

# Game of life

By Unity Machines

Cells Types:

1. Black - normal alive cells, that can ascend or can be intoxicated;
2. Green - toxic cells, that can intoxicate the black cells;
3. Blue - cells with immunity;

The zones implemented:

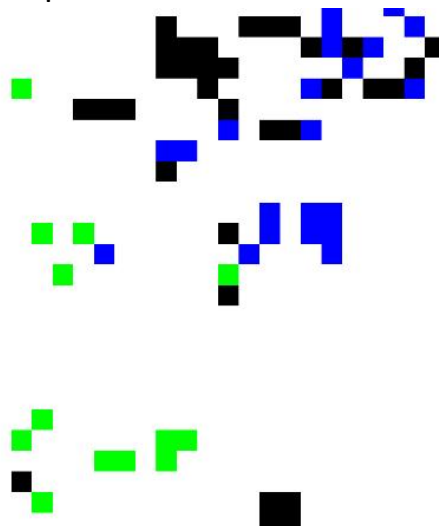
- The Toxic Zone - a zone in which boundaries are generated just toxic (green) cells. Each 3<sup>rd</sup> generation 50% of the population in the zone dies.
- The Divine Zone - a zone in where all dead (white) cells come to life (become black).

New Rules:

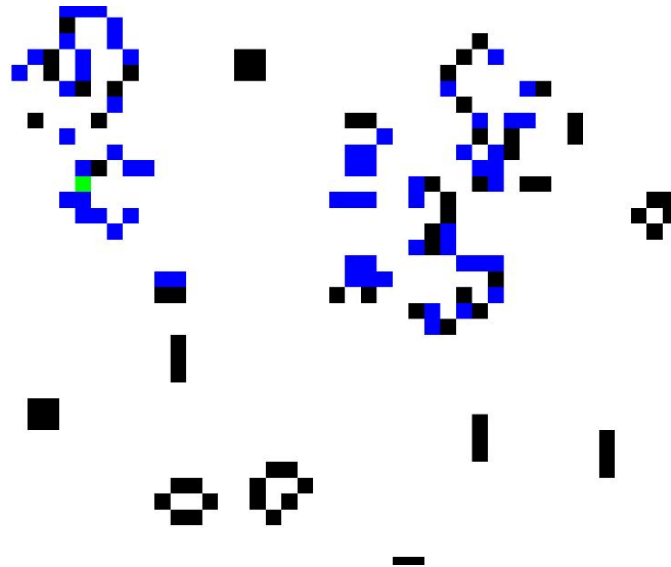
- The Ascension: A black cell surrounded by 2 blue cells, gains immunity and becomes blue;
- The Quarantine: A black cell with more blue neighbors than green remains the same , otherwise it becomes green.
- The Fallen Angel: A blue cell surrounded by 2 green cells loses immunity and becomes black.

## Observations and analysis:

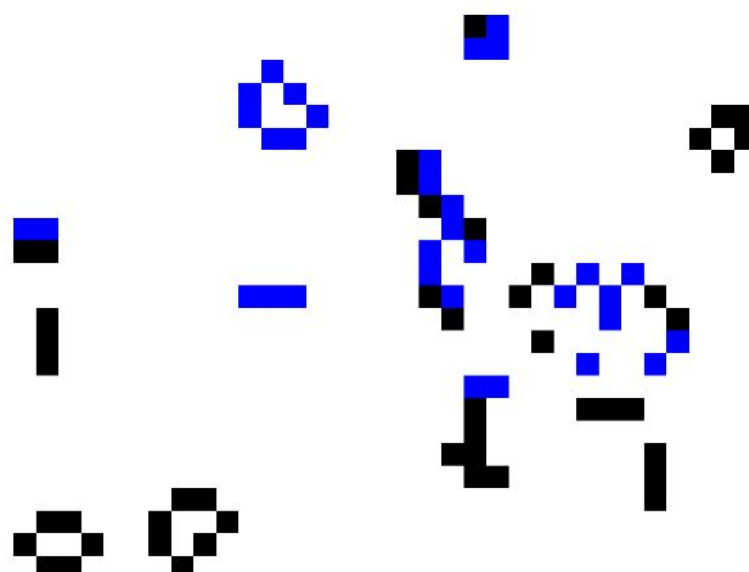
The green and blue cells are generated in the zones just ones, at the start of the simulation. During the first generations they are starting to spread and their numbers are almost equal.



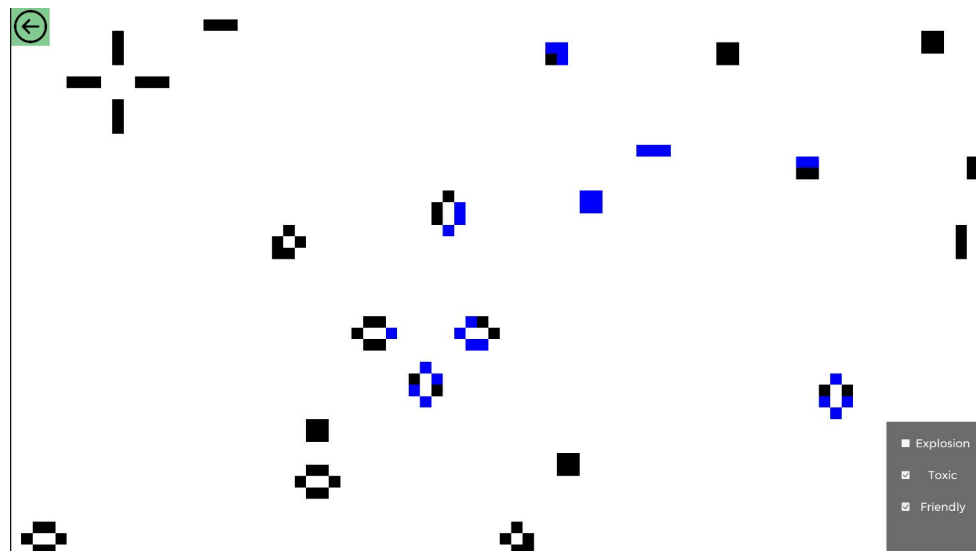
But, taking in consideration the fact that half of the green cells are killed each 3<sup>rd</sup> generation, the toxic cells don't have enough time to get out of the zone and infect the living cells. With each generation, green cells are less and less, until they completely disappear.



The blue cells are continuing to spread each generation, because without the green cells just "The Ascension" rule is valid. But, with each generation, more black cells die, from the standard rules of "Game of life", and there are no more room for the blue cells.



After some generations, the majority of cells die, and survive just the ones that have enough neighbors, so they can stay the same or die and resurrect in a loop. During the test simulation, a third of the living cells were blue, and not even one of them was green.



We can conclude that because of the genocide of the green zone each 3<sup>rd</sup> generation, the green cells do not have a chance to survive for more that 10 generations. The blue cells, on the other hand, do not have any obstacles and can reproduce, until there are enough black cells near. The behavior of the black cells, is mostly changed by “The Ascending Rule”, so some of the black cells become blue. “The Quarantine” rule is functioning in the first generations, when there are still a lot of green cells. Otherwise the black cells are behaving by the 4 native rules of the “Game of Life”.