Bennett MT1 Review

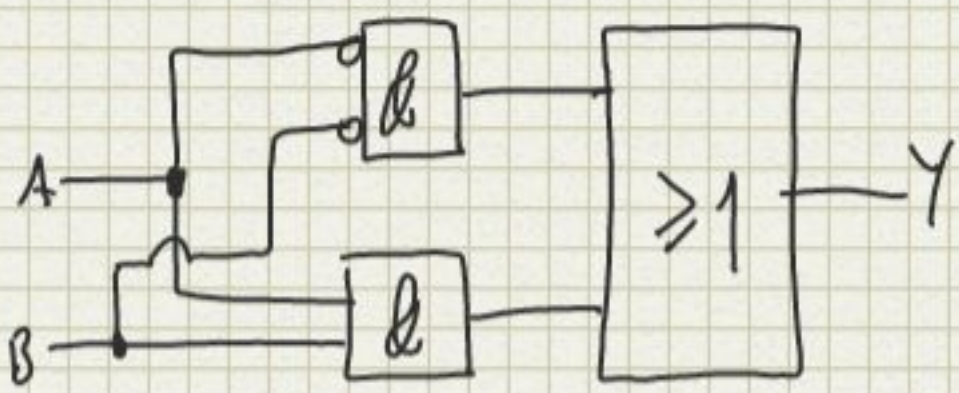
20.4.18

$Y = Y1 \vee Y2 = (\bar{A} \wedge \bar{B}) \vee (A \wedge B)$

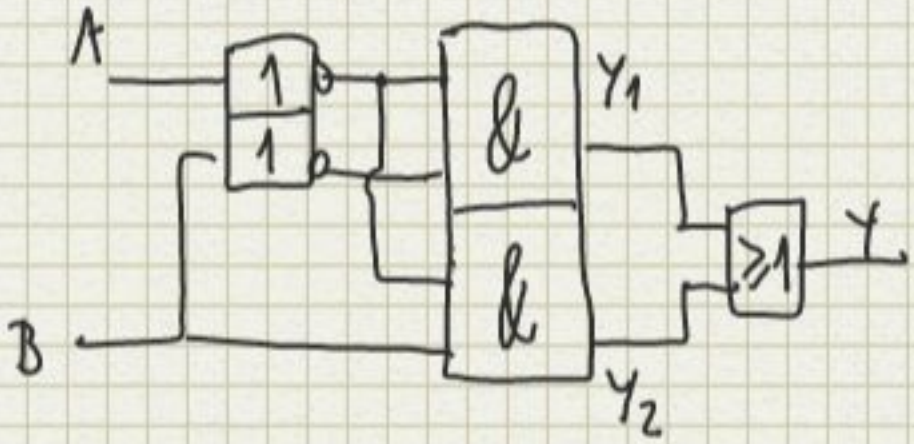
- create func chart for above func
- " logic plan using function blocks

slides!

A	B	Y_1	Y_2	Y
0	0	1	0	1
0	1	0	0	0
1	0	0	0	0
1	1	0	1	1



2)



create function chart

" equation

A	B	Y_1	Y_2	Y
0	0	1	0	1
0	1	0	1	1
1	0	0	0	0
1	1	0	0	0

$Y = Y_1 \vee Y_2 = (\bar{A} \wedge \bar{B}) \vee (\bar{A} \wedge B) = \bar{A}$

Draw the logic plan for a RS-flip-flop using base elements such as AND, OR, NOT

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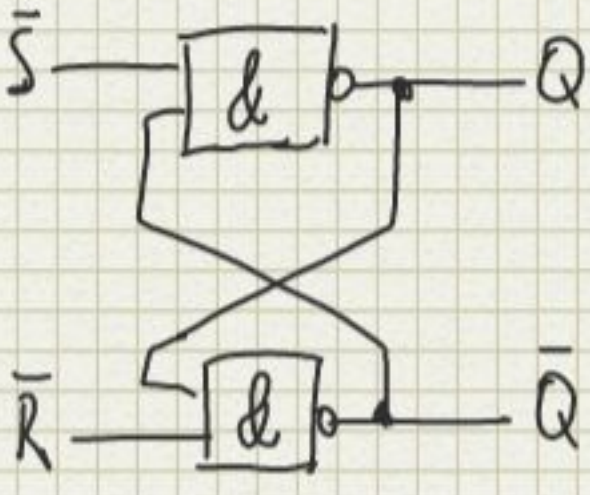
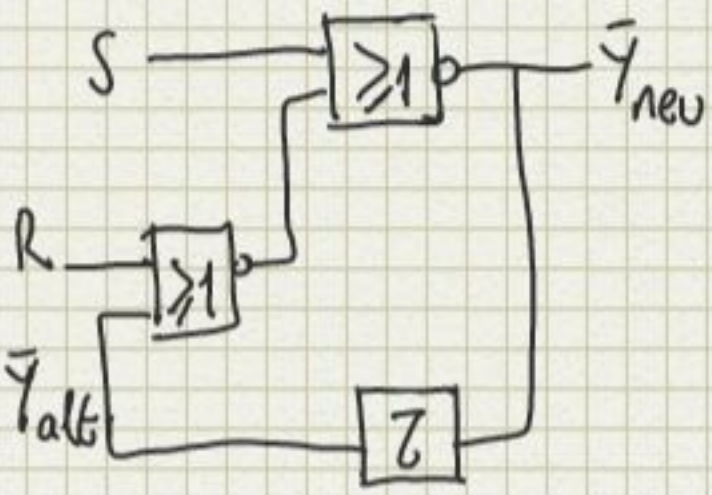
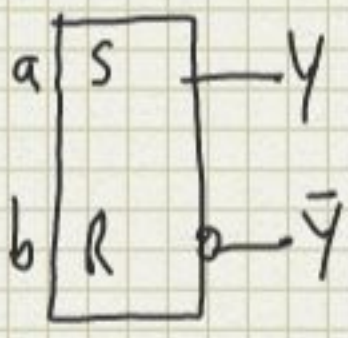
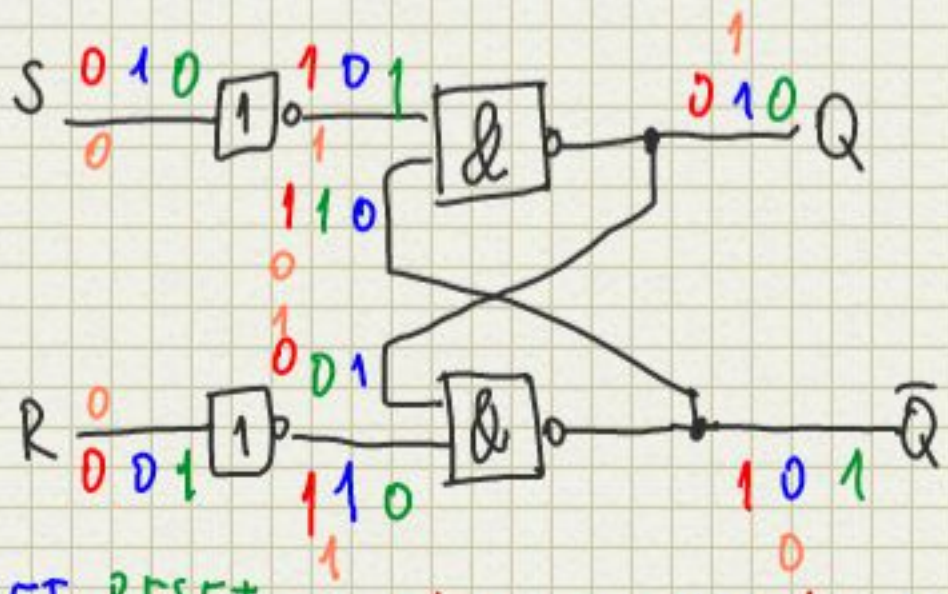




a	b	Y	
0	0	Y	no change
1	0	1	set
0	1	0	reset
1	1	?	forbidden



bistable gates - RS flip flop



SET RESET no change situation 1 ncs 2

NAND gate

A	B	Q
0	0	1
1	0	1
0	1	1
1	1	0

RS flip flop

S	R	$\overline{S}$	$\overline{R}$	Q
0	0	1	1	no change
1	0	0	1	1
0	1	1	0	0
1	1	0	0	–

Q_{old1} Q_{new1} Q_{old2} Q_{new2}

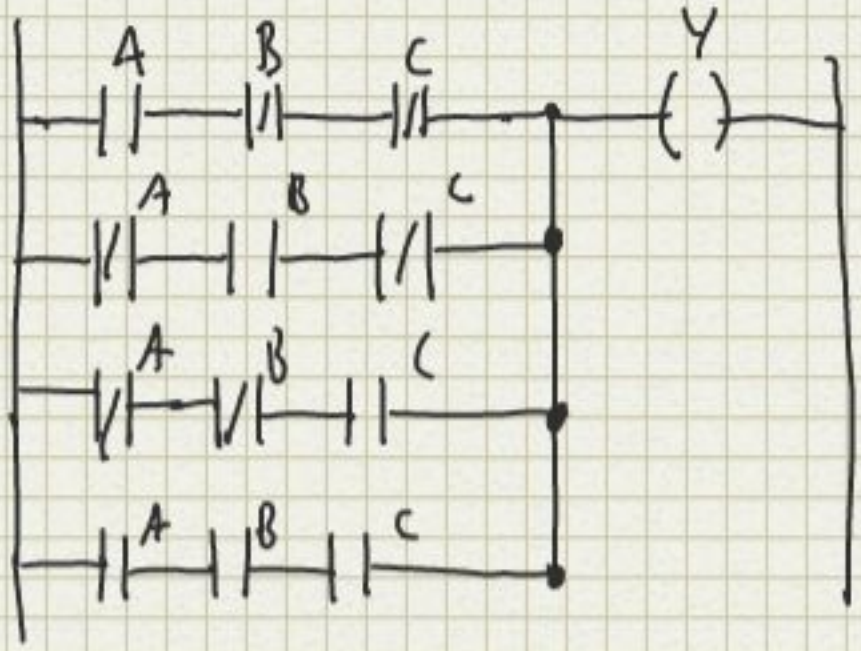
?

A 3 story building has a stairway with light Y and a total of 3 switches A,B,C. Create a PLC program that changes the state of light by switching any of the switches A, B or C

- draw the function chart
- " block diagram
- create a PLC diagram

	C	B	A	Y_1	Y_2	Y_3	Y_4	Y
①	0	0	0	0	0	0	0	0
②	0	0	1	1	0	0	0	1
②	0	1	0		1			1
③	0	1	1					0
②	1	0	0			1		1
③	1	0	1					0
③	1	1	0					0
	1	1	1				1	1

$$Y = Y_1 \vee Y_2 \vee Y_3 \vee Y_4 = (A \wedge \bar{B} \wedge \bar{C}) \vee (\bar{A} \wedge B \wedge \bar{C}) \vee (\bar{A} \wedge \bar{B} \wedge C) \vee (A \wedge B \wedge C)$$



real time → defined response time maybe 3ms, maybe 1 week