

# Week 3

Lingyan Zhou

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# 1 My Rule of the Universe

Let me explain the rule I create for the universe. Besides alive and dead state, I added three more states. One is growing, one is dying and the other don't-care. Don't-care state is used for borders and walls. A born and stay-alive condition is a predicate on the number of neighboring alive cells. In my current implementation, the one which produced Figure 2a, the born condition is that the 8-connected neighbors have 2 or 3 alive cells. and the stay-alive condition is that the 8-connected neighbors have 2, 3 or 4 alive cells. The rule set has 7 rules:

1. If any born condition is met, a dead cell becomes alive.
2. If any born condition is met, a growing cell becomes alive.
3. If none born condition is met, a growing cell becomes dying.
4. If none stay-alive condition is met, an alive becomes dying.
5. If any stay-alive condition is met, an alive stays alive.
6. If any stay-alive condition is met, a dying cell becomes growing.
7. Otherwise, it will be dead.

The ruleset is illustrated in Figure 1.

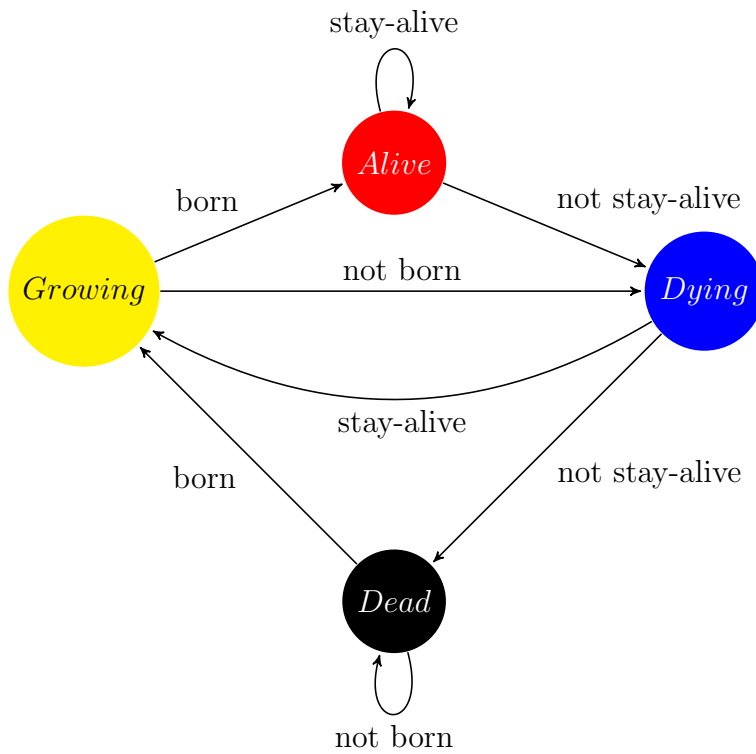


Figure 1: State transition of ruleset 2

## 2 Screenshot



(a) Stabilized universe on ruleset 2

Figure 2: Stabilized universe