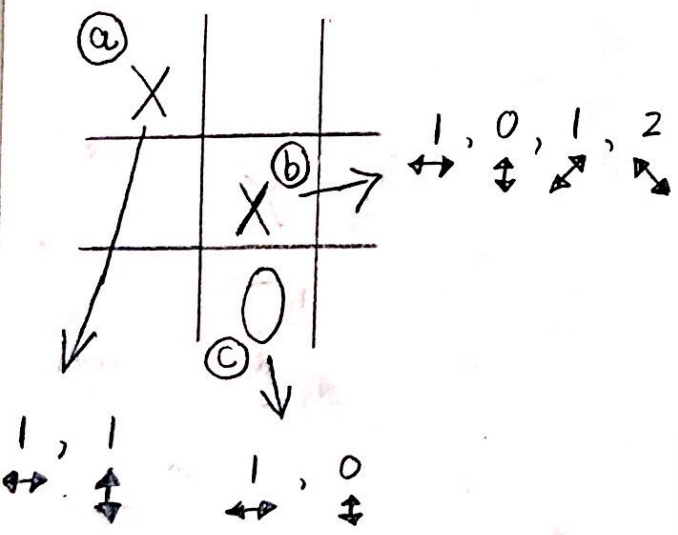
◆ Given a board state with an initial ply

The following game state diagram describes and represents the algorithm to determine the heuristic function of a game state and how does it considers only the states on a particular height of a game tree that leads to the users victory.

I. Calculating total heuristic function of particular game state

- Let the user be 'X' and the opponent (or CPU) be 'O'
- Value of 'X' = 1, value of 'O' = -1, value of empty cell = 0



a) heuristic value = 2
- only one 'X' in same column and row

1 + 1 = 2 //

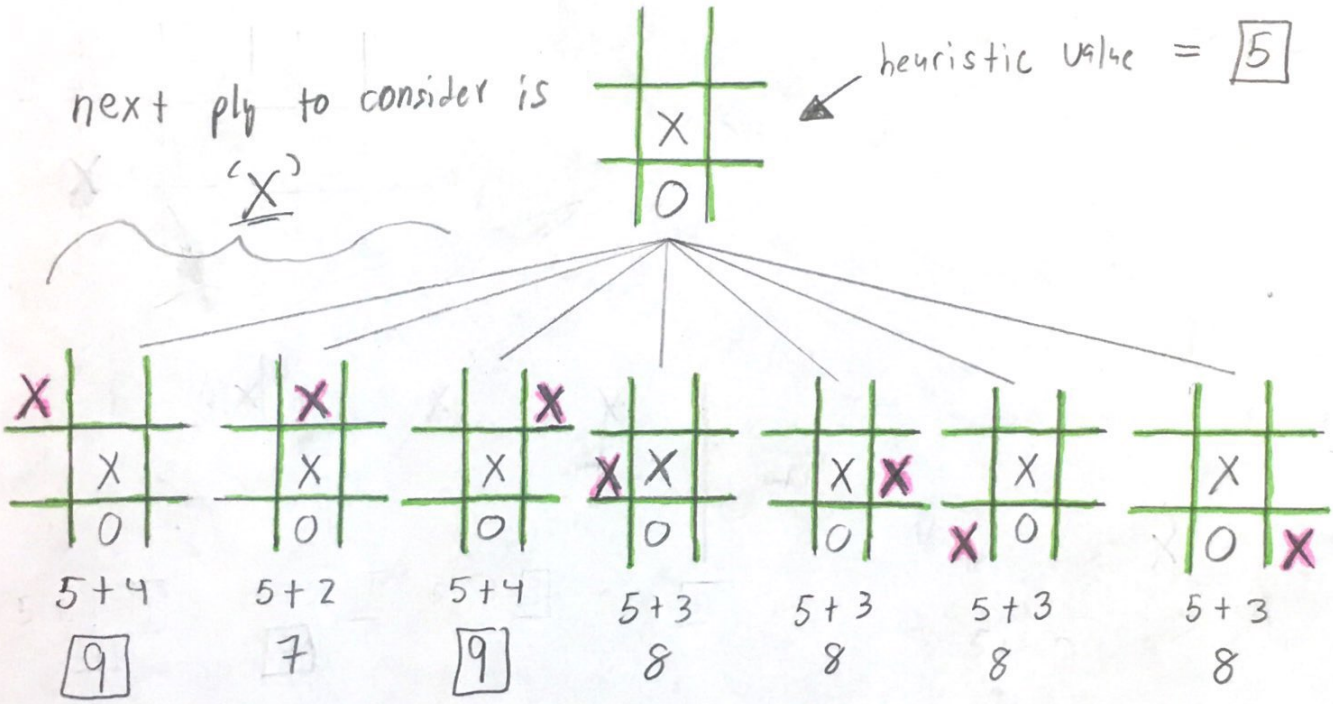
b) heuristic value = 4
- column → 1 + (-1) = 0
- left to right diagonal → 1 + 1 = 2
- right to left diagonal → 1
- row → 1

0 + 2 + 1 + 1 = 4 //

II Game States to consider in particular height of game tree

Considering that the algorithm shall determine a path for the user to win.

- having a list of game states with a particular 'X' ply in different positions in each state.



- The game states that have the maximum heuristic value will be considered in the game path.
- However, when the next ply to consider is 'O', then it will consider the minimum heuristic value.