16-10-2018

In this first report we are going to summarize the code rules, in future reports we are going to have a better explanation of how does the code works.

In the code we have 3 kinds of classes, the colonies, the grid, and the worm; they all work and interact together in the lattices.

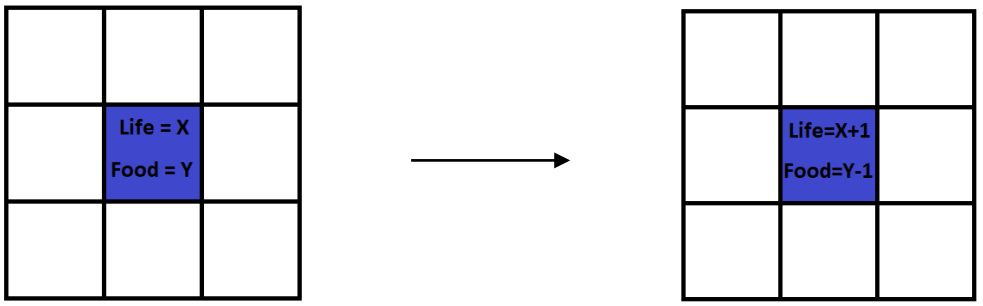
The grid is the space where everything interacts. In the squares of the grid we are going to have colonies or a worm, the functions of these guys will be seen later.

The colonies have a counter, this counter represents the state of the colony, is like a life measure. This colonies can eat (making the life counter increase) and they can die (if they have their life counter in 1 and there is no food), they can divide making a new colony in a neighbor site, and they can go through a sandpile process (if they have their life counter in 8). The colonies can also send a signal, this won't be explained in this report because for now It does nothing else than calculate the diffusion of the signal, in the future this signal will interact with other colonies in a positive feedback way, and it will also interact with the worm in an smelling/chemotaxis (of the worm) way.

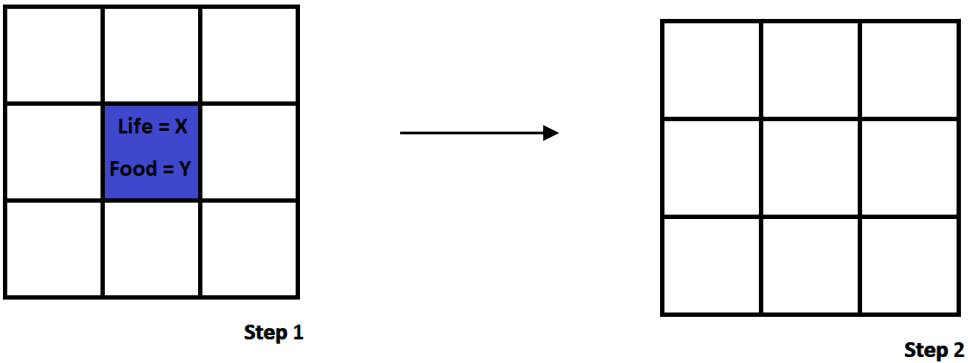
The worm can move to a place with nothing inside (in the principal grid, the one called "grid" in the code) and they can eat colonies (the whole colony for now).

Colonies Rules:

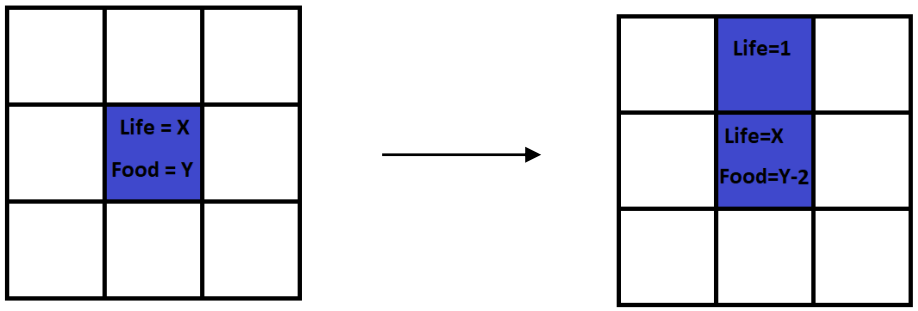
-Eat: If there is enough food in the position of the colony, it will eat, getting a +1 in its life counter and a -1 in the food at the colony position.



-Die: If the life counter of the colony is 1 and there is no food, the colony will be removed from the grid.

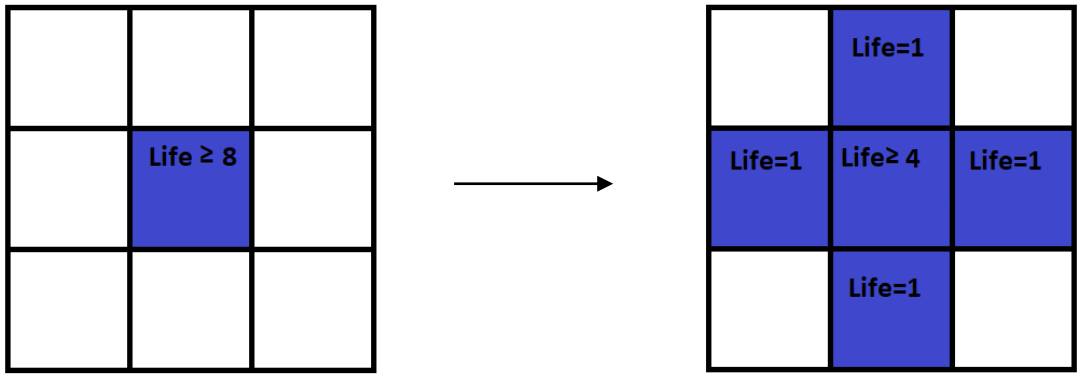


-Division: If there is enough food and a probability is achieved, the colony will randomly divide into a new colony (of the same color) in a neighbor's position with a cero in the grid.



Step 1 Step 2

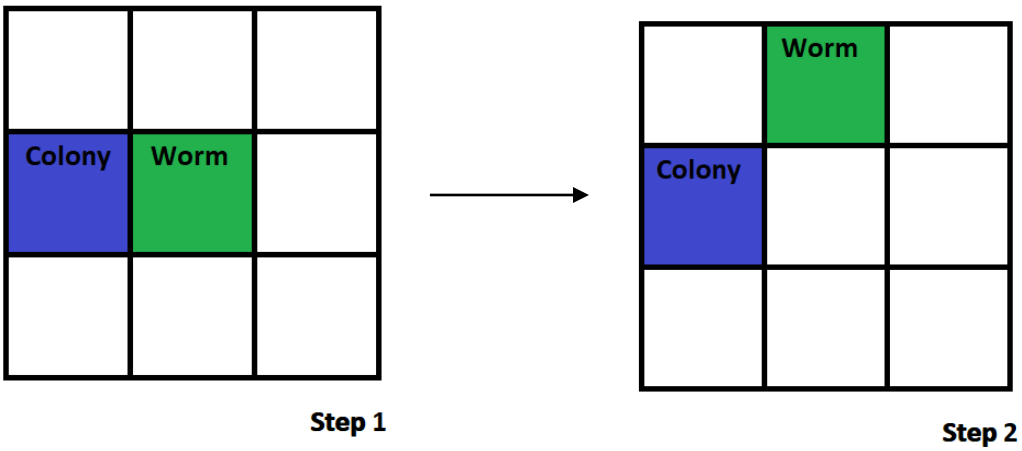
-Sandpile: If the life counter of a colony get to at least 8, it will be able to go through this process, where the big colony "disperse" into 4 new ones, letting 1 life counter for each neighbor and 4 for the original colony. (For now, if the colony is surrounded by different kind of colonies, it will still raise the other colonies counter)



Step 1 Step 2

Worm Rules:

-Move: The worm can move to a place with a cero in the principal grid.



-Eat: When the worm has one or more colonies in its neighborhood, it will randomly choose one to eat it (for now is the whole colony, no matter the life counter of it)