



**Why**

Most games are iterative.<sup>1</sup>

**Example: tic-tac-toe**

Consider the game “tic-tac-toe” in which there are two players. Denote the players by  $X$  and  $O$ . The game starts with an empty  $3 \times 3$  array, which the players proceed to “fill.”

Player  $O$  starts and selects a cell in which to “mark her move.” From then on, that cell is “occupied,” Second, it is player  $X$ ’s turn to pick a cell, any one that is not already occupied. The play proceeds until either all cells are occupied or one of the player has three cells in a row, horizontally, vertically, or diagonally.

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<sup>1</sup>Future editions will expand.



