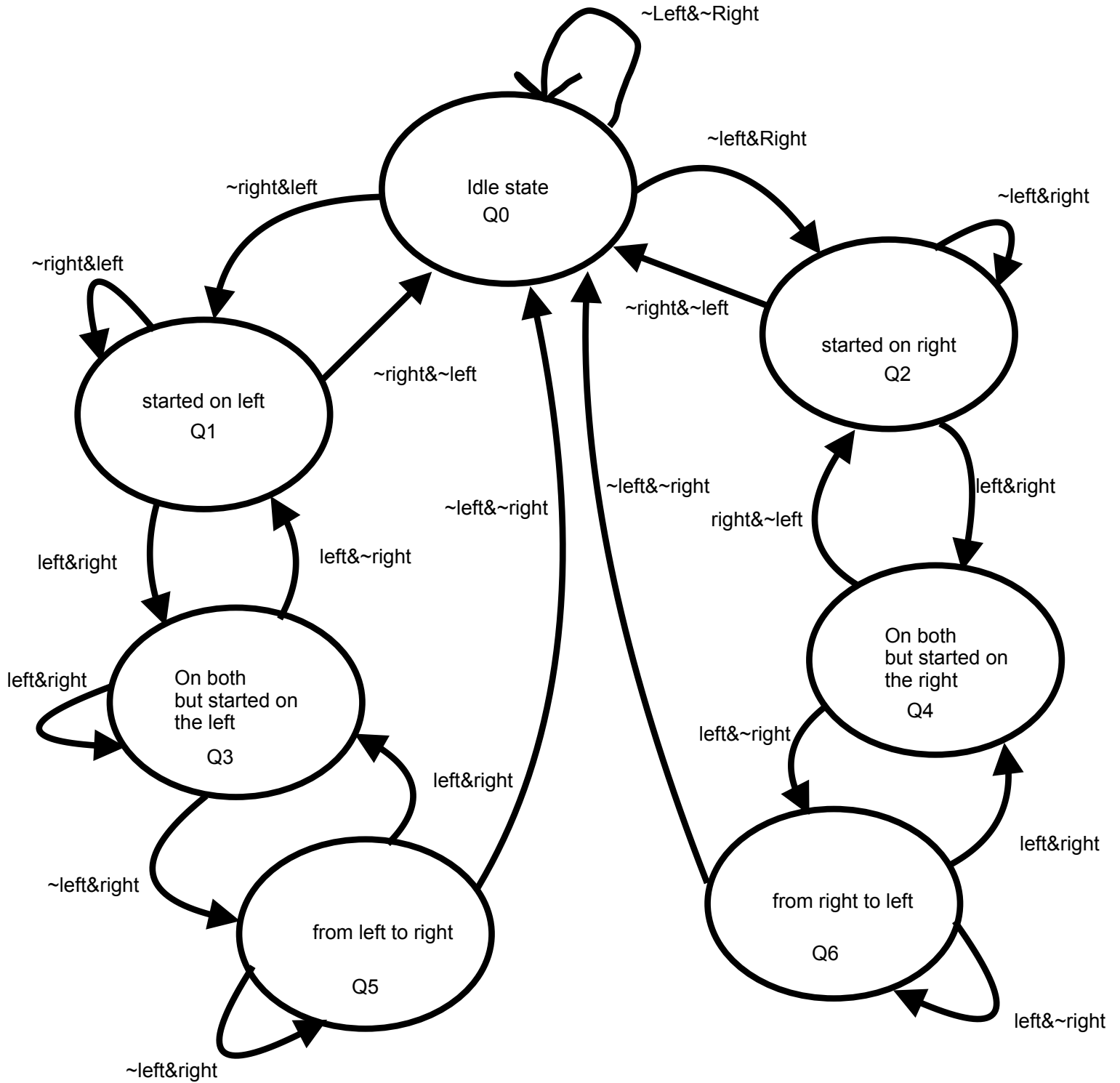# State machine

Inputs:
left sensor
right sensor
clk
outputs:
increment up
increment down
reset counter
start the counter
show time

logic for outputs and states:

for reset counter: Q0 & ~right & left | Q0 & ~left&right

for start counter: ~Q0

display: ~Q0

for incrementing up:Q6 & ~left & ~right

for incrementing down:Q5 & ~Left & ~right

Q0: ~left & ~right

Q1: Q0 & ~right & left || Q1 & ~right & left || Q3 & ~right & left

Q2: Q0 & right & ~left || Q2 & right & ~left || Q4 & right & ~left

Q3: Q1 & left & right || Q3 & left & right || Q5 & left & right

Q4: Q2 & left & right || Q4 & left & right || Q6 & left & right

Q5: Q3 & right & ~left || Q5 & right & ~left

Q6: Q4 & ~right & left || Q6 & ~right & left