**The Minimax algorithm for the Tic-tac-toe game**

Let us combine what we have learnt so far about minimax and evaluation function to write a proper Tic-Tac-Toe **AI** (**A**rtificial **I**ntelligence) that plays a perfect game. This AI will consider all possible scenarios and makes the most optimal move.

**Finding the Best Move:**

We shall be introducing a new function called **findBestMove()**. This function evaluates all the available moves using **minimax()** and then returns the best move the maximizer can make. The pseudocode is as follows:

**function** findBestMove(board):

 bestMove = NULL

 **for each** move in board :

 if current move is better than bestMove

 bestMove = current move

 **return** bestMove

**Minimax:**

To check whether or not the current move is better than the best move we take the help of **minimax()** function which will consider all the possible ways the game can go and returns the best value for that move, assuming the opponent also plays optimally
The code for the maximizer and minimizer in the **minimax()** function is similar to **findBestMove()** , the only difference is, instead of returning a move, it will return a value. Here is the pseudocode:

**function** minimax(board, depth, isMaximizingPlayer):

 **if** current board state is a terminal state :

 **return** value of the board

 **if** isMaximizingPlayer :

 bestVal = -INFINITY

 **for each** move in board :

 value = minimax(board, depth+1, false)

 bestVal = max( bestVal, value)

 **return** bestVal

 **else** :

 bestVal = +INFINITY

 **for each** move in board :

 value = minimax(board, depth+1, true)

 bestVal = min( bestVal, value)

 **return** bestVal

**Checking for GameOver state:**

To check whether the game is over and to make sure there are no moves left we use **isMovesLeft()** function. It is a simple straightforward function which checks whether a move is available or not and returns true or false respectively. Pseudocode is as follows:

**function** isMovesLeft(board):

 **for each** cell in board:

 **if** current cell is empty:

 **return** true

 **return** false