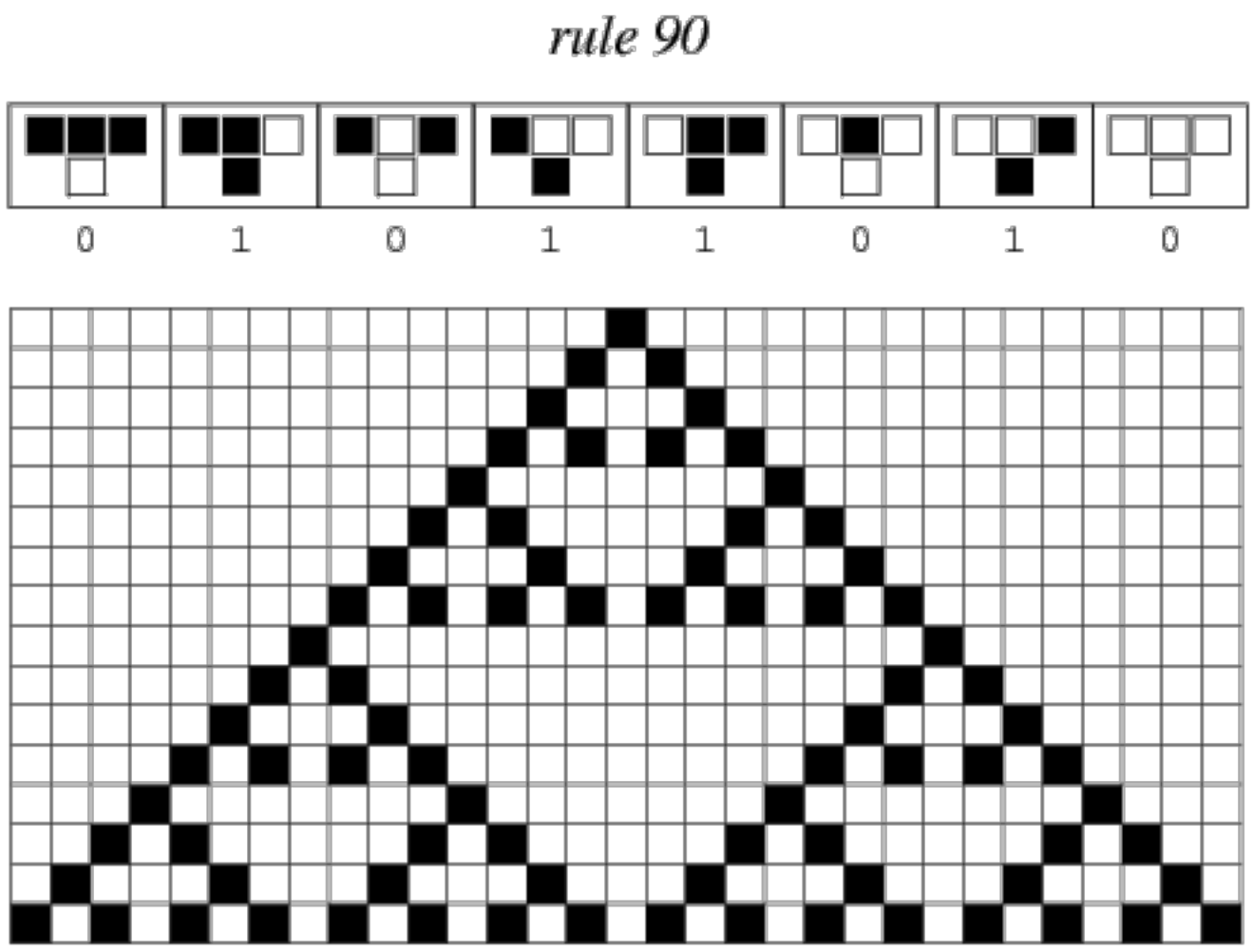
## Wolfram's: Cella 90 Rule Algorithm Analysis

The Cella 90 Rule is like an arithmetic sequence where the color of the current cell is dependant on the previous cells. When looking to color a cell we reference the row right above it and then look to the cells to that would be top/left, top (right above), and top/right. This gives us a 3 digit sequence. If the cell is black we can consider it filled and give it a value of a 1. If it is white we can consider it not filled and give it a value of 0.

If we have value of black, black, black we can consider it to be 111 in binary. Referencing the chart 111 gives us a 0. We can do this for all the cells until stated in the program.




Main Operations: comparing cells
Input size = N, the # of cells in the array.
Pass: an iteration of looking at all the cells and their neighbors in the array.
Complexity: 3n =>O(n)

Solution: loop for the number of generations you are trying to find
Complexity: m, where m is the number of generations you are doing
=>O(m)

Complexity O(n*m) where n is the number of cells in the array and m is the number of generations.