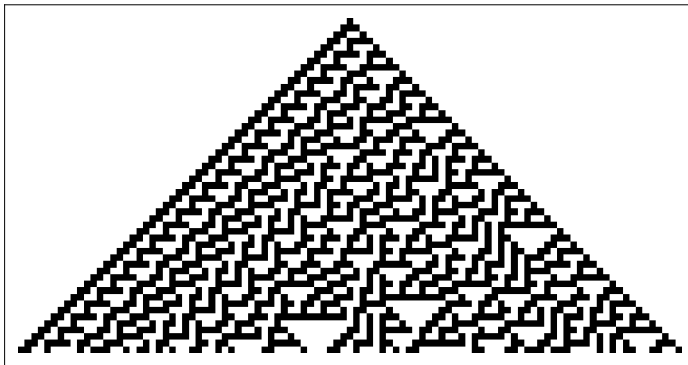

Cellular Automaton Basic examples

```
In[18]:= (*Run rule 30 for 2 steps*)CellularAutomaton[30, {0, 0, 0, 1, 0, 0, 0}, 2]
```

```
Out[18]= {{0, 0, 0, 1, 0, 0, 0}, {0, 0, 1, 1, 1, 0, 0}, {0, 1, 1, 0, 0, 1, 0}}
```

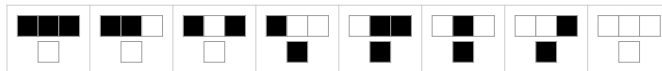
```
In[19]:= (*Run for 50 steps from a single 1 on a background of 0s*)  
ArrayPlot[CellularAutomaton[30, {{1}, 0}, 50]]
```

Out[19]=



```
In[17]:= (*Generate an icon for a cellular automaton rule*)  
RulePlot[CellularAutomaton[30]]
```

Out[17]=



```

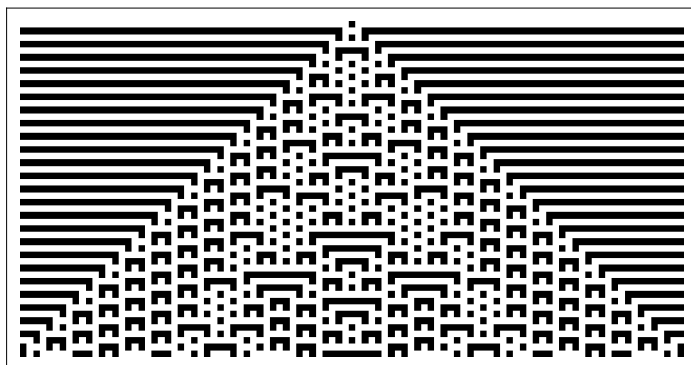
In[20]:= (*Scope:One-Dimensional Rules*)(*Elementary rule 73*)
ArrayPlot[CellularAutomaton[73, {{1}, 0}, 50]]

(*Generate the same result using RulePlot*)
RulePlot[CellularAutomaton[73], ArrayPad[{{1}}, 50, 0], 50]

(*Generate a rule icon*)
RulePlot[CellularAutomaton[73]]

```

Out[20]=



Out[22]=

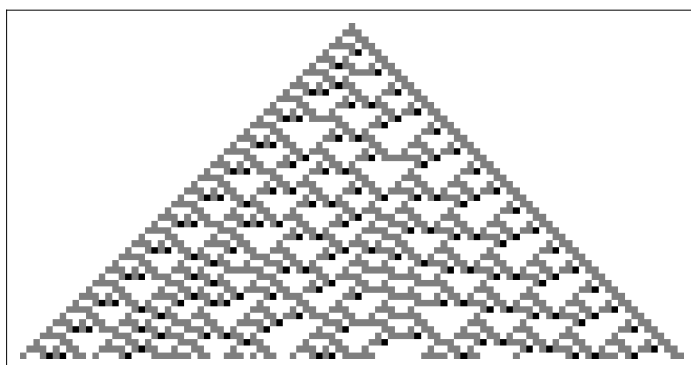


3-color rule 679458:

```

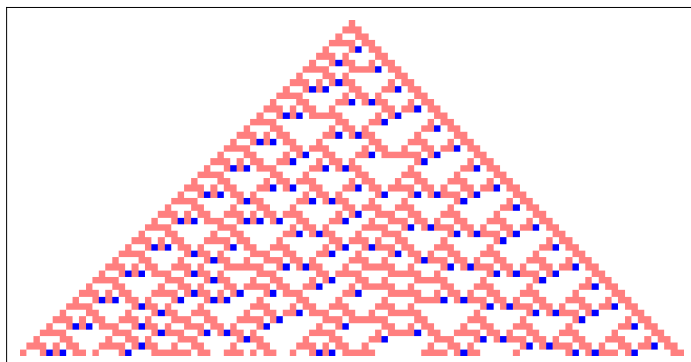
In[23]:= ArrayPlot[CellularAutomaton[{679458, 3}, {{1}, 0}, 50]]
Out[23]=

```



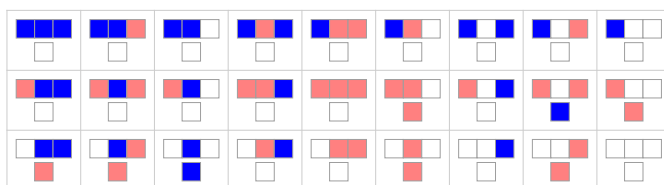
```
In[24]:= ArrayPlot[CellularAutomaton[{679458, 3}, {{1}, 0}, 50],  
  ColorRules -> {1 -> Pink, 2 -> Blue}]
```

Out[24]=



```
In[25]:= RulePlot[CellularAutomaton[{679458, 3}], ColorRules -> {1 -> Pink, 2 -> Blue}]
```

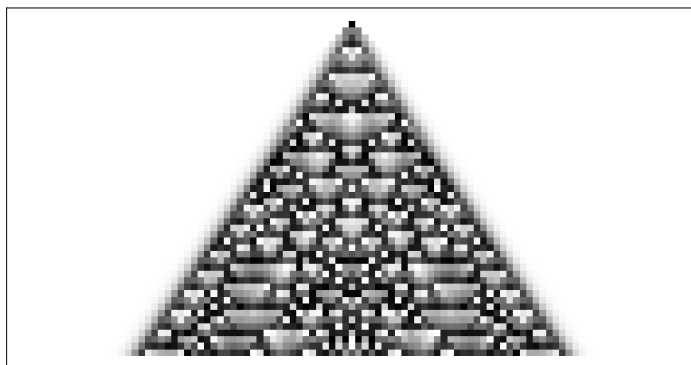
Out[25]=



Use continuous values for cells:

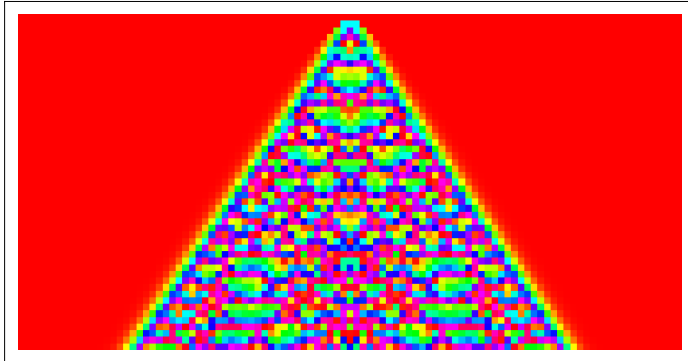
```
In[26]:= ArrayPlot[CellularAutomaton[{Mod[Total[#] / 2, 1] &, {}, 1}, {{1}, 0}, 50]]
```

Out[26]=



```
In[27]:= ArrayPlot[CellularAutomaton[{Mod[Total[#] / 2, 1] &, {}, 1}, {{1}, 0}, 50],  
  ColorFunction -> Hue]
```

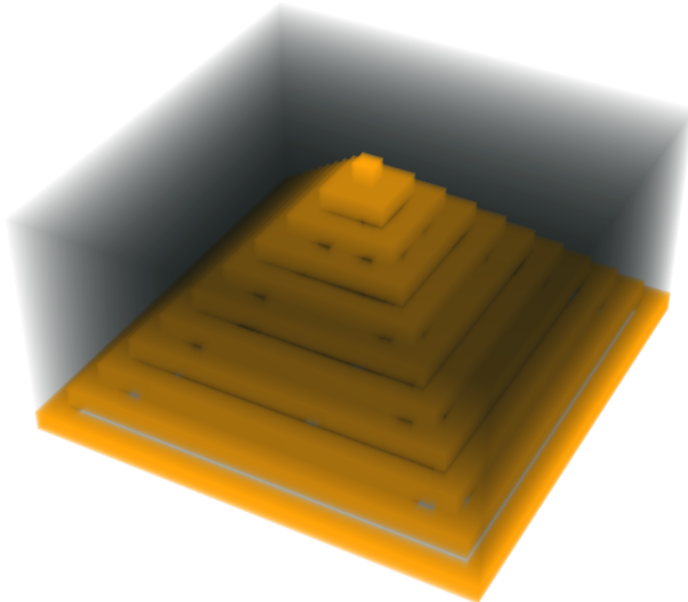
Out[27]=



Show the space-time history as a 3D image:

```
In[28]:= Image3D[CellularAutomaton[{14, {2, 1}, {1, 1}}, {{{1}}}, 0], 10]]
```

Out[28]=



Show a cube at the position of each 1 cell:

```
In[29]:= Graphics3D[  
  Cuboid /@ Position[CellularAutomaton[{14, {2, 1}, {1, 1}}, {{{1}}}, 0], 10], 1],  
  ViewVertical -> {-1, 0, 0}]
```

Out[29]=

