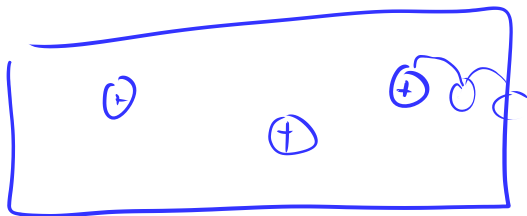
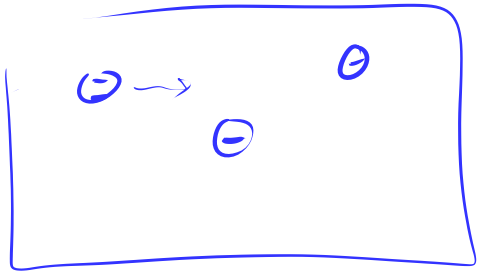


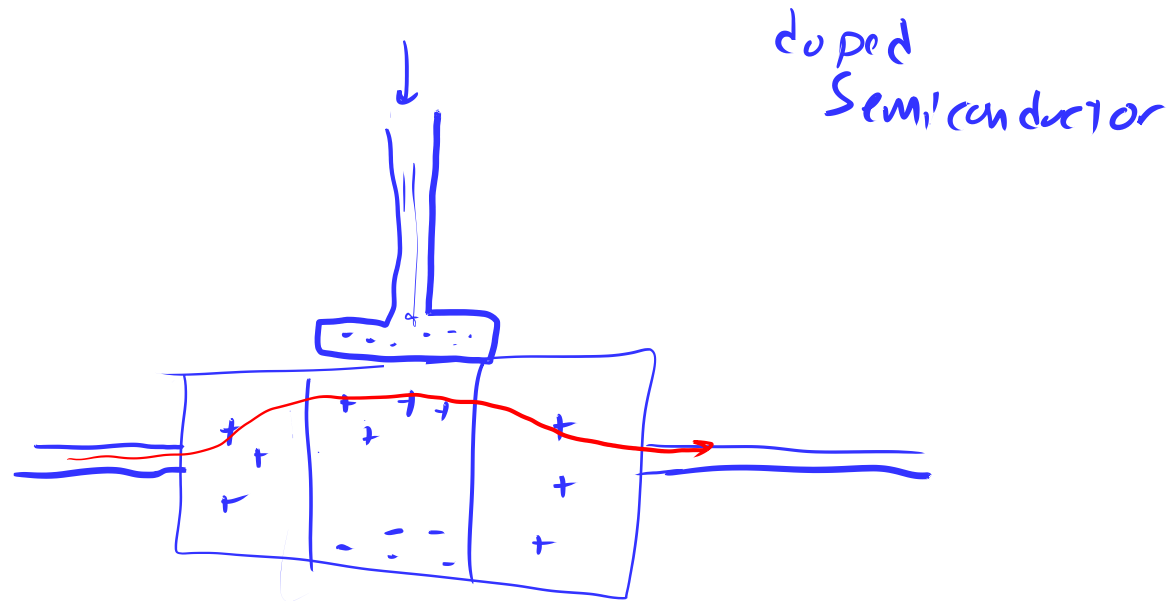


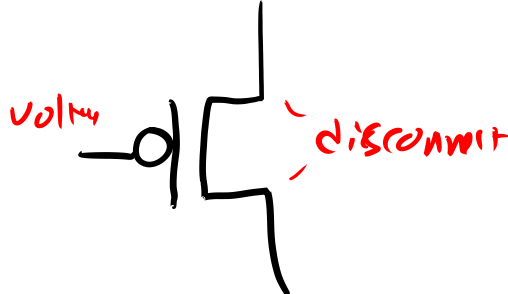
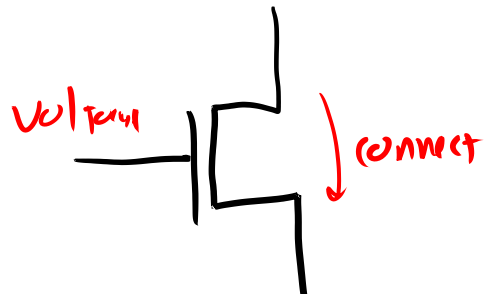
Electricity

- Voltage — Pressure
- Current — electrons move



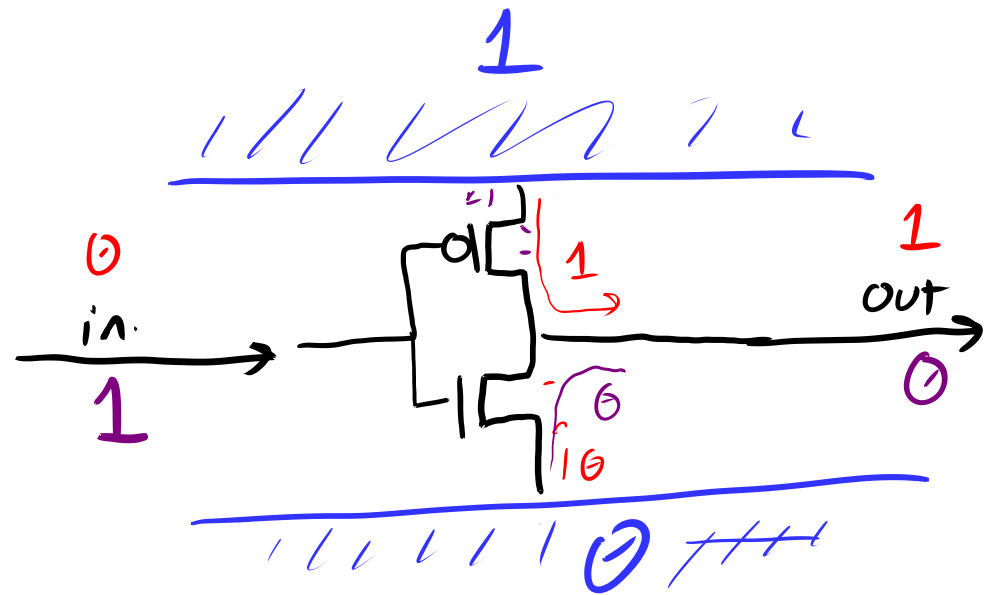
Transistor





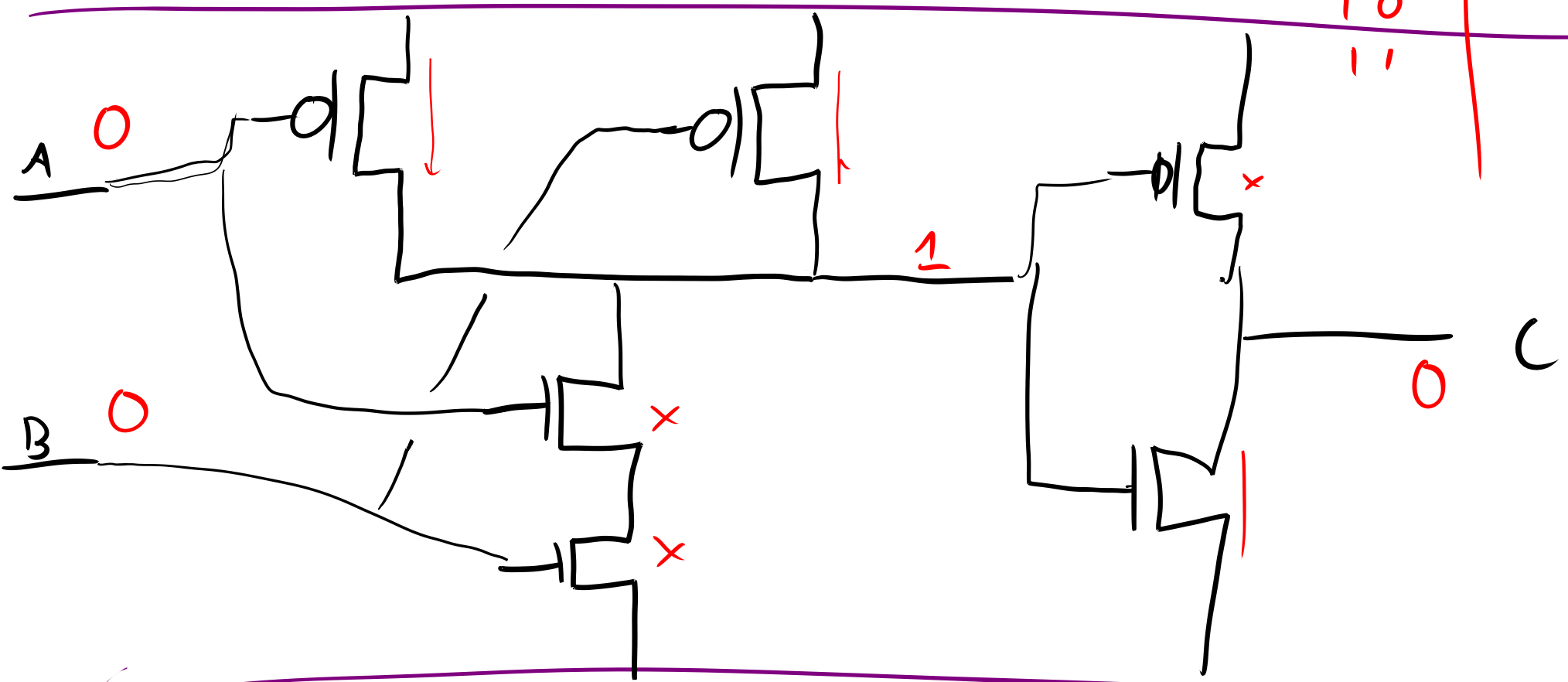
2 STATES
 0 on false
 1 off true

NOT ! ~



1 / 1 / 1 / 1 / 1 / 1

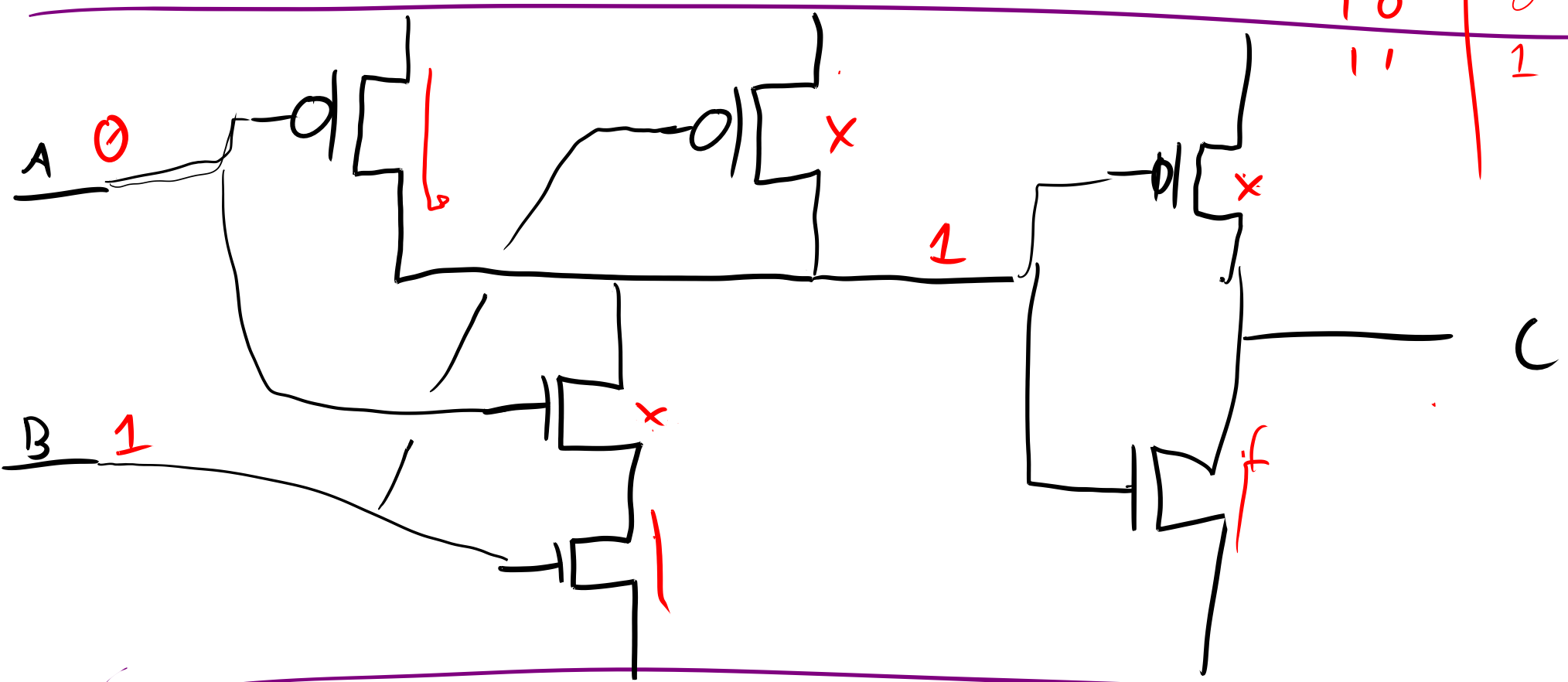
A	B	C
0	0	0
0	1	
1	0	
1	1	



1 / 1 / 1 / 1 / 1 / 1

1 1 1 1 1 1

A	B	C
0	0	0
0	1	0
1	0	0
1	1	1



1 1 1 1 1 1

not-boolean values

0

1

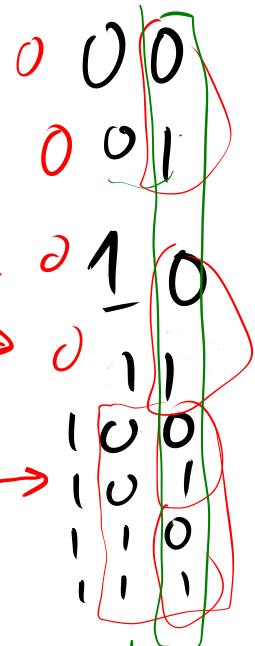
0

1

→ any arithmetic / Logic operation

ALU Unit

3-dig num use only [0 and 1]



$x == x_2 \wedge \neg x_1 \wedge x_0$

$x_0 \leftarrow \neg x_0$
 $x_1 \leftarrow x_1 \oplus x_0$
 $x_2 \leftarrow x_2 \oplus (x_0 \wedge x_1)$

Selection

$a[i]$

n-entries array

a_0 & ($i == 0$) |
 a_1 & ($i == 1$) |
 a_2 & ($i == 2$) |
...
 a_{103} & ($i == 103$) |
...

i
00
01
10
11

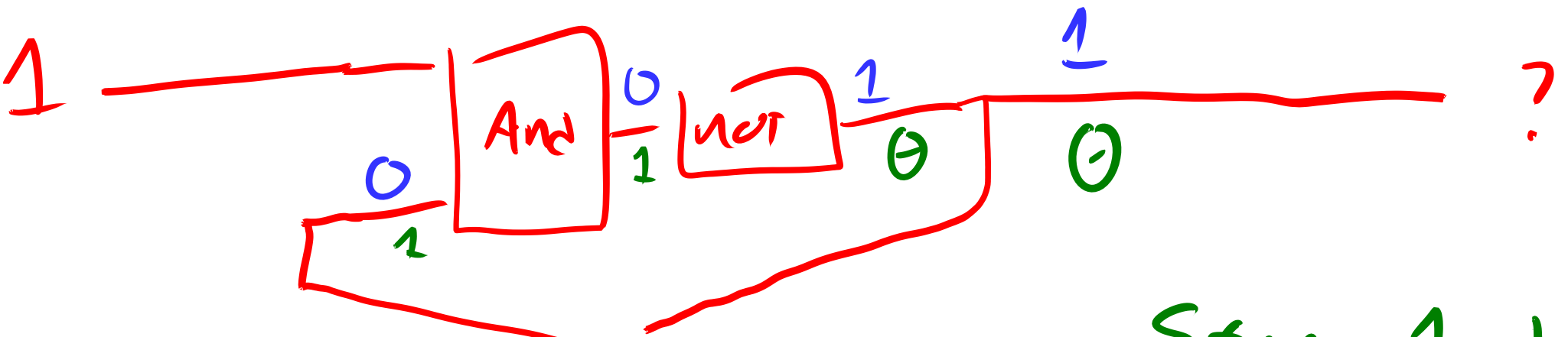
2-entries array

$a = \{ x, y \}$

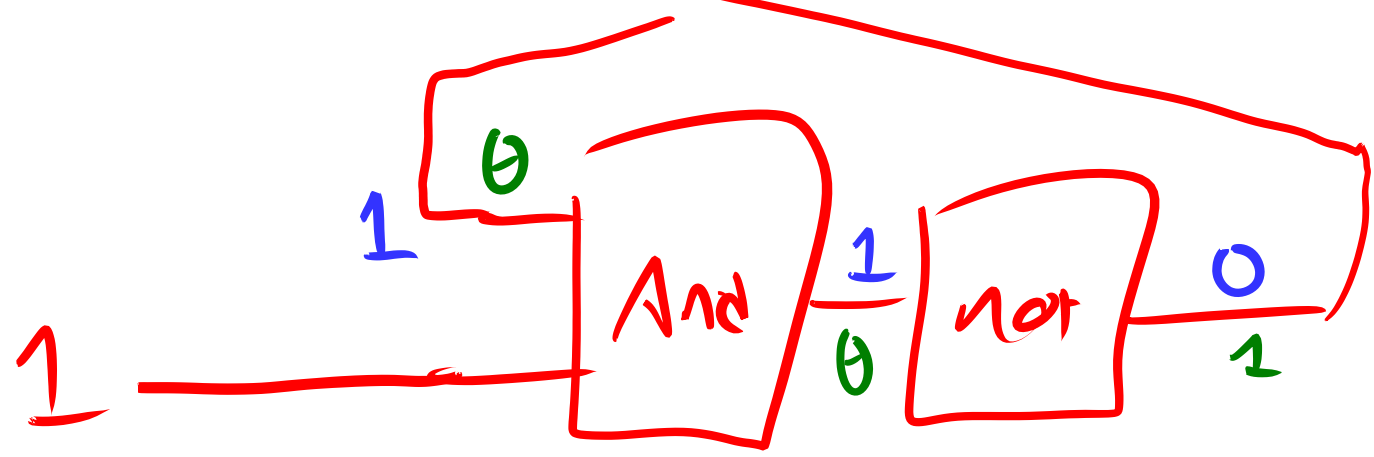
$i = 0$ or 1

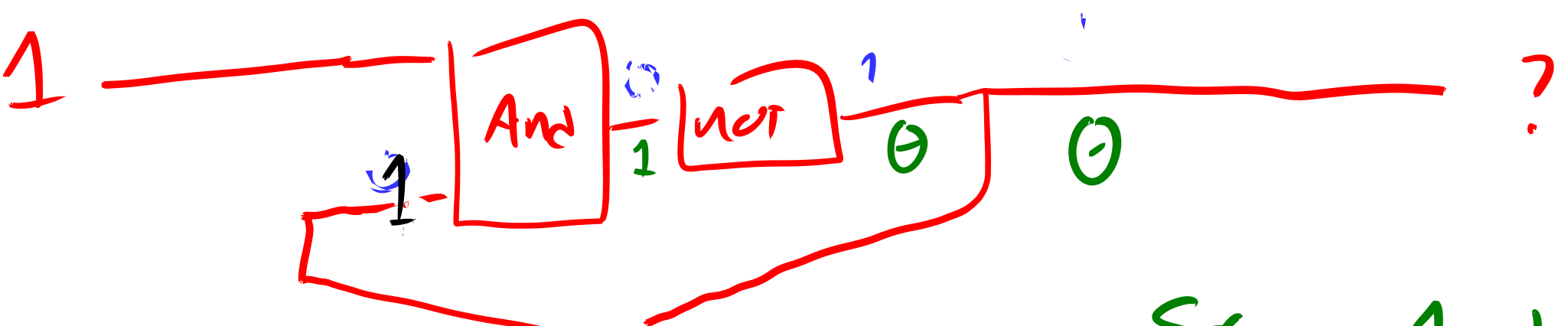
i	a	$a[i]$
0	?	x
1	?	y

$$\begin{matrix} \overbrace{1}^y & & \overbrace{0}^0 \\ \left(\begin{matrix} i & y \\ 0 & 0 \end{matrix} \right) & | & \left(\begin{matrix} (i) & x \\ 1 & x \end{matrix} \right) \end{matrix} = a[i]$$

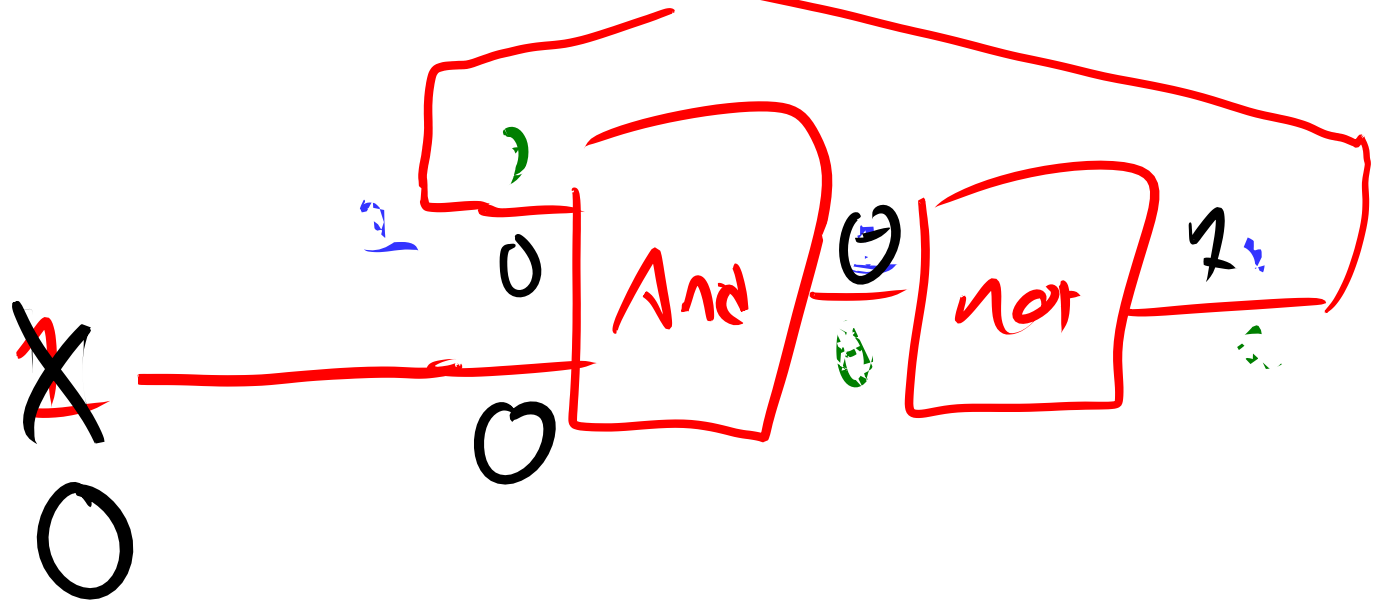


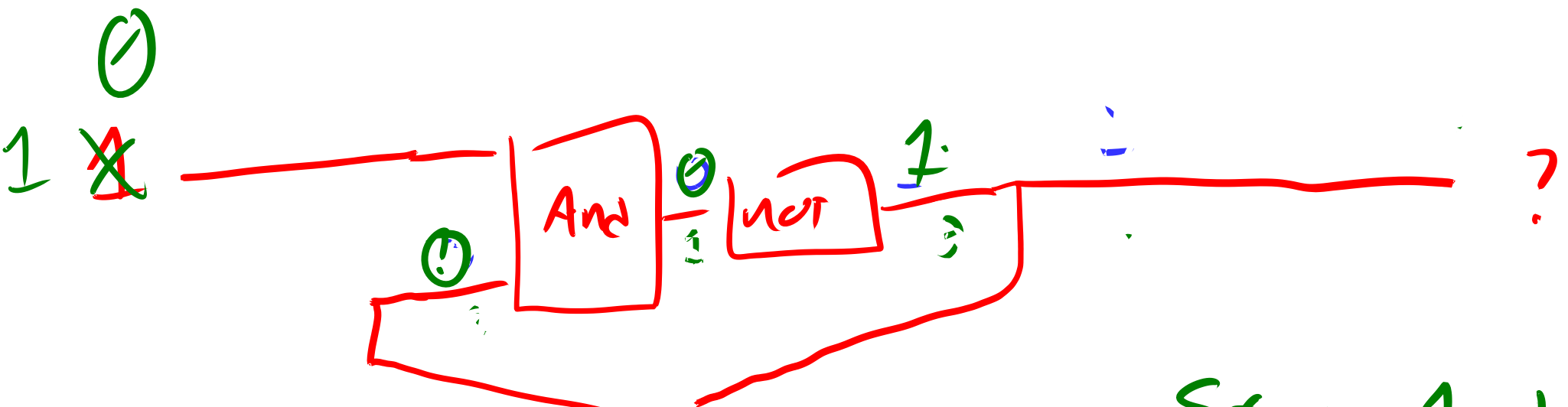
Stores 1 bit



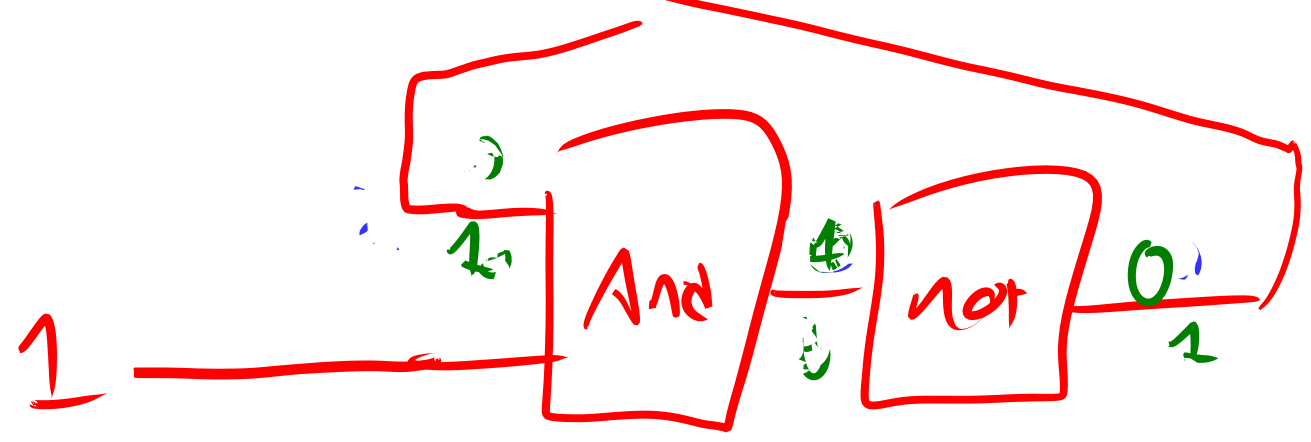


Stores 1 bit





Stores 1 bit



Memory

