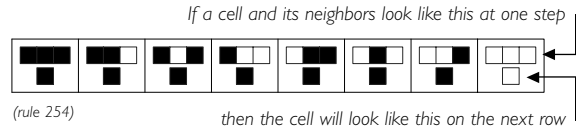


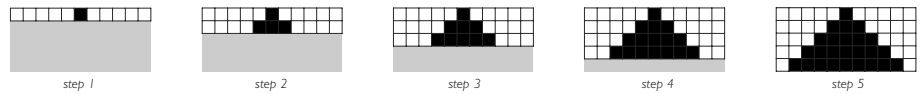
# Cellular Automata and the Mechanisms of Nature

Based on Chapter 2: The Crucial Experiment, from *A New Kind of Science* by Stephen Wolfram

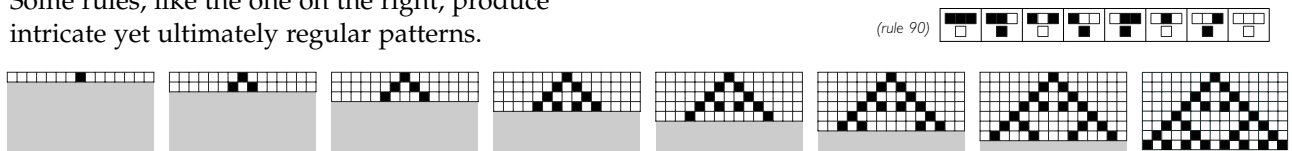
Cellular automata are examples of simple programs, that work by having the color of each cell in successive rows be determined by the same simple rule.



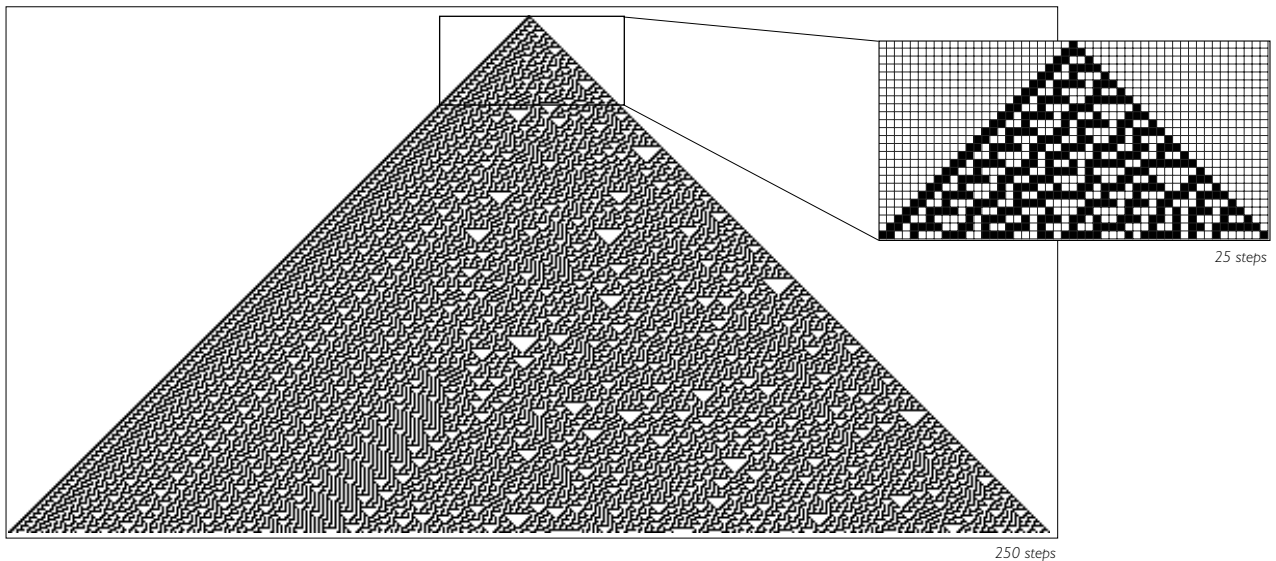
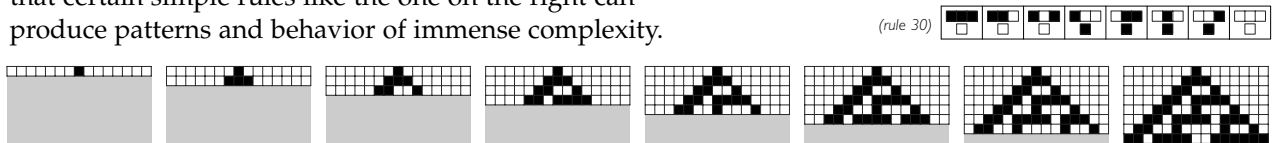
With the rule above, a simple pattern is produced.



Some rules, like the one on the right, produce intricate yet ultimately regular patterns.



One of Wolfram's key discoveries is the surprising fact that certain simple rules like the one on the right can produce patterns and behavior of immense complexity.



*A New Kind of Science* shows how this mechanism is at the heart of all sorts of fundamental phenomena in nature and elsewhere—forcing a rethinking of the foundations of many sciences.



An example of Wolfram's results is that the complex pattern on this mollusc shell may just come from a simple program like a cellular automaton.