

Wave function collapse algorithm

# Quantum State

*Wave function,  $\Psi$*

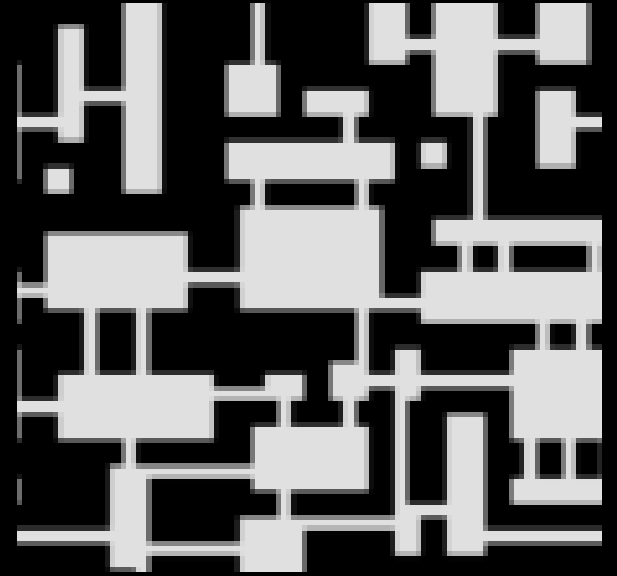
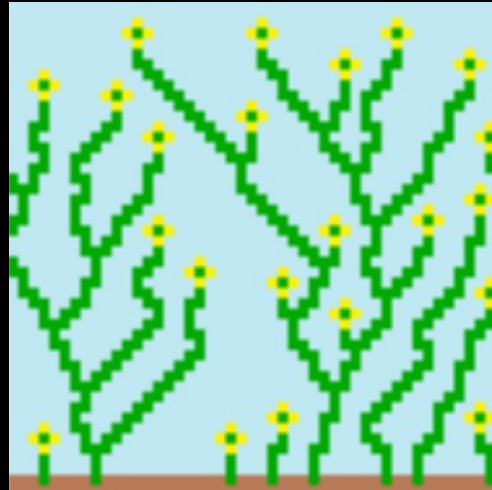
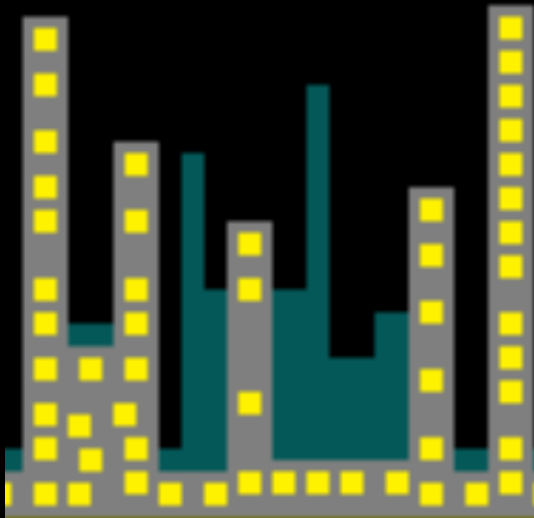
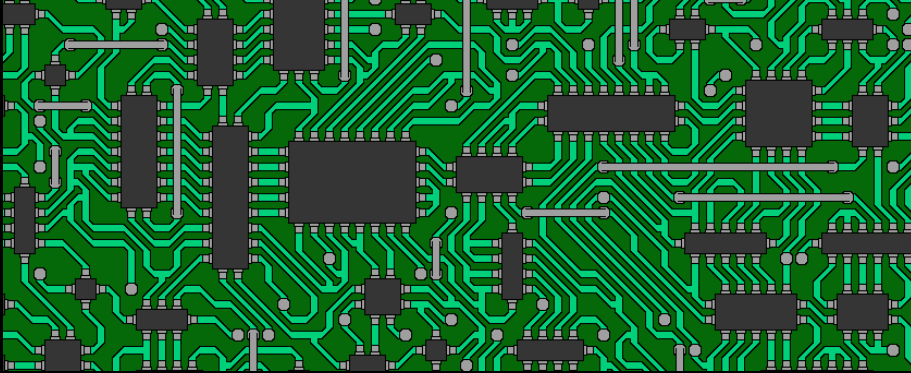
$$\hat{H}\Psi(\mathbf{r}, t) = i\hbar\frac{\partial}{\partial t}\Psi(\mathbf{r}, t)$$

Quantum  
State

Wave function,  $\Psi$

$$\hat{H}\Psi(\mathbf{r}, t) = i\hbar\frac{\partial}{\partial t}\Psi(\mathbf{r}, t)$$

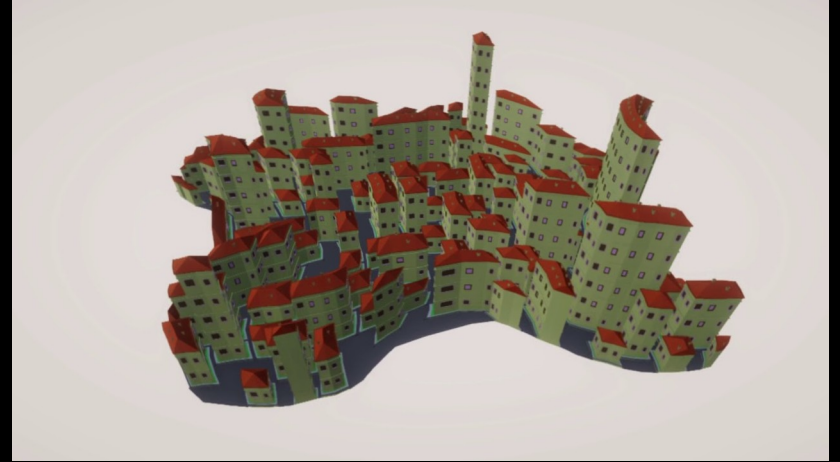
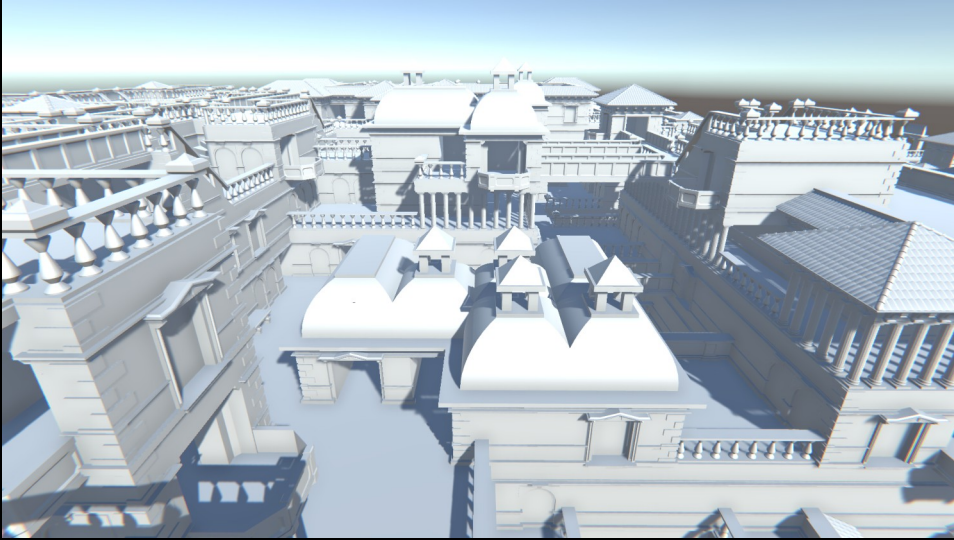
# Introduction



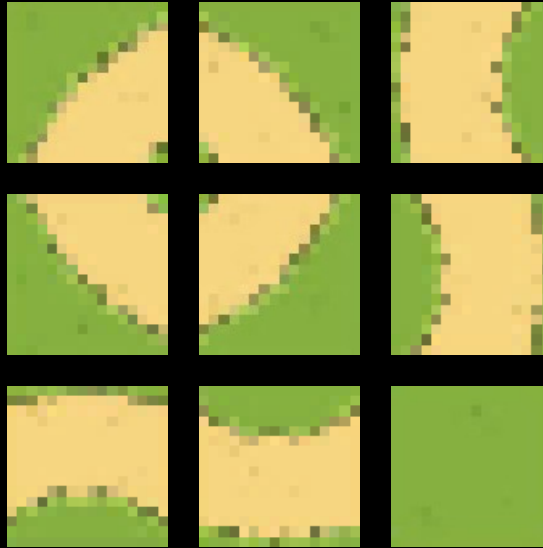
# Introduction

<https://github.com/mxgmn/WaveFunctionCollapse>

# Introduction



How it works?



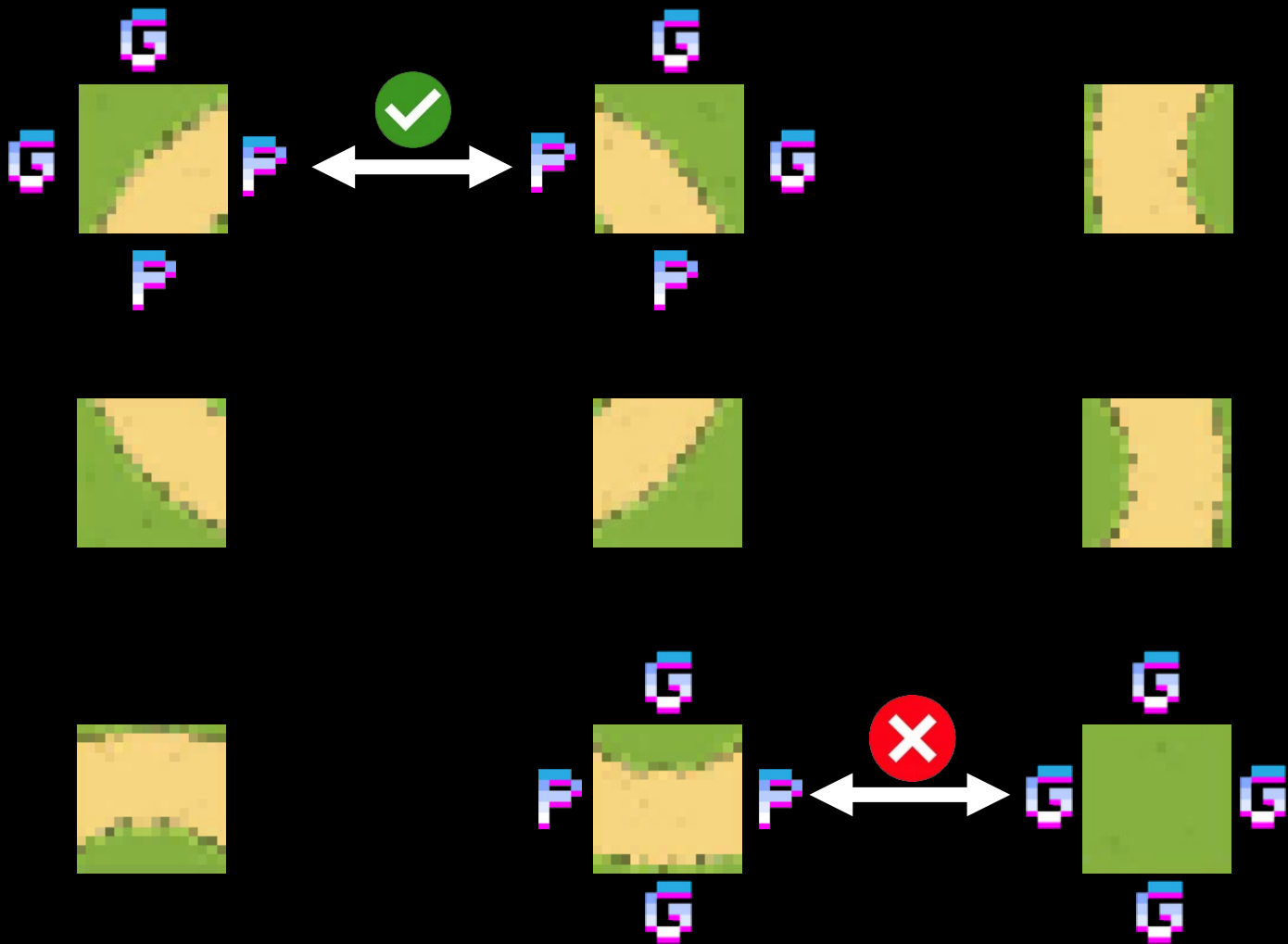
How it works?



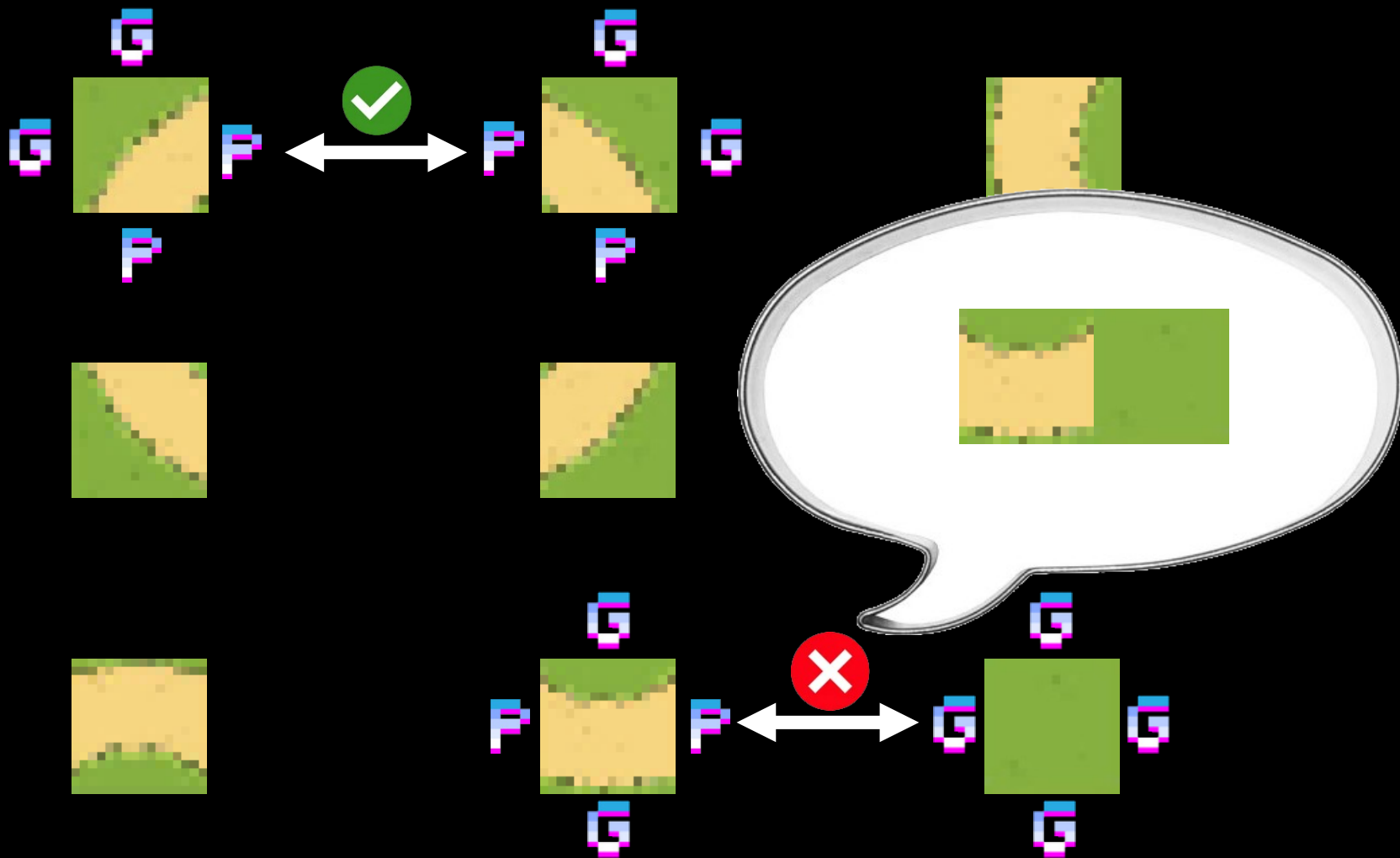




How it works?

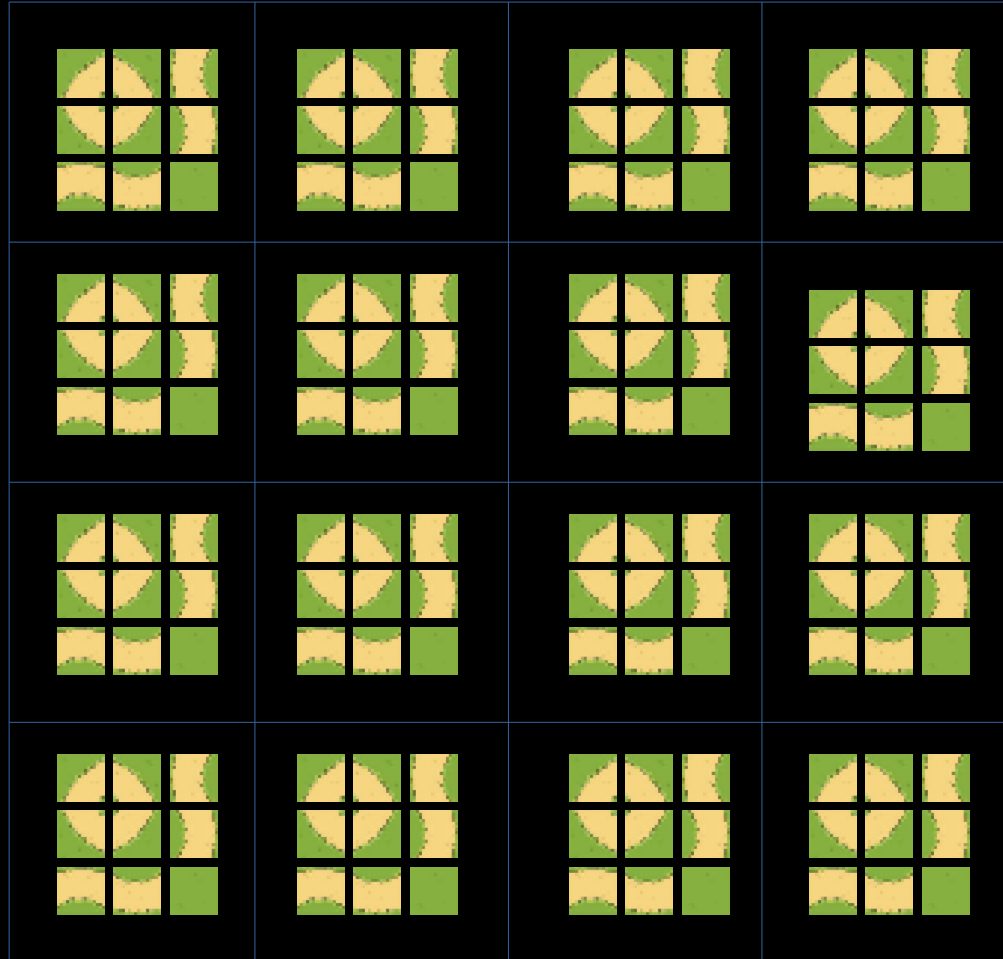


How it works?



## How it works?

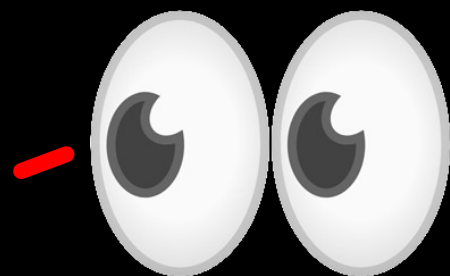
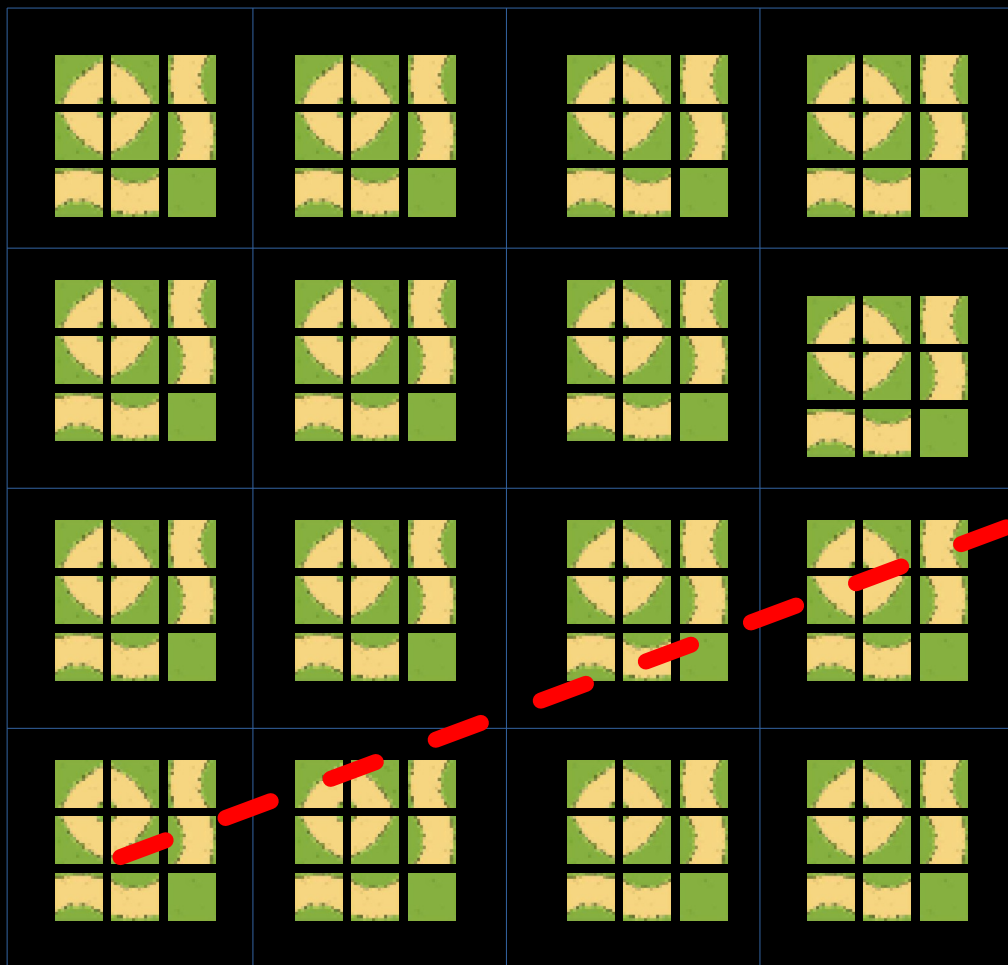

How it works?



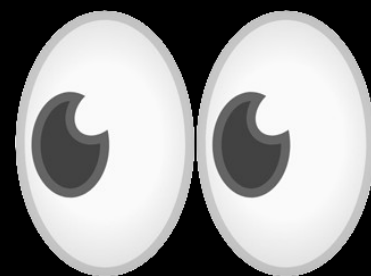
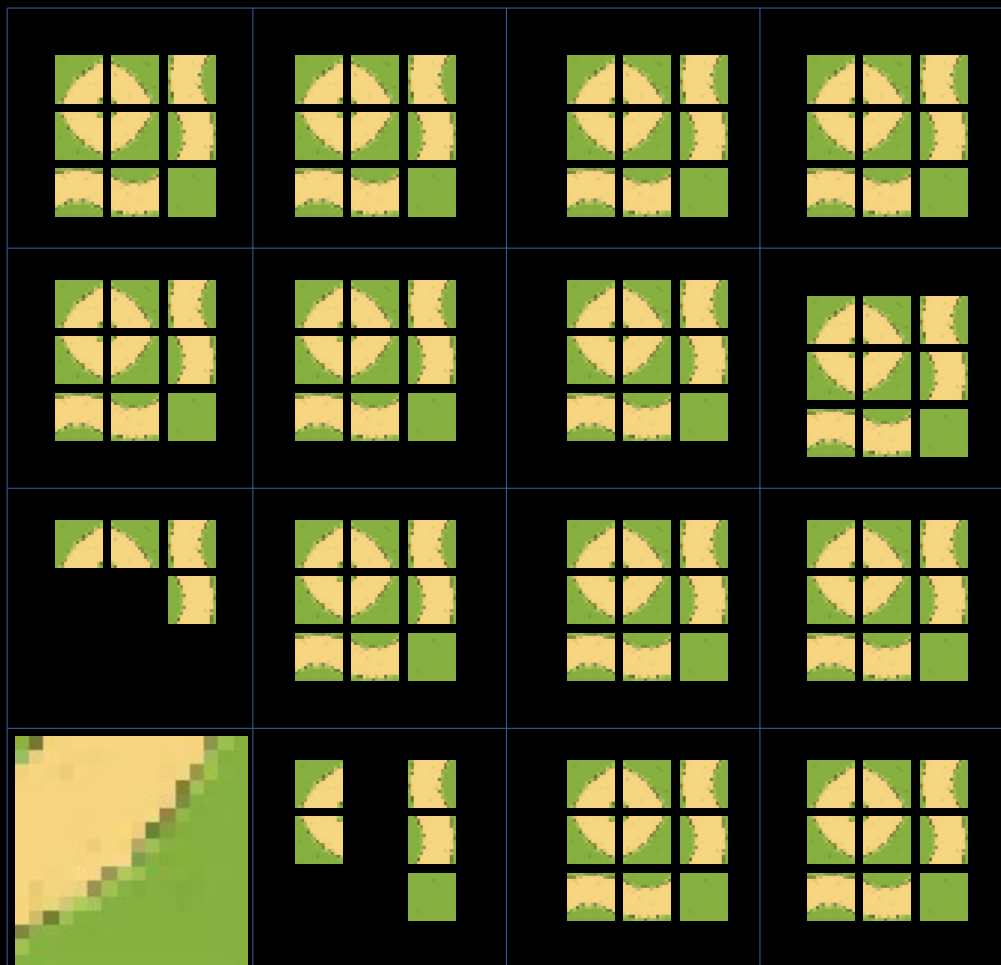
How it works?



How it works?

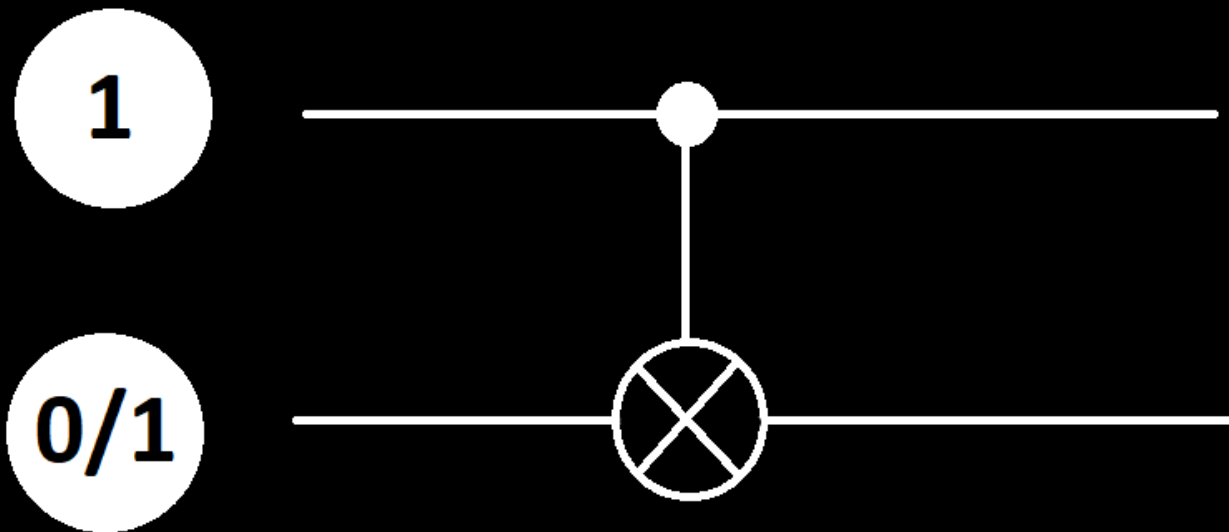


How it works?

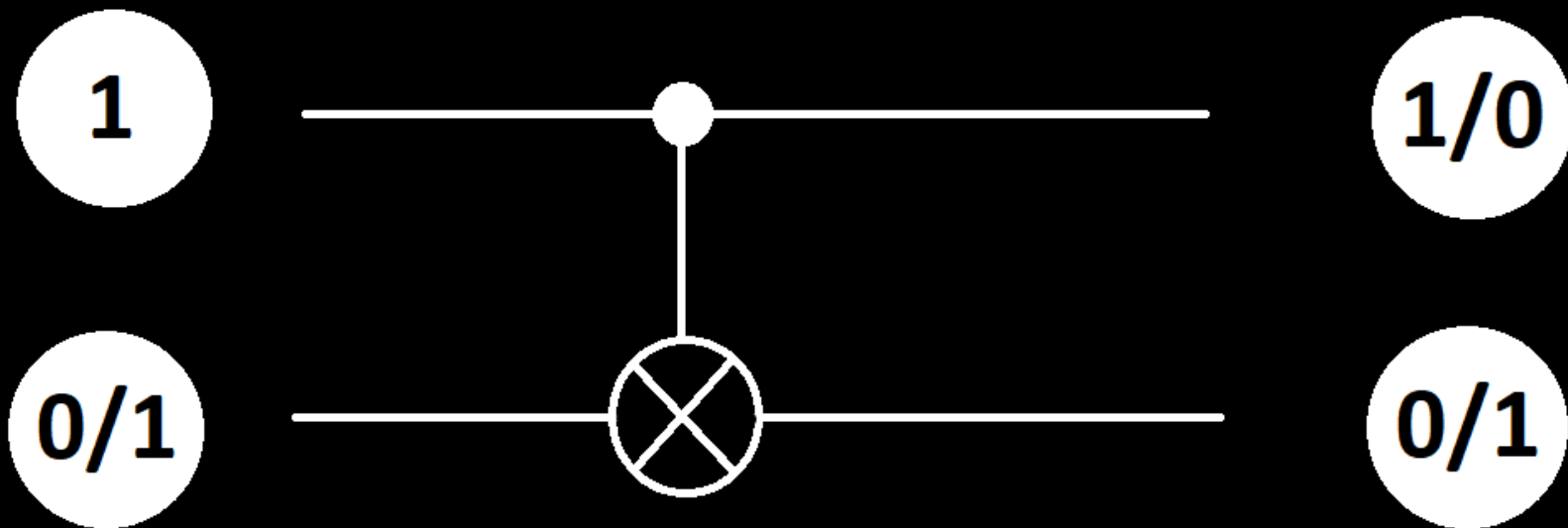




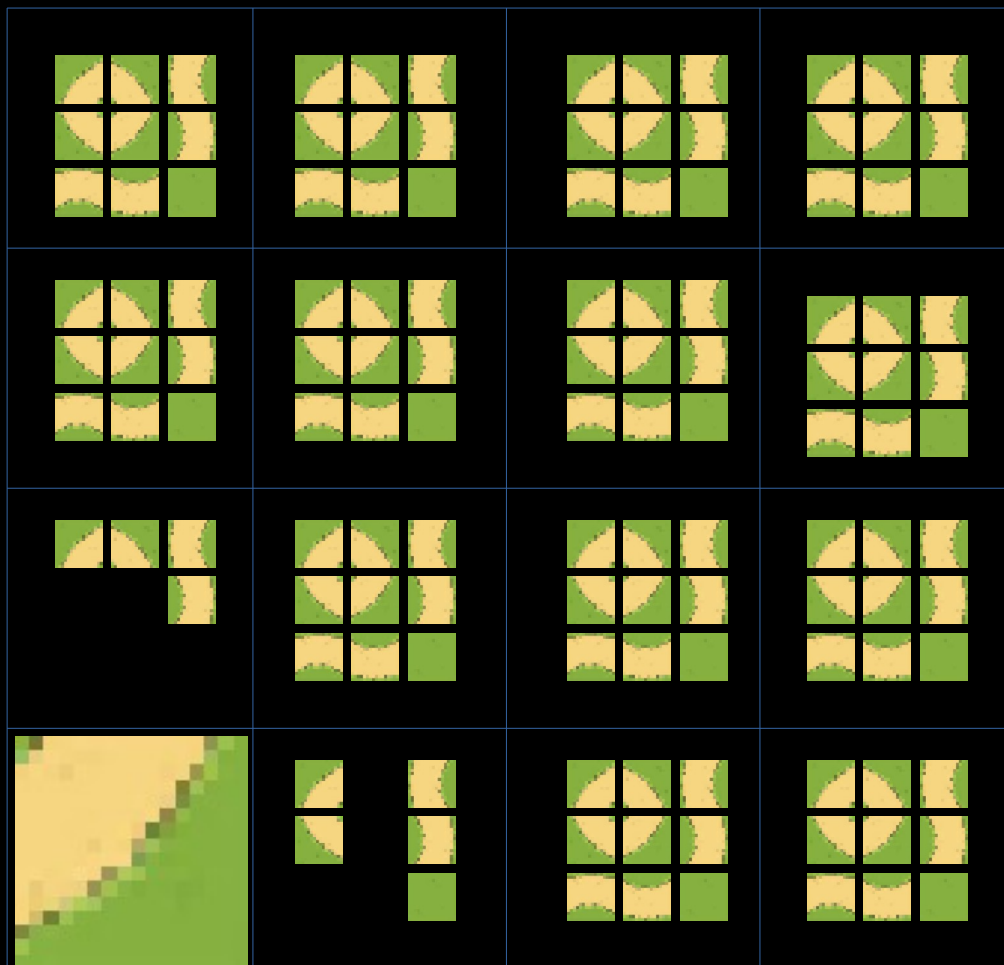
How it works?



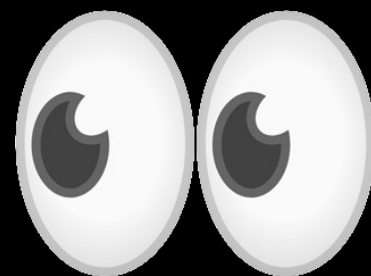
How it works?



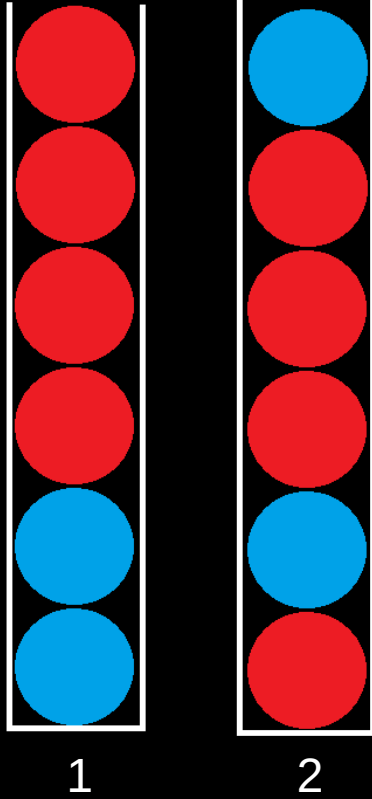
How it works?



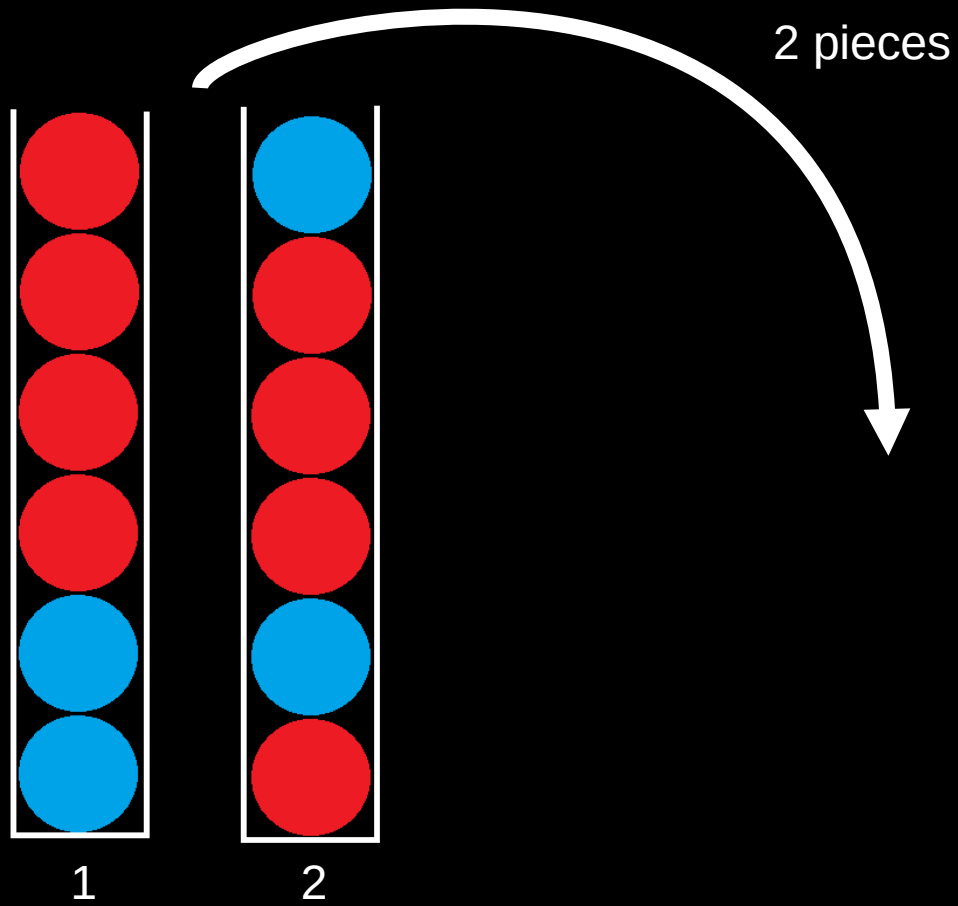
?



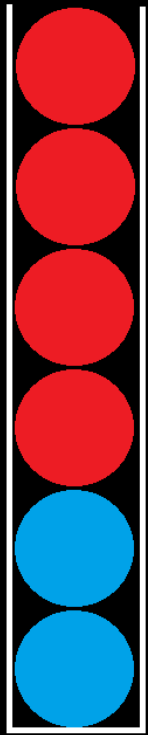
How it works?



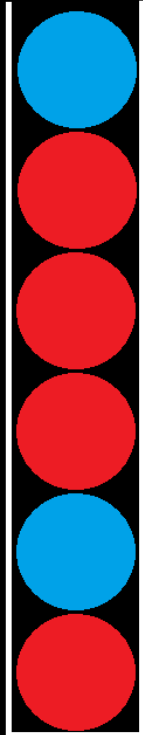
How it works?



How it works?



1



2

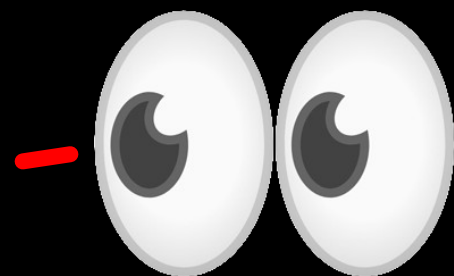
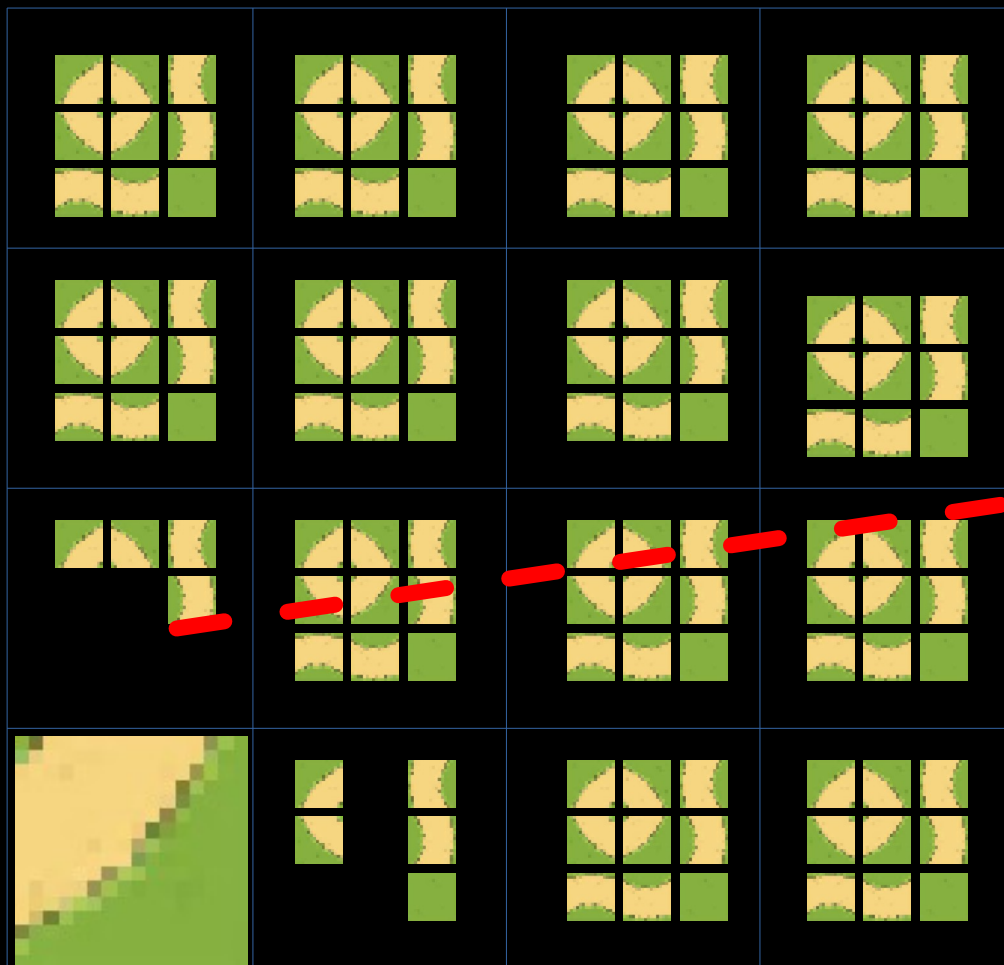


1



2

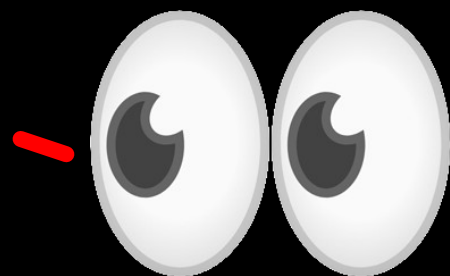
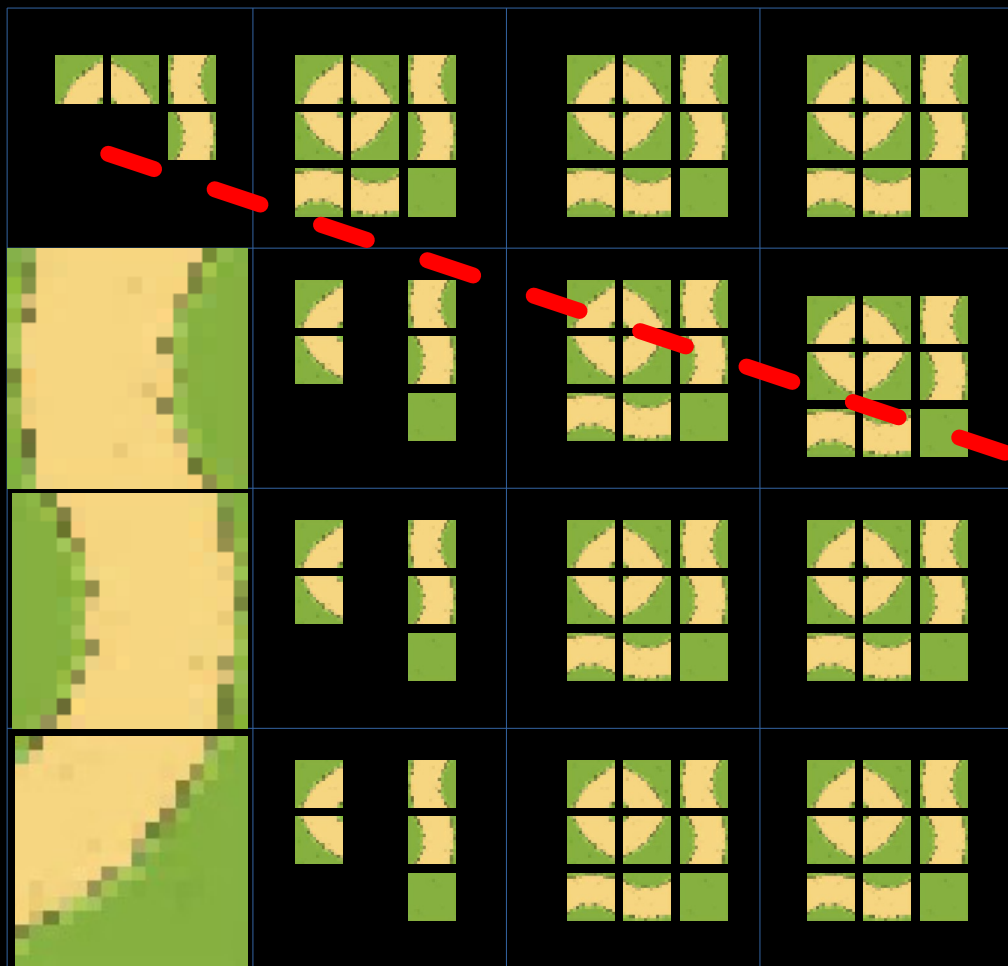
How it works?



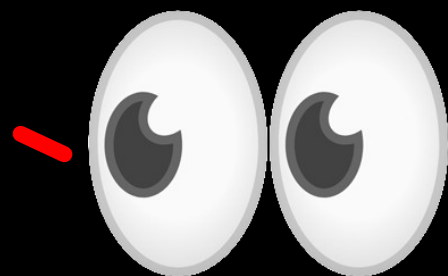
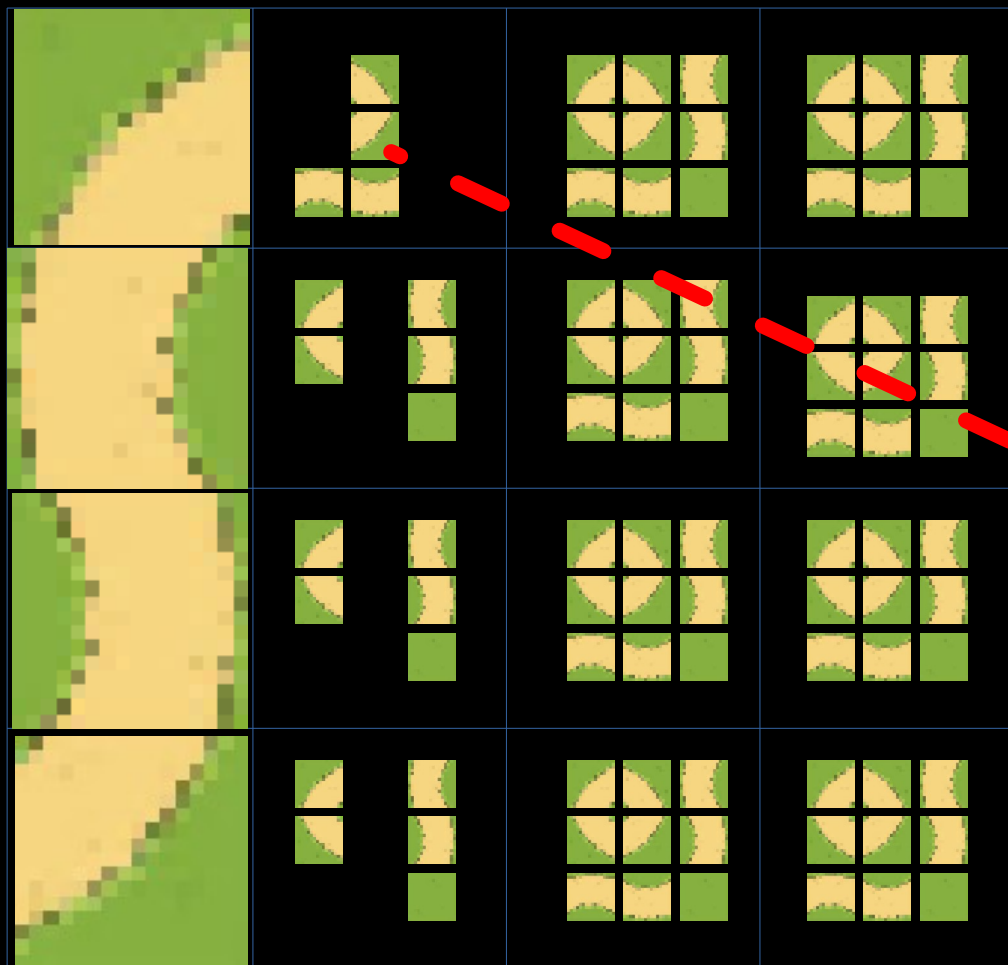




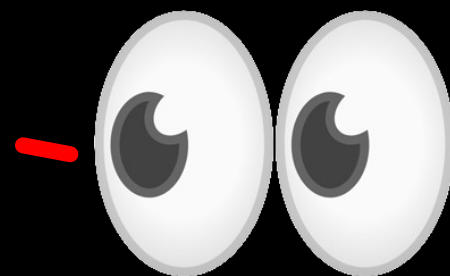
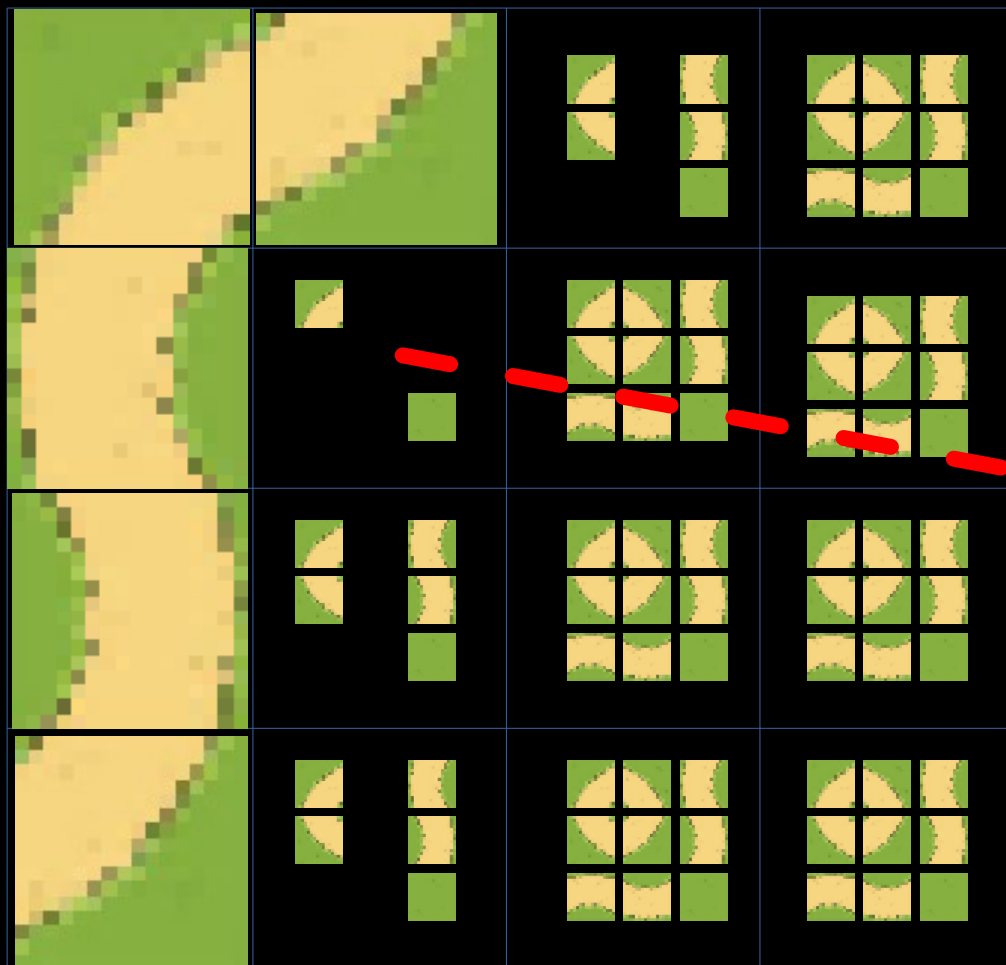
How it works?



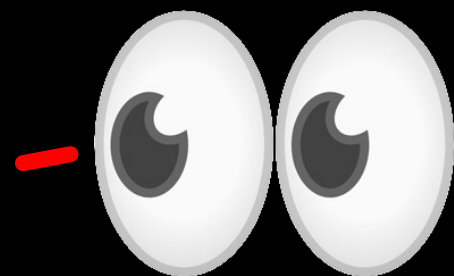
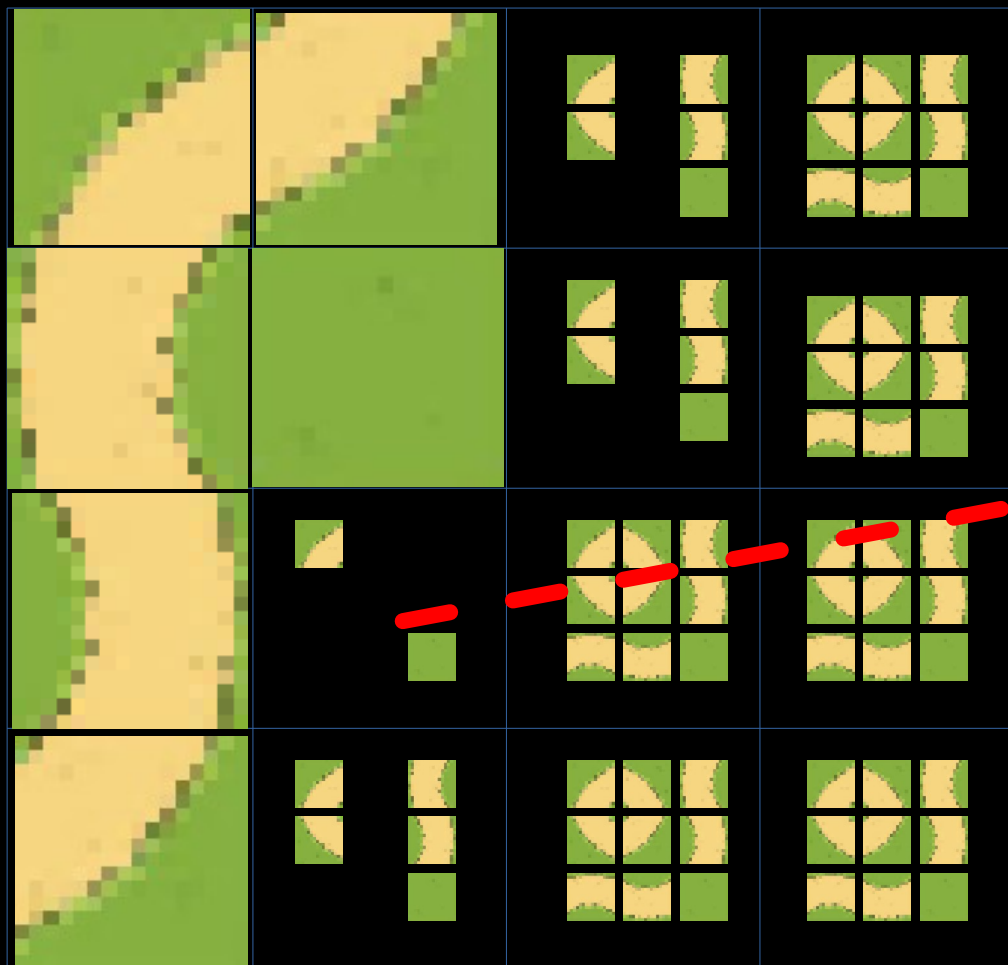
How it works?



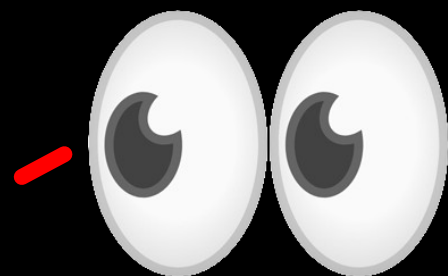
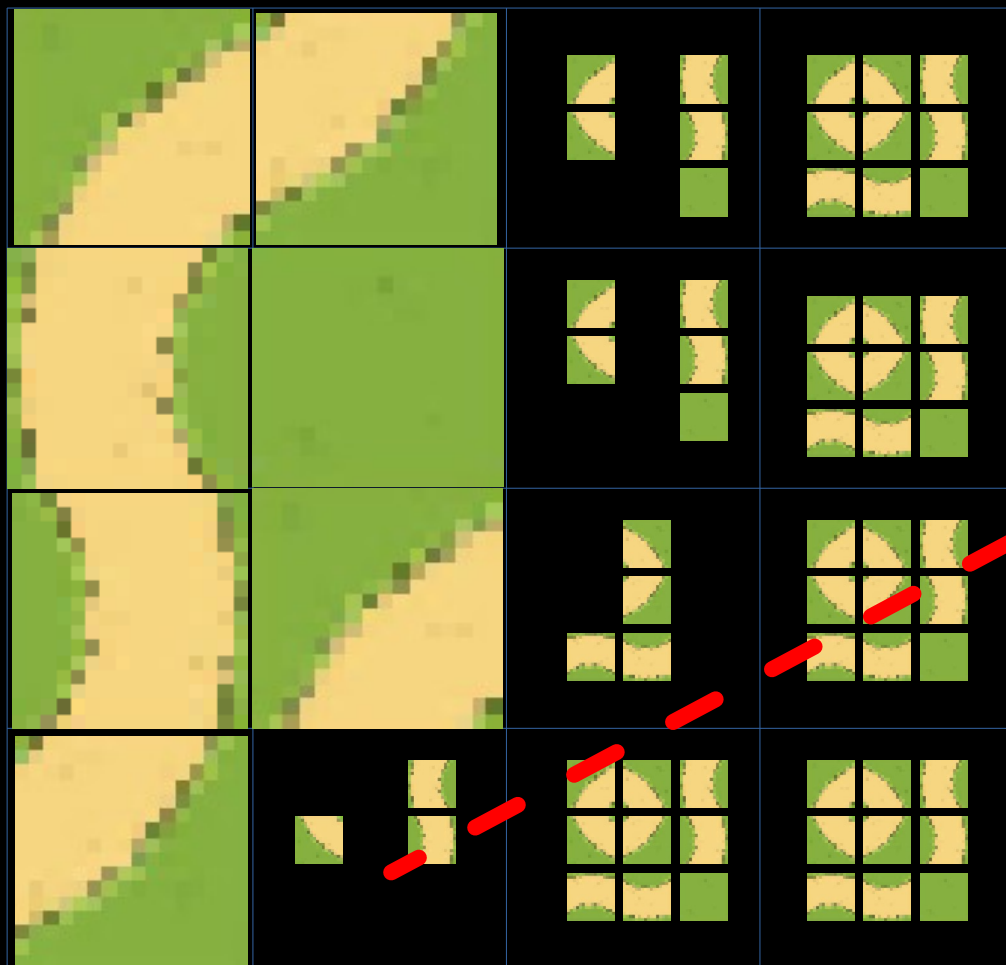
How it works?



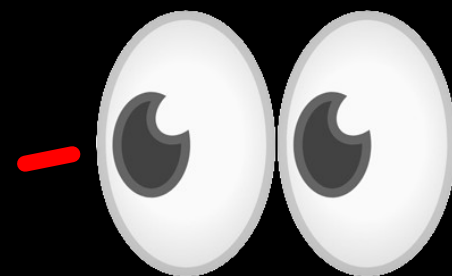
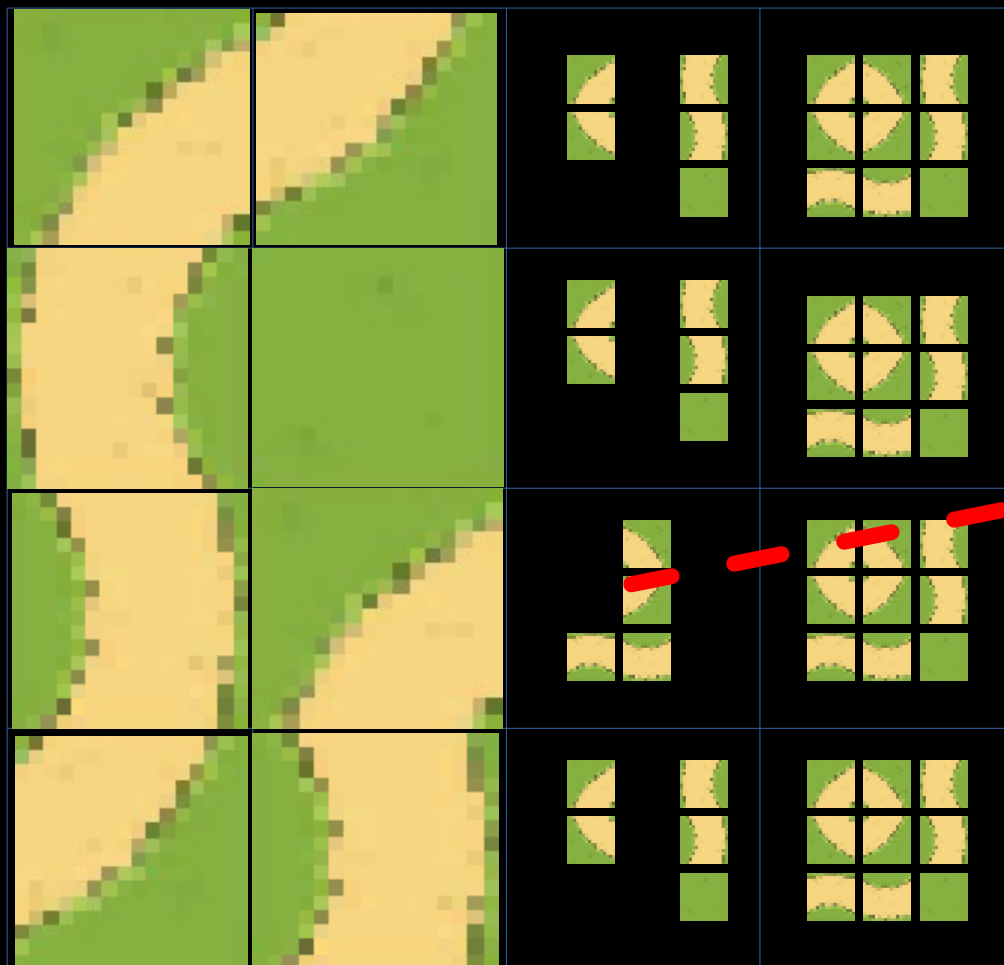
How it works?



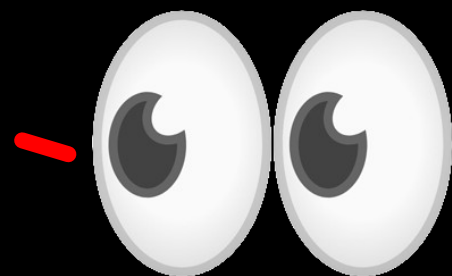
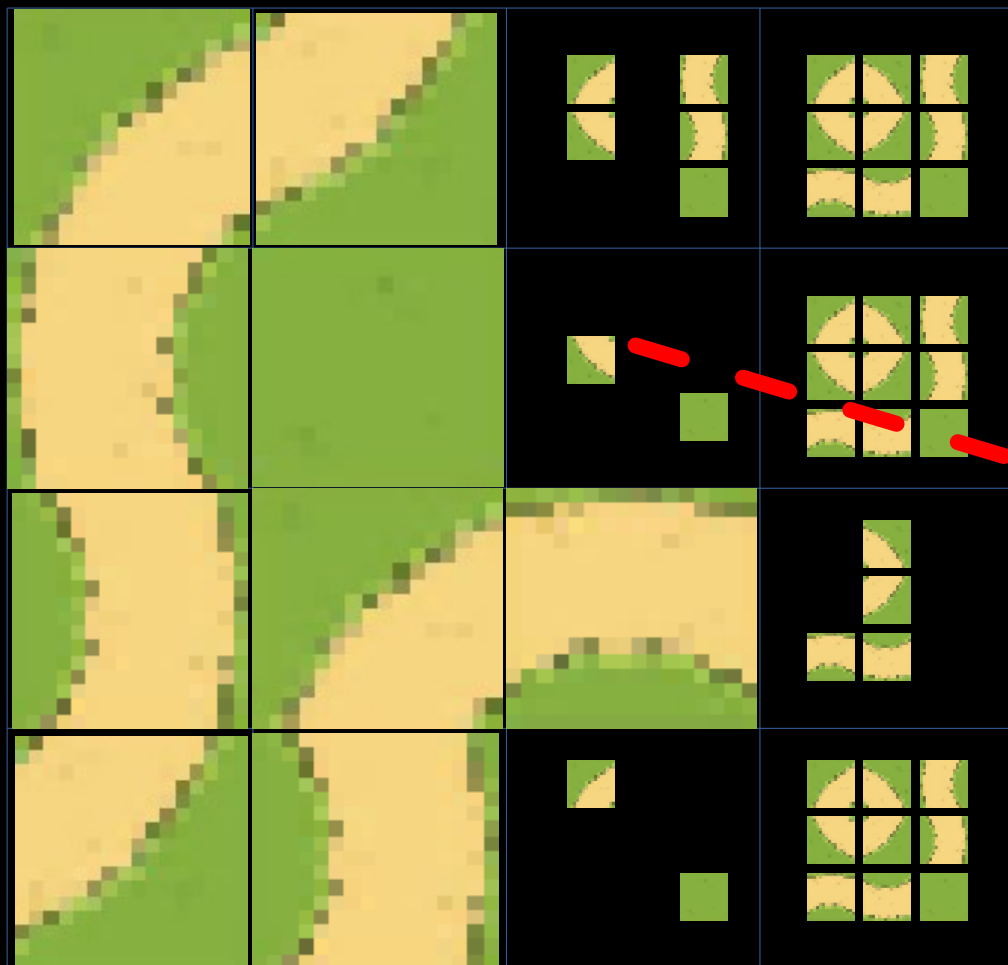
How it works?



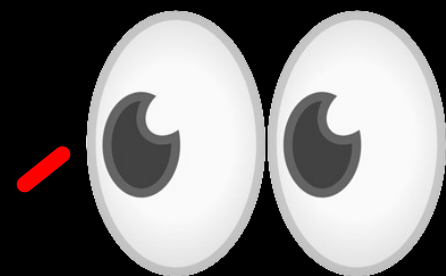
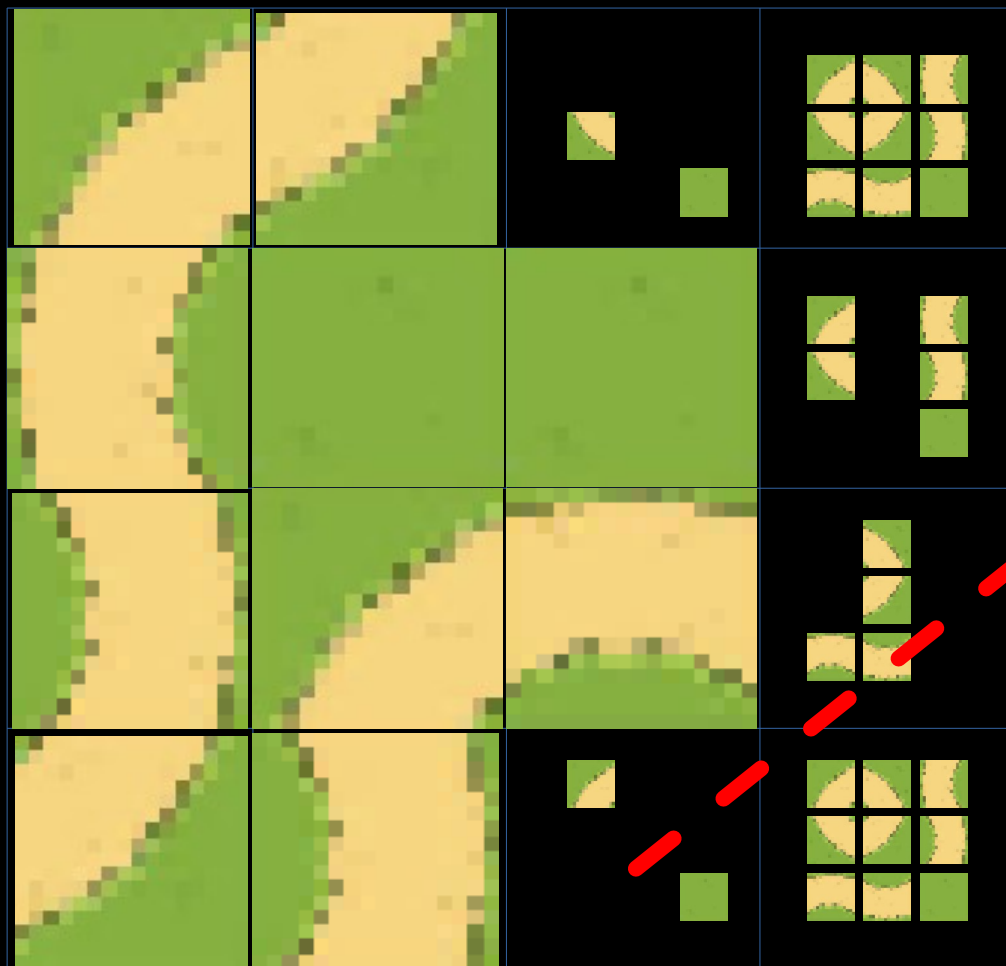
How it works?



How it works?

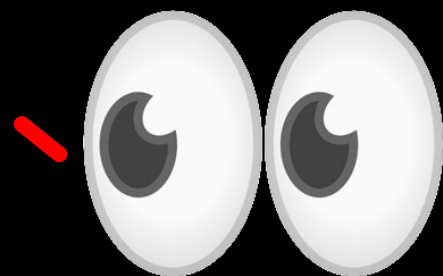
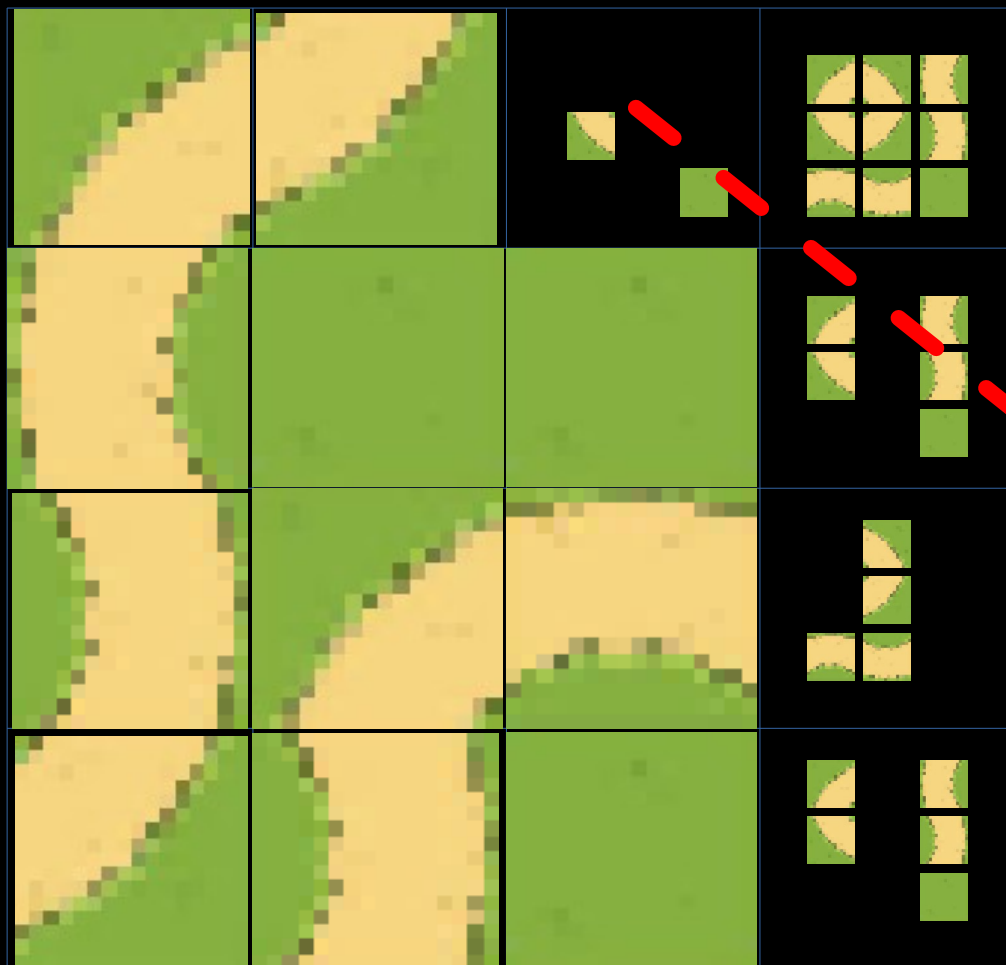


How it works?

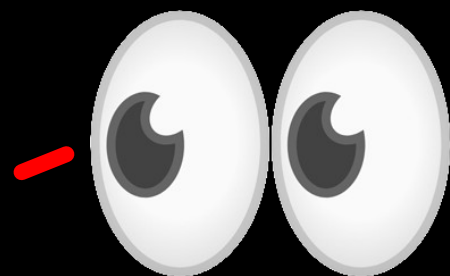
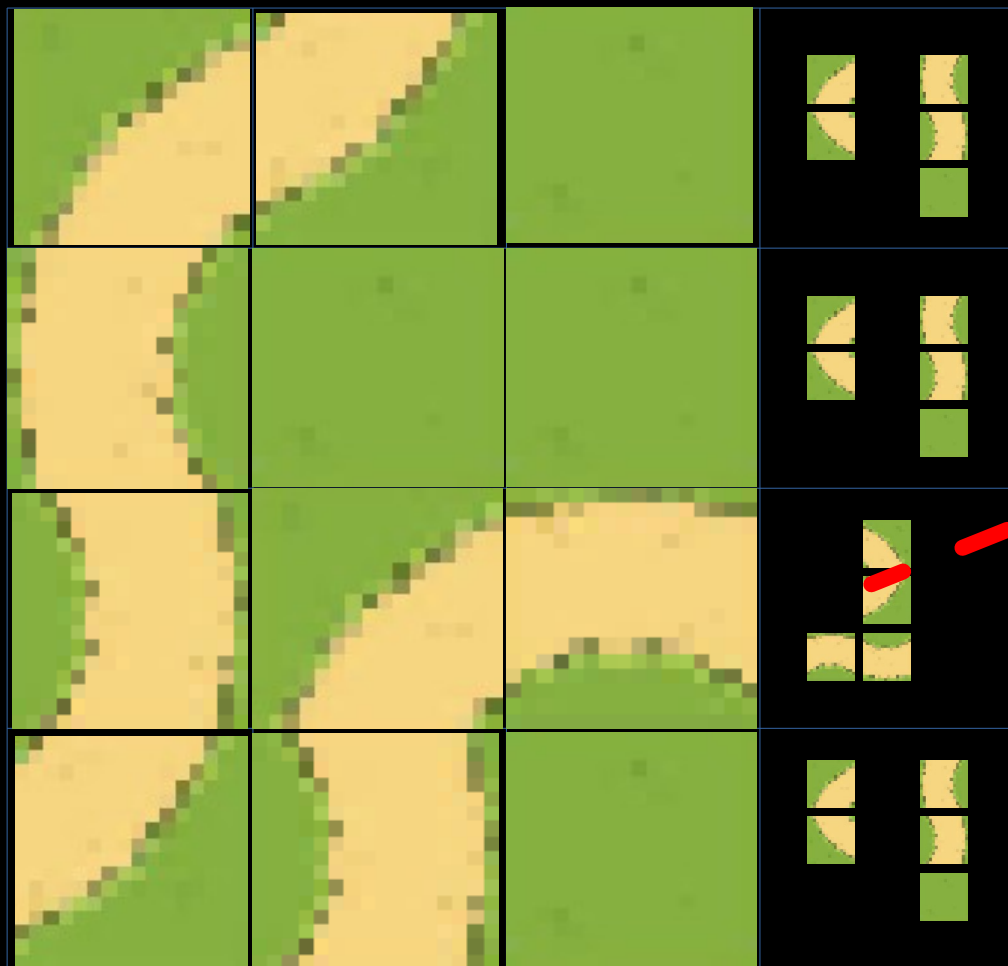




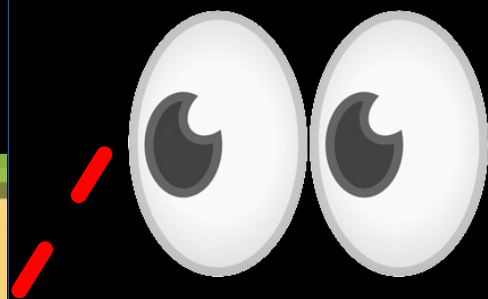
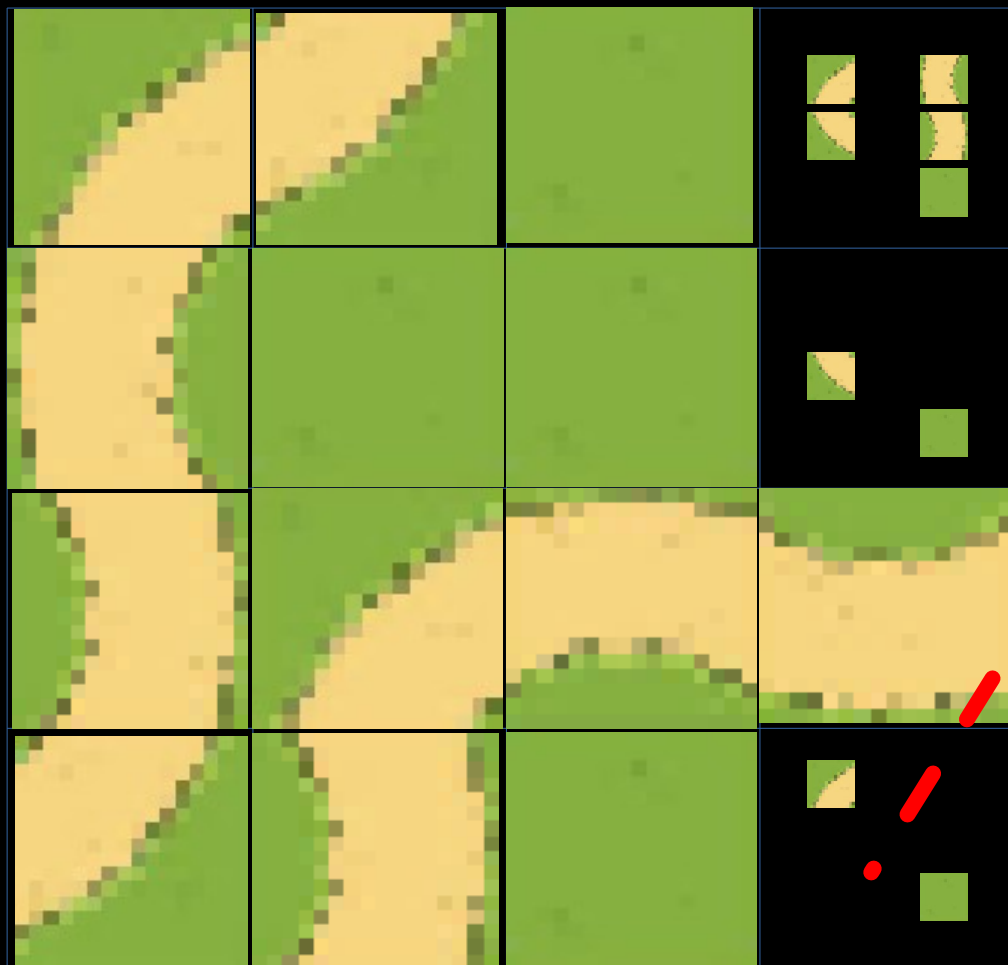
How it works?



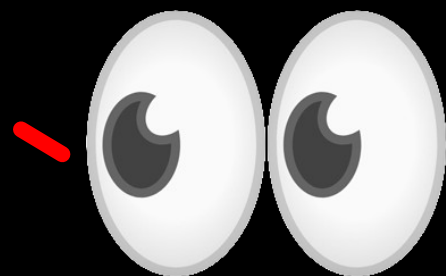
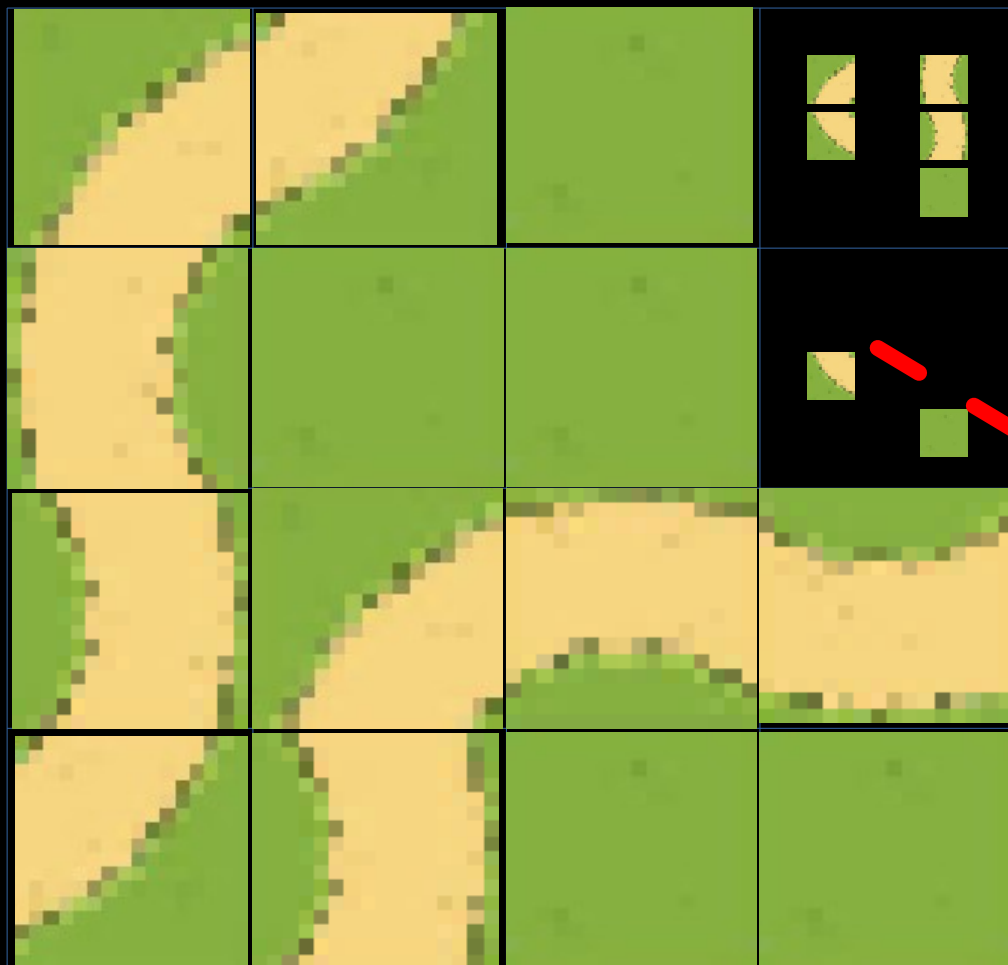
How it works?



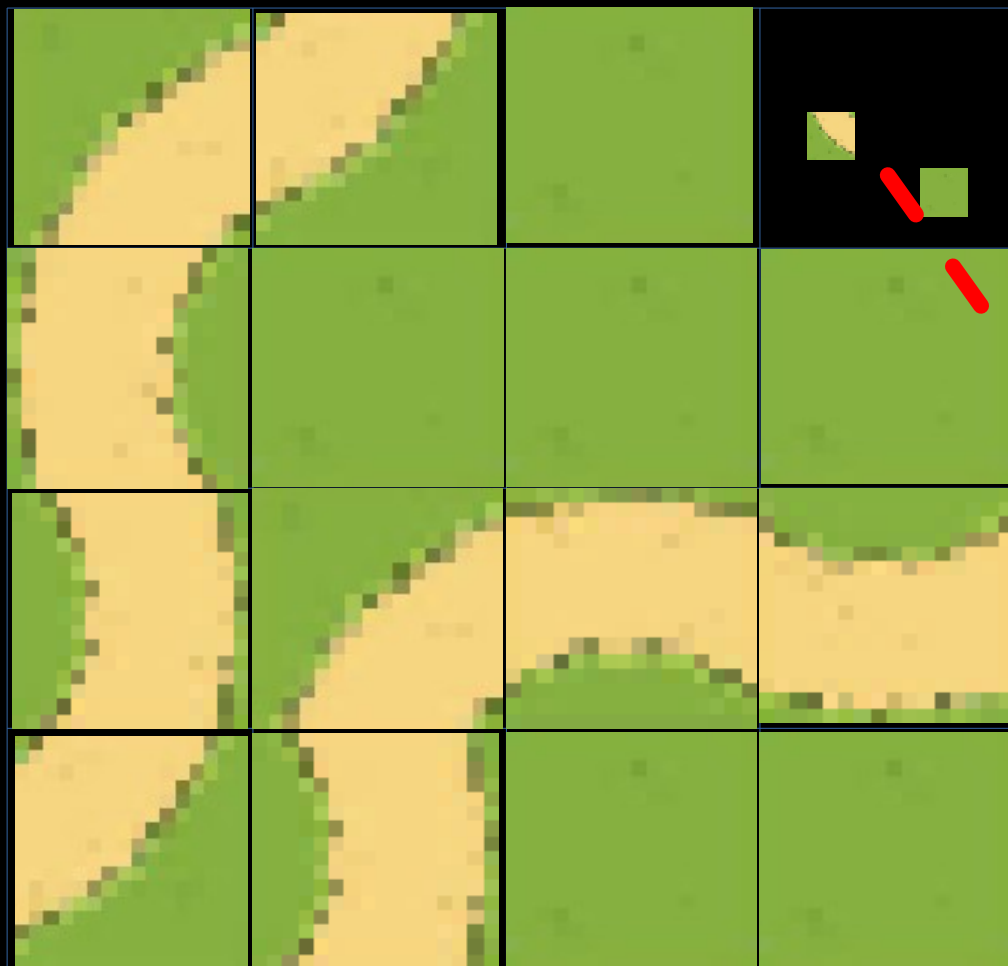
How it works?



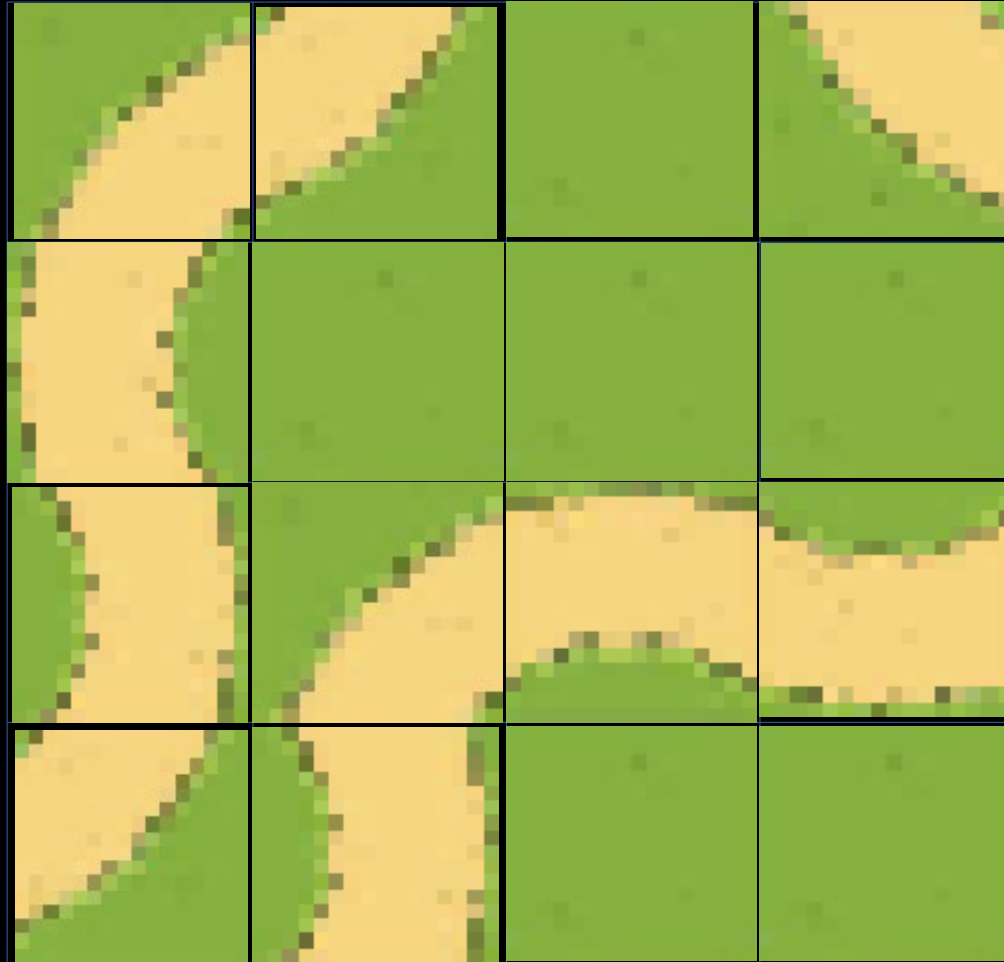
How it works?



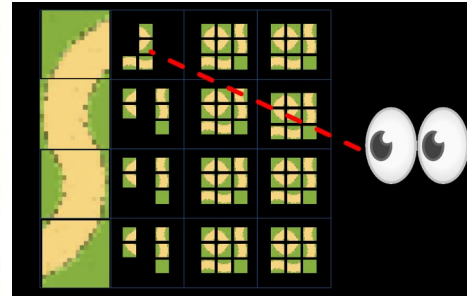
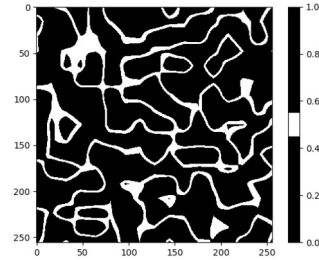
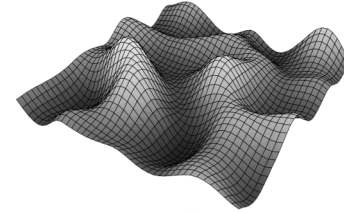
How it works?



How it works?



# Why is it not perfect?



Why is it not perfect?

5	3			7				
6			1	9	5			
	9	8					6	
8				6				3
4			8		3			1
7				2				6
	6					2	8	
			4	1	9			5
				8			7	9

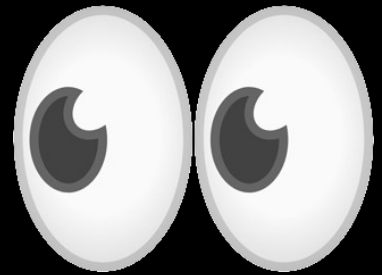
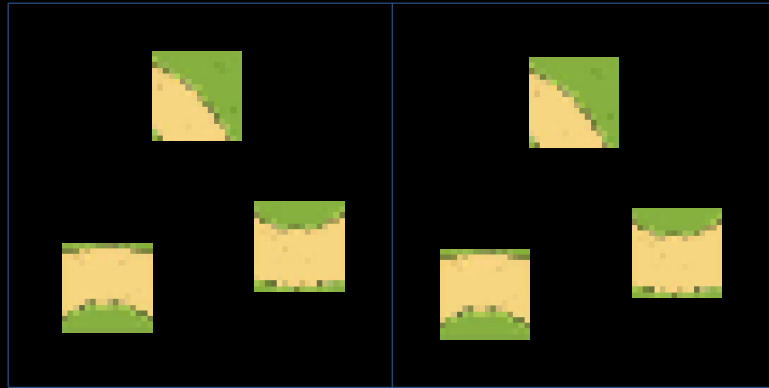


Why is it not perfect?

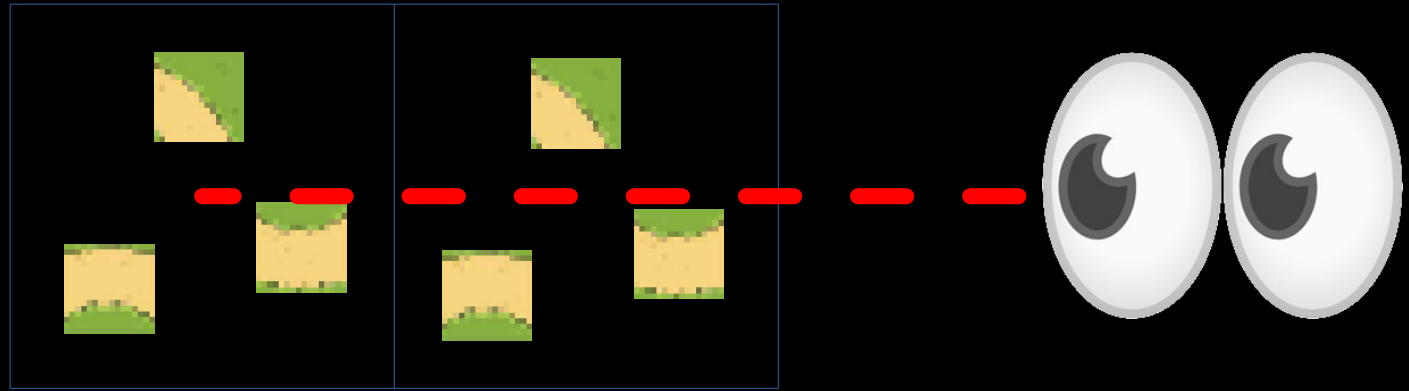
5	3			7				
6			1	9	5			
	9	8				6		
8				5				3
4			8		3			1
7				2				6
	6				2	8		
			4	1	9			5
				8			7	9

NP  
COMPLETE

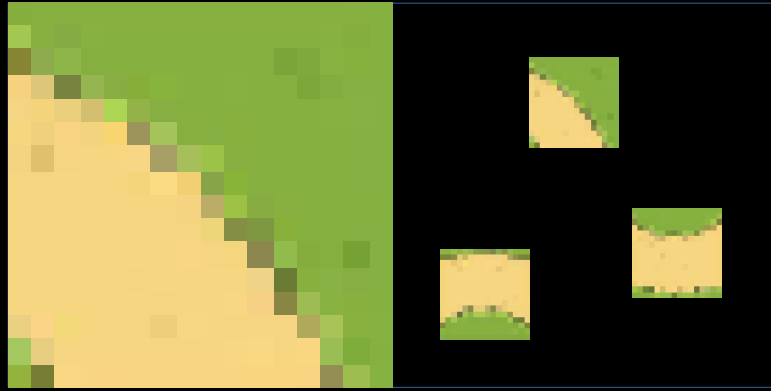
Why is it not perfect?



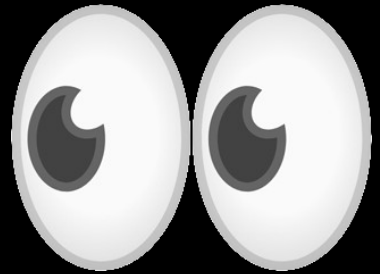
Why is it not perfect?



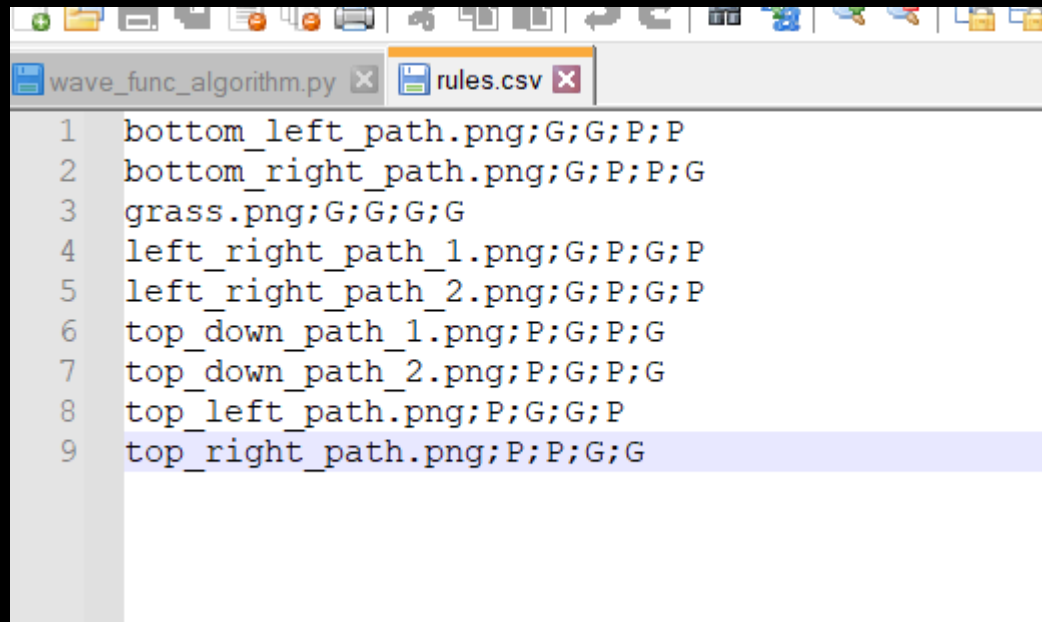
Why is it not perfect?



?

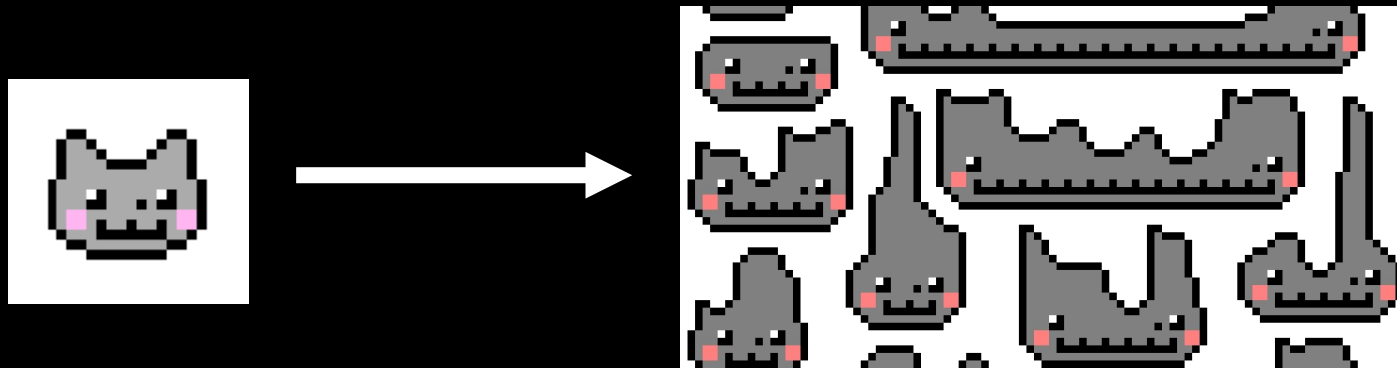


## Why is it not perfect?



```
1 bottom_left_path.png;G;G;P;P
2 bottom_right_path.png;G;P;P;G
3 grass.png;G;G;G;G
4 left_right_path_1.png;G;P;G;P
5 left_right_path_2.png;G;P;G;P
6 top_down_path_1.png;P;G;P;G
7 top_down_path_2.png;P;G;P;G
8 top_left_path.png;P;G;G;P
9 top_right_path.png;P;P;G;G
```

Why is it not perfect?



(◕‿◕)

<https://www.youtube.com/watch?v=bskLi6i946Q>

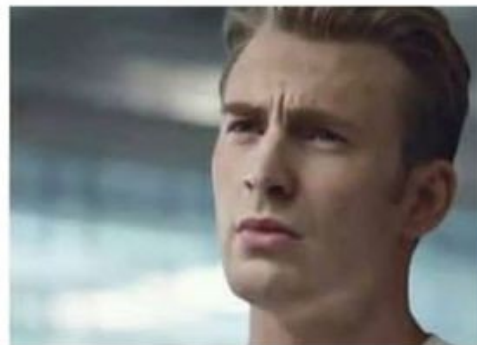
<https://www.youtube.com/watch?v=TO0Tx3w5abQ>

## Po mojej okropnej prezentacji

**Ja**



**Klasa**



**Nauczyciel**



**Mój ziomek**





## Sources

[https://www.youtube.com/watch?v=rI\\_y2GAlQFM](https://www.youtube.com/watch?v=rI_y2GAlQFM)

<https://github.com/mxgmnn/WaveFunctionCollapse>

<https://www.youtube.com/watch?v=bskLi6i946Q>

<https://www.youtube.com/watch?v=TO0Tx3w5abQ>

<https://80.lv/articles/using-the-wave-function-collapse-algorithm-for-infinite-procedural-cities/>

<https://obrazkowo.pl/bbb022ad415c1928ce0459454c8c1290/Po-prezentacji-kt%C3%B3ra-ma-mi-uratowa%C4%87-dupe-na-koniec-roku>