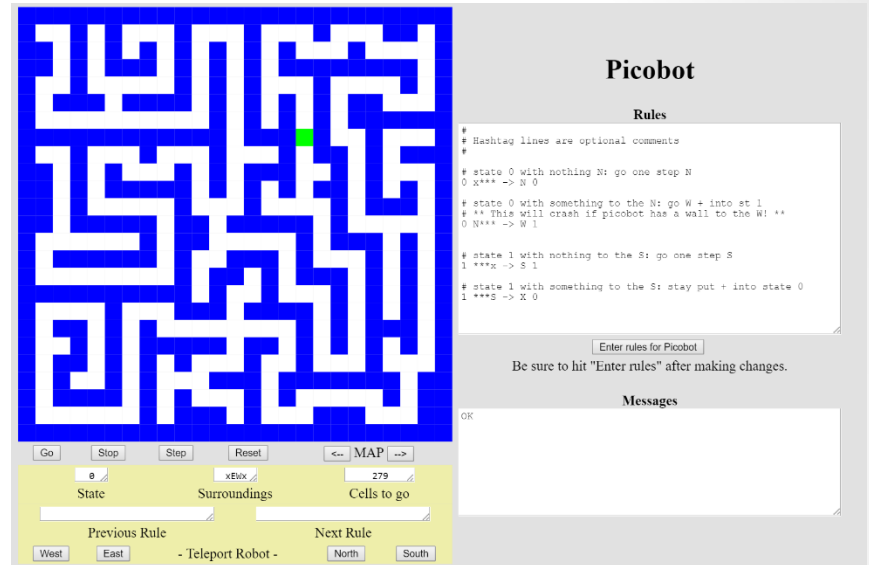


# Finite State Machines (FSM)

# Tying it all together

- Remember picobot?



**Picobot**

**Rules**

```
# Hash-tag lines are optional comments
#
# state 0 with nothing N: go one step N
0 x*** -> N 0
# state 0 with something to the N: go W + into st 1
# ** This will crash if picobot has a wall to the W! **
0 N*** -> W 1
# state 1 with nothing to the S: go one step S
1 **** -> S 1
# state 1 with something to the S: stay put + into state 0
1 **** -> X 0
```

Enter rules for Picobot

Be sure to hit "Enter rules" after making changes.

Messages

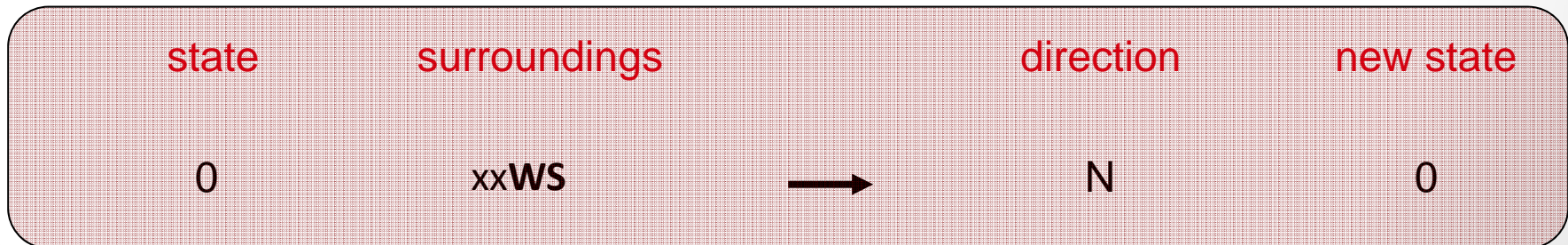
OK

Go Stop Step Reset MAP

State: 0 Surroundings: xEt0x Cells to go: 279

Previous Rule: Next Rule

West East - Teleport Robot - North South

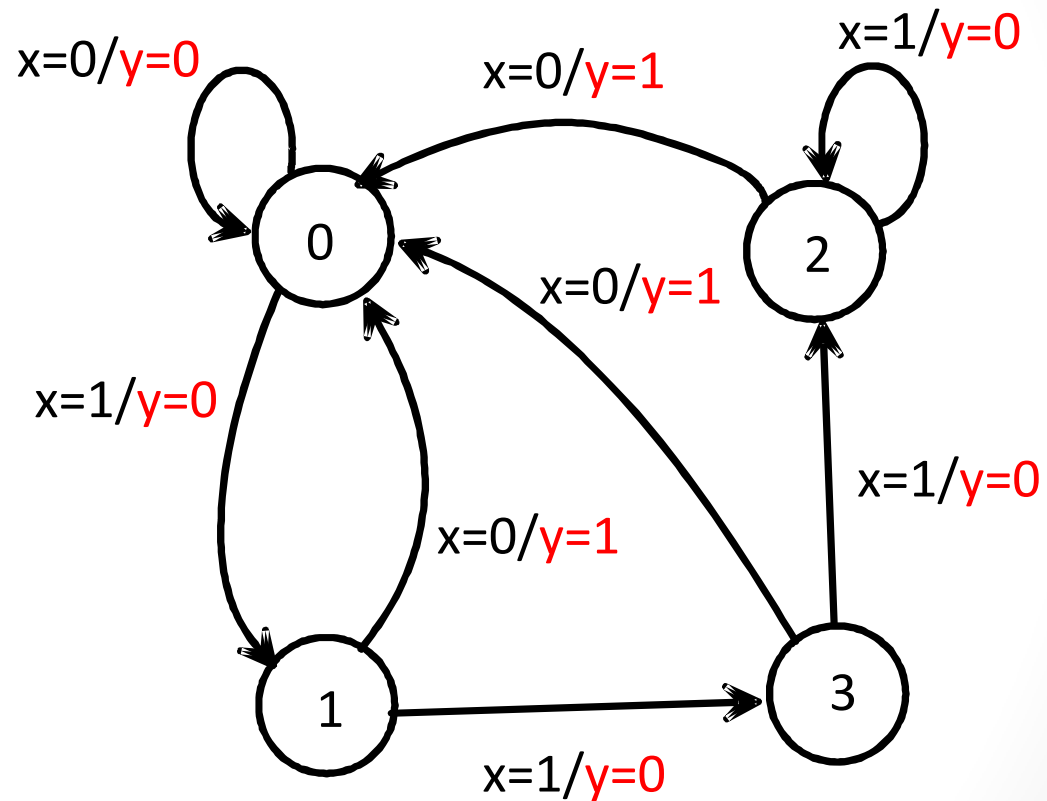


# Finite State Machine (FSM)

State:  $s$

Input:  $x$

Output:  $y$



Mealy FSM

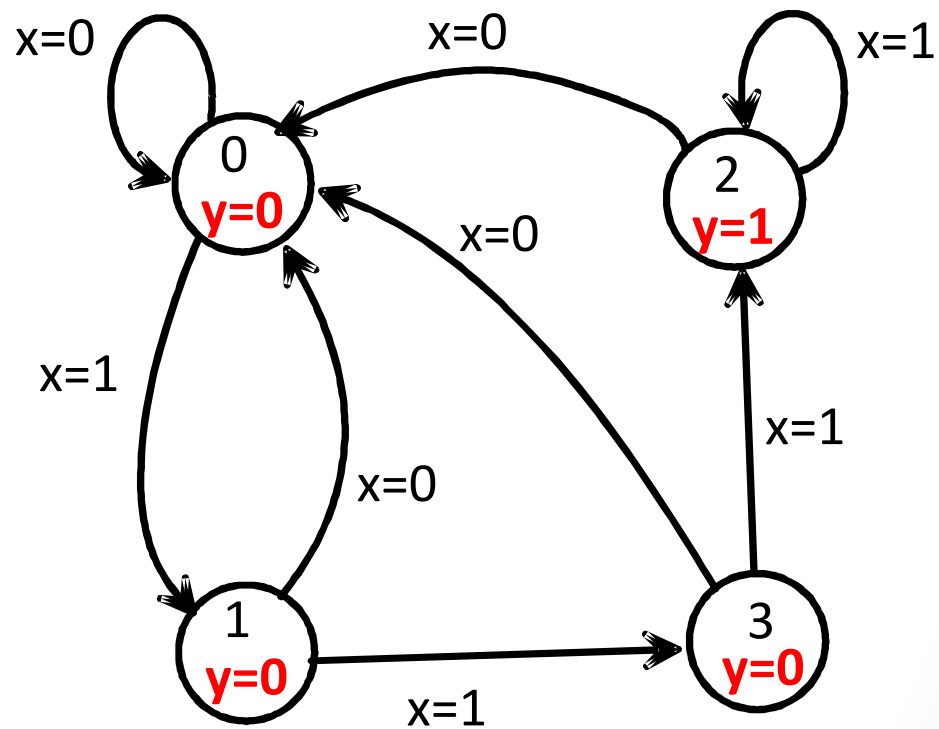
# Finite State Machine (FSM)

State:  $s$

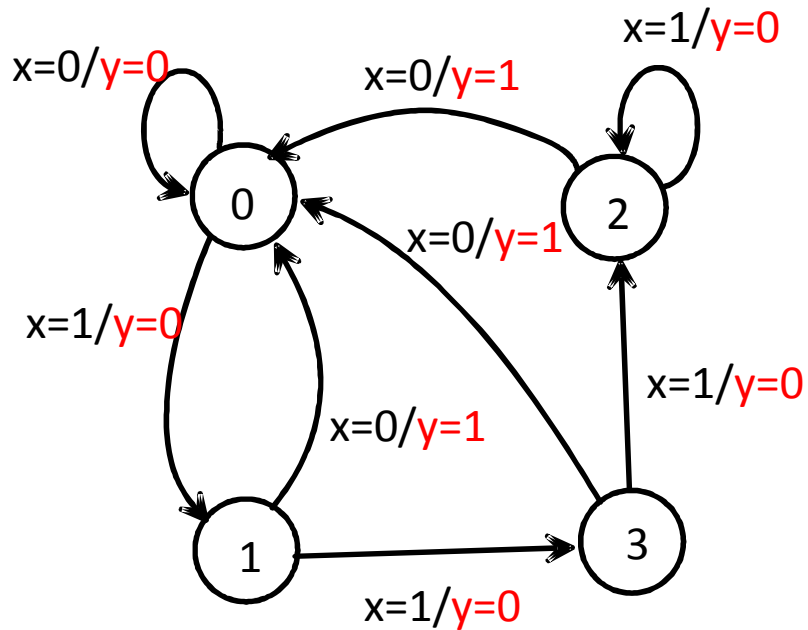
Input:  $x$

Output:  $y$

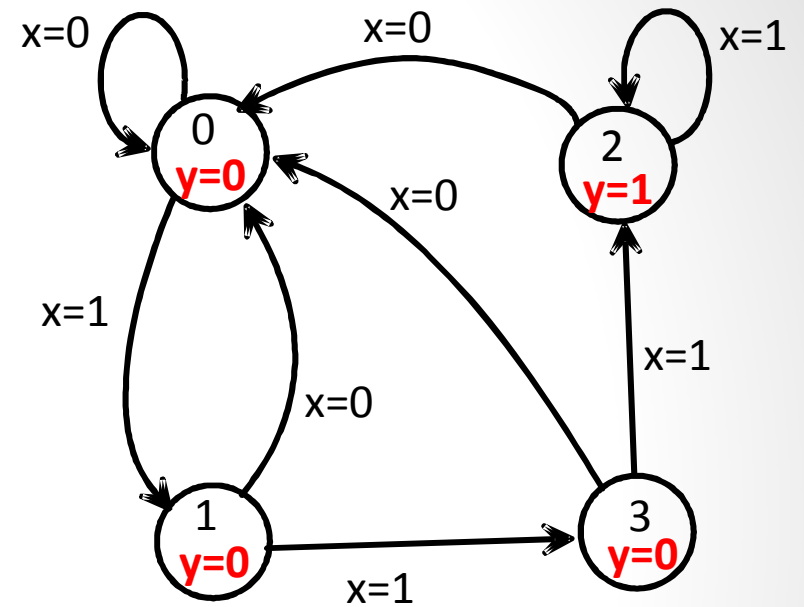
Moore FSM



## Mealy FSM



## Moore FSM



What is picobot?

- A. Mealy
- B. Moore
- C. Neither
- D. Both
- E. I don't know

state	surroundings	direction	new state
0	xxWS	→	0

```
if (state == 0):
    if (x == 0):
        y = 0
        next_state = 0
    elif (x == 1):
        y = 0
        next_state = 1

elif (state == 1):
    if (x == 0):
        y = 1
        next_state = 0
    elif (x == 1):
        y = 0
        next_state = 3
```

...

